



January 2020

**Level 3 Nationals
Information Technology**

**Unit 2
Creating Systems to Manage Information
(31761H)**

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What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass. The grade awarded for each unit contributes proportionately to the overall qualification grade and each unit should always be viewed in the context of its impact on the whole qualification.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

Grade boundaries for this, and all other papers, are on the website via this link:

<http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html>

Unit 2 Creating Systems to Manage Information

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	8	16	27	38

Introduction

Please note there is a solution, marking guidance and two marked scripts available for use with this examiner's report.

The resources are available [here](#) and will be referred to throughout this report.

This unit is a mandatory synoptic unit, which requires learners to complete two set tasks to design, create, test and evaluate a relational database system that manages information. The scenarios in this examination were based around a music festival.

This was the first assessment using the new examination structure:

- part A – normalisation, implementing the relational database structure, building queries and a report, testing and evaluating the relational database structure
- part B – the interface i.e. two forms, testing and evaluating the interface.

Many learners coped well with the content, requirements and degree of difficulty; however, it was clear some learners were not ready for assessment i.e. not fully prepared in terms of the new structure or without the necessary skills to access the tasks or prepare the evidence.

In terms of administration there were several learners who did not follow the guidelines i.e. only required to submit pdf versions of the activities and the final database for Part B. From summer 2020 onward, learners will be required to submit their databases for Part A and Part B. These are for administration purposes only and **do not** get marked.

Most centres printed the required documents and sent them with the USB or disc. However, if possible, USBs are preferable as not all computers have disc drives which could prove difficult for some examiners. Increasingly, examiners are unable to access learner work due to password protection. If centres are password protecting USBs/CDs then they must ensure Pearson are informed of the password so that it can be passed to the examiner.

Centres **must** use the examination templates provided with each examination paper. There were several learners/centres who failed to do this. The templates are designed to give learners the best opportunity to present **all** the evidence required. Learners/centres who did not use the templates tended to miss out important evidence. The templates are provided as .rtf files. Centres may choose to use Word versions of these templates. The templates do not change from one examination series to another so putting the templates as they are given, other than the document type, into examination areas is acceptable. However, learners must submit PDF versions only.

In Part A, learners **must not** create any new attributes, they should use ***all, and only***, the attributes given in the data extract. Please note using all and only the attributes given does not mean that learners cannot rename attributes. This is perfectly acceptable. In Part B, learners should not change the structure of the database at all. They should build their interface around the structure exactly as it is given.

Part A Activity 1 – Database relationship screenprint

This task is designed to test the learners' knowledge and skills in terms of database modelling via creating a database skeleton structure that reflects third normal form. They should use **all, and only**, the attributes given in the data extract.

Teachers are advised to download Script A, Script B, the marking guidance and the database solution and the written solution. In terms of this task these pages are of relevance:

Script A	3
Script B	3
Marking Guidance	4-5
Example Solution	5

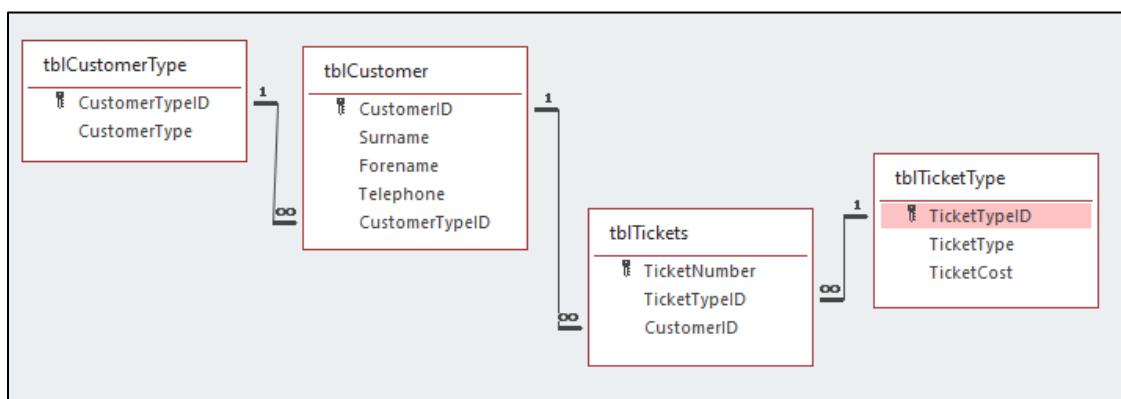
Several learners/centres are wasting valuable time drawing ERDs using word processing or graphics software. In many instances this meant some marks could not be awarded because the relationships were not evidenced correctly. To reiterate comments made in previous Lead Examiner reports, the evidence expected is the **database relationship screenprint** taken from the **actual** database.

Some learners are also wasting valuable time annotating their screenprint. There is no requirement to annotate and annotations form no part of awarding marks.

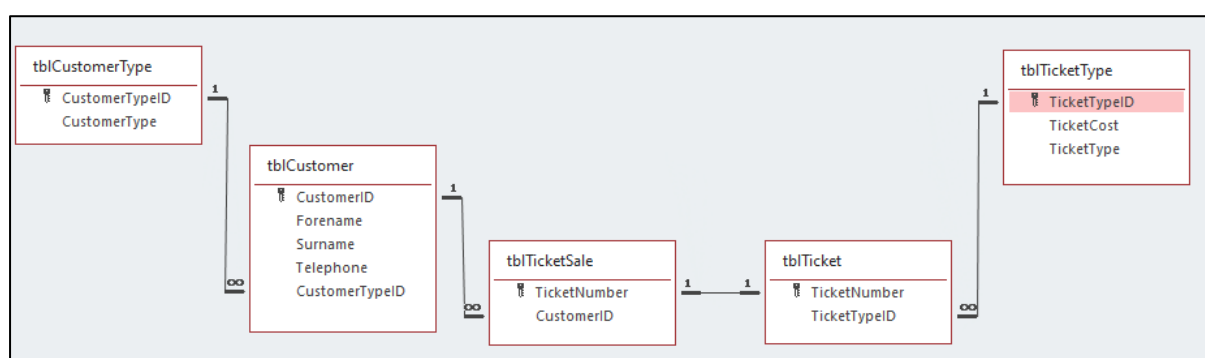
The screenprint should include:

- each table in their solution
- all the fields in each table
- primary keys that have been assigned
- foreign keys (where appropriate)
- relationships between tables
- the enforcement of referential integrity

Four table solution:



Five table solution:

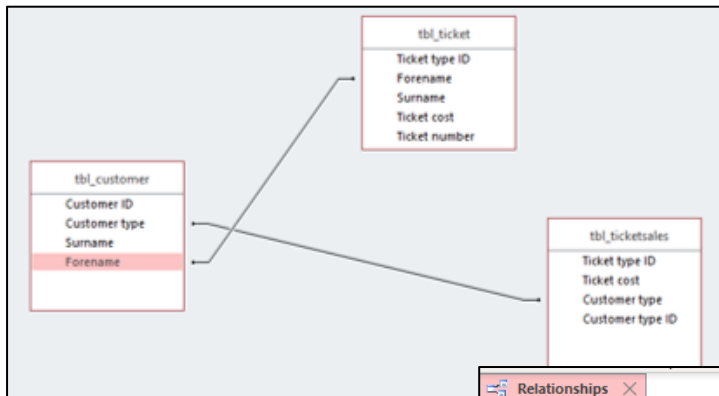


Whilst many learners successfully normalised the given extract, it was surprising to see several learners submitting a three-table solution. Whether this was based on the number of tables in the additional sample material, or not fully understanding the normalisation process is unknown. Centres should continue to stress that relying on sample materials and reading the scenario and activity instructions is not enough - the extract itself must be studied carefully and normalisation carried out.

Where marks were not achieved it tended to be because:

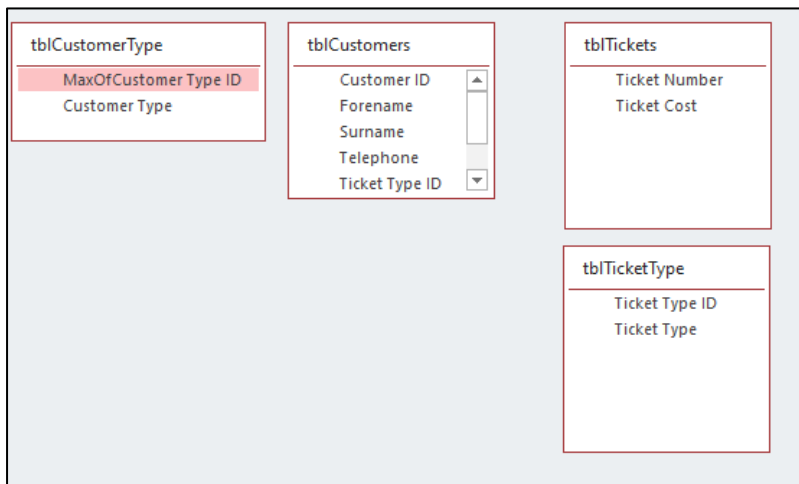
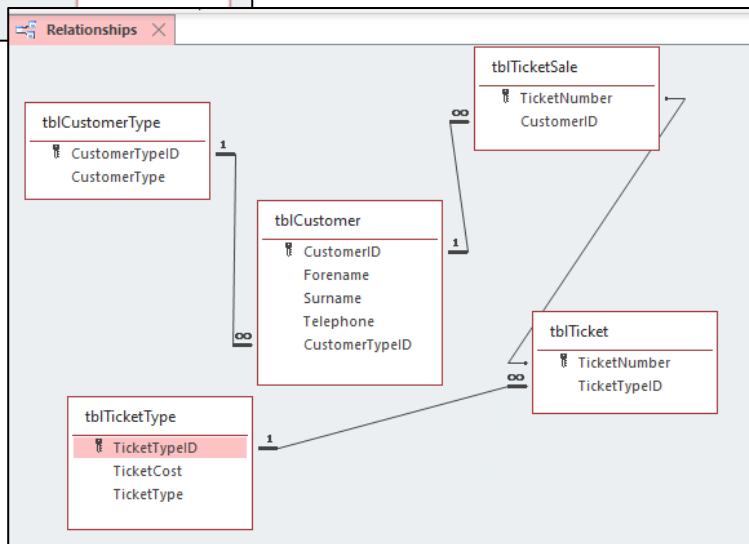
1. learners did not produce the ERD using a screenshot from their actual database
2. learners used a three table solution
3. learners used a five-table solution but did not recognise that this would mean a 1:1 relationship between tickets and ticket sales
4. fields were truncated in tables. Each attribute that cannot be seen or is in the wrong table is taken as an instance of data redundancy.
5. Relationships were incorrect or referential integrity was not enforced
6. links between the table were not on the correct fields

Examples of common errors in screenprints:



The extract has not been normalised correctly. There is significant data re-dundancy, there are no primary keys, incorrect foreign keys, no relationship types etc.

Learner has not enforced referential integrity between tblTicketSale and tblTicket. If they had enforced referential integrity then this solution would have correctly shown the 1:1 relationship



The extract has not been normalised correctly. tblCustomers is truncated so impossible to judge what other fields (if any) are in there.

There are no relationships and no relationship types

There are no primary keys etc.

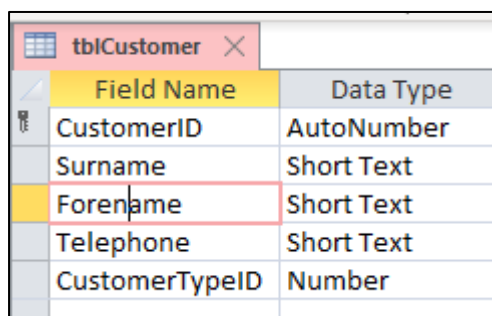
Part A Activity 2 – Table structures and validation

Learners **must** use the template provided in each examination series for this task. Examiners mark the evidence against the learners' own entity relationship screenprint (activity 1) to ensure learners are not double penalised for any errors occurring in activity 1. Where learners have not included an activity 1, their structure is marked against our solution. It is designed to test their ability to build the database tables following standard naming conventions including the good use of field names, relevant data types, assignment of primary and foreign keys and a range of suitable validation.

Teachers are advised to download Script A, Script B, marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	4-6
Script B	4-6
Marking Guidance	6-7
Example Solution	6-7

Traits 1, 2 and 3



Field Name	Data Type
CustomerID	AutoNumber
Surname	Short Text
Forename	Short Text
Telephone	Short Text
CustomerTypeID	Number

The evidence expected is one screen print per table. These screenprints cover all the first three traits.

Trait 1 *Naming conventions*

Whilst many learners did use standard naming conventions and ensured the conventions used were consistent, it was surprising to see how many did not. We are expecting tables to use 'tbl' as the standard convention to identify tables and that fields will consistently use lower/upper case, spaces etc. Table names should be consistent, primary key names should be consistent, other field names should be consistent.

Trait 2 *Keys*

Most learners did manage to ensure the structure evidenced in this activity matched the structure in their activity 1. It is worthwhile advising learners that if they do make changes to the structure in this activity then they should update their screenprint in activity 1.

Trait 3 *Data types*

Many learners did use the correct data types for all fields:

- Telephone, Short Text
- Ticket Price, Currency
- primary keys, any suitable data type
- foreign keys match their primary (eg number -> AutoNumber)
- everything else text

However, where marks were not achieved it tended to be because:

- fields that have a numeric appearance e.g. telephone number but would never form part of a calculation are not appropriate as number data types
- the data types for primary and foreign keys did not match e.g. number mismatched with text etc.

Trait 4 *Validation*

Learners are to provide one screenprint of each of the types of validation listed. The format for previous examinations required multiple screenprints. Learners need to think very carefully about the screenprints they include. The screenprints must show validation that is relevant and appropriate to the scenario and the requirements given in activity 2 and activity 4.

In this paper the evidence required was **one** each of:

- presence check
- length check
- value lookup
- table lookup
- format check

Where more than one example of each had been included, the first example was taken as the evidence to be assessed.

Learners should fully validate their database tables even though only one screenprint is required. It may be that Activity 4 requires the testing of something not specified in Activity 2 e.g. testing of more than one foreign key.

Presence Check

Field Name	Data Type
CustomerID	AutoNumber
Surname	Short Text

General	
Field Size	30
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Is Not Null
Validation Text	You must enter the customer's surname

The evidence expected was one screenprint, in design view, showing the field name, presence check and suitable validation text. Learners should have noticed that a requirement of activity 2 was to ensure *'a record will not save without the customer's surname being present'* - this was the steer towards the presence check required.

Others were accepted but it should be noted:

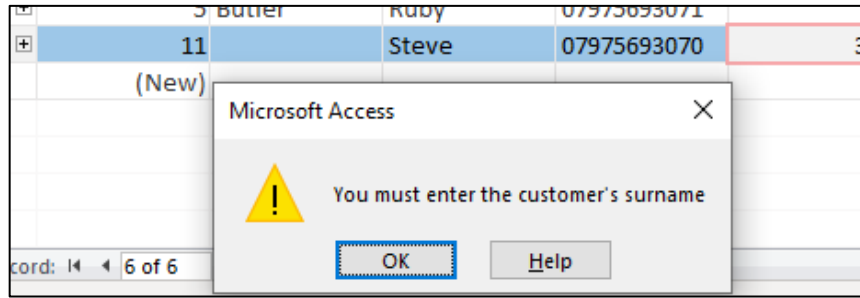
- presence checks applied to primary keys are not appropriate
- setting 'Required' to 'yes' is not appropriate. Both would still achieve marks but would prevent access to the highest mark band. It is also expected the presence check will have a customised error message that would appear if this field was left blank.
- Showing the results of a presence check in datasheet view, rather than the actual presence check in design view is not appropriate

Field Name	Data Type
TicketNumber	Number
TicketTypeID	Number

General	
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes

This is not appropriate evidence for two reasons:

1. it is a primary key
2. the method used is setting 'Required' to 'Yes'

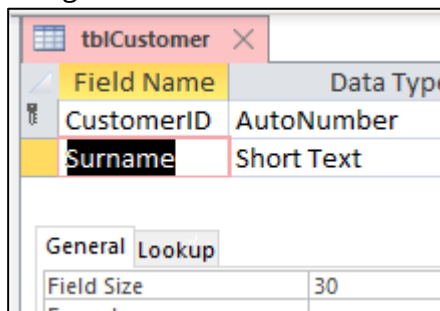


This is not appropriate evidence as it is showing the results of a presence check in datasheet view rather than the design of the presence check.

Validation Rule	Is Not Null
Validation Text	You must enter data
Required	No

It is also worth noting that this is not relevant nor appropriate evidence of a presence check. If the examiner cannot determine the table and field the validation has been applied to then credit cannot be given. Indeed, credit will not be given for any validation evidence that does not clearly show the table and field the validation is applied to.

Length Check



Evidence of a suitable length check on one **text** field was expected.

Value Lookup

Evidence of an appropriate value lookup, in design view, was expected. Note, learners may take any specific **'implied'** requirements given in the scenario as being appropriate for value lookups.

At this level they may, or may not, realise that value lookups may not be appropriate if further records were added. For example, in this paper it was expected that there would be a table to hold the data relating to the different types of customer. Some learners may have applied a value lookup to the customer type field in this table. If a new record was added it would mean that there would be a new customer type so the value lookup would be ineffective. At this level the value lookup would be acceptable. However, a value lookup applied to anything other than a specific 'implied' requirement would not be acceptable.

The 'implied' requirements in this paper were:

There are three different types of customer. For example, a customer can be a guest of the organiser.

There are three different types of ticket:

- *a Friday ticket will cost £39.00*
- *a Saturday ticket will cost £49.00*
- *a two day camping ticket will cost £88.00*

The ticket cost field would prove problematic if chosen as a value lookup. The data type should be currency. A value lookup cannot be applied to this data type. It was expected that learners would discuss this within their evaluation. For example they may have used a validation rule as opposed to a value lookup – this was acceptable in this case.

Field Name	Data Type
TicketTypeID	AutoNumber
TicketType	Short Text
TicketCost	Currency

General	
Format	Currency
Decimal Places	2
Input Mask	
Caption	
Default Value	0
Validation Rule	Like 39 Or 49 Or 88
Validation Text	Ticket cost can only be £39.00, £49.00 or £88.00
Required	No

Alternatively, they may have chosen to apply the lookup to one of the other fields etc. It was an issue that would have been an ideal talking point in the evaluation. It was good to see some learners use this as an opportunity to show their knowledge and understanding in Activity 5.

It was surprising that several learners still mix up the evidence for a value lookup and a table lookup. We expect table lookups to be applied to foreign keys only. Value lookups should not have Table/Query as the row source and a SELECT statement retrieving values from a table in the Row Source. The screenprint given shows a **table lookup** not a **value lookup**:

Field Name	Data Type	Description
TicketNumber	Number	
TicketTypeID	Number	

Field Properties	
General	Lookup
Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [tbITicketType].[TicketTypeID], [tbITicketType].[TicketType], [tbITicketType].[TicketCost] FRG
Bound Column	1
Column Count	3
Column Heads	No
Column Widths	2.54cm;2.54cm;2.54cm
List Rows	16
List Width	7.619cm
Limit To List	Yes

A value lookup would have a value list as the Row Source Type and the actual values in the Row Source:

Field Name	Data Type
TicketTypeID	AutoNumber
TicketType	Short Text

Field Properties	
General	Lookup
Display Control	Combo Box
Row Source Type	Value List
Row Source	"Friday"; "Saturday"; "Both Days"
Bound Column	1
Column Count	1
Column Heads	No
Column Widths	2.54cm
List Rows	16
List Width	2.54cm
Limit To List	Yes

Table Lookup

The evidence required was one screenprint showing a table lookup, in design view, applied to any of the foreign keys. **NOTE**, too many learners are still not ensuring 'Limit to List' has been set to 'Yes' on their table lookup. This affects the marks that can be awarded.

tbITickets

Field Name	Data Type
TicketNumber	Number
TicketTypeID	Number
CustomerID	Number

Field Properties

General Lookup

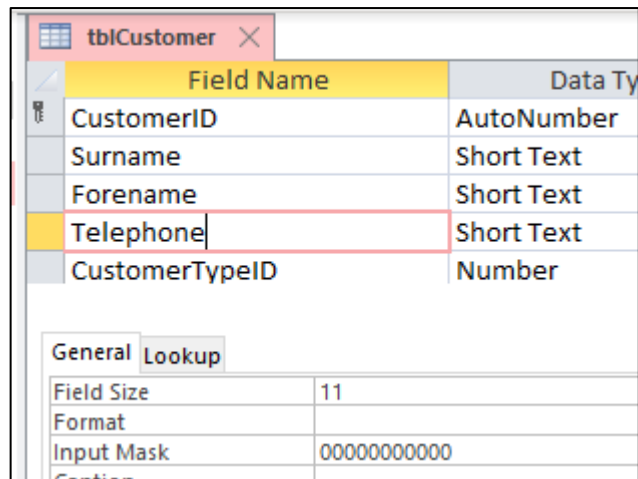
Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [tbITicketType].[TicketTypeID], [tbITicketType].[TicketType],
Bound Column	1
Column Count	3
Column Heads	No
Column Widths	2.54cm;2.54cm;2.54cm
List Rows	16
List Width	7.619cm
Limit To List	Yes

Range Check

There was no range check in this examination. Learners must ensure they read Activity 2 requirements to determine whether it is a range check or value lookup that is required.

Format Check

The only appropriate format check 'implied' at in the requirements of activities 2 and 4 was a format applied to the telephone number.



Field Name	Data Type
CustomerID	AutoNumber
Surname	Short Text
Forename	Short Text
Telephone	Short Text
CustomerTypeID	Number

Property	Value
Field Size	11
Format	
Input Mask	00000000000

At times learners provided evidence of a relevant format check though not an appropriate one. For example, an input mask of 99999999999 or 000000000009 where 9 signified an optional number. The format should **match** the format given in the extract.

An input mask is not the only method learners can use to evidence this requirement. Learners may use a validation rule that would serve the same purpose.

Part A Activity 3 – Queries and report

This task is designed to test the learners' ability to build the queries and report required to meet the specification requirements. Learners **must** use the template provided in each examination.

This was the first time this has appeared as a standalone activity and it was best suited to being assessed using a points-based approach in order to define the difference between 'limited', 'some', 'most' and 'all'. This is explained in the marking guidance and shown in the example solution and sample scripts.

Teachers are advised to download Script A, Script B, the marking guidance and the example solution. In terms of this activity these pages are of relevance:

Script A	7-11
Script B	7-10
Marking Guidance	8-9
Example Solution	8-11

As this is the first time this standalone activity has been assessed it is worthwhile stressing the focus of assessment for each trait.

Trait 1 The focus of assessment is on learners being able to recognise the tables and fields that will be required in order to produce the required results and adding these to their query grids/report.

Whether the learners go on to produce the required results is of no consequence in this trait. Therefore, it is worth encouraging learners who do not think they can complete some of the more challenging aspects within query b and the report to at least ensure they include evidence of the tables and fields that would be used. For example, they could achieve the top of Band 4 in this trait and lower bands for traits 2 and 3. Achievement in this trait would have a positive impact on the weaker traits – increasing the marks awarded.

Trait 2 The focus of assessment is on learners being able to use criteria and calculations correctly (including sorting). It was expected that most learners would be able to successfully add the criteria and sort in query A. This would have meant achievement at the bottom of band 2 for this trait.

It was then expected that pass level learners could achieve some of the simpler aspects of query B e.g. the parameter, meaning the top of Band 2 could be achieved. Merit learners were expected be able to successfully achieve some of the more complex

criteria/calculations and distinction level most/all of the more complex criteria/calculations.

Trait 3

The focus of assessment is on learners being able to present the results of their queries and report sensibly so that the output matches the requirements and would make it easy for a user to read and understand the data.

This includes being able to:

- only show the fields requested
- ensure data/labels are not truncated
- use suitable field names/labels for generated fields
- include a suitable title on the report
- ensure the report fits on one page and uses the width of the page/size of fields/labels etc wisely
- format all monetary fields/generated values to currency

It is worth noting that assessing truncation/layout/currency can only be determined from datasheet view of the queries and the pdf version of the database report. A screenprint of the database report is not enough.

As with trait 1, the results of the calculations do not have to be correct for achievement in this trait. Therefore, learners should be encouraged, to spend time making sure they have considered the presentation of their results.

Overall, this activity discriminated well between the different abilities of the learners with most being able to successfully complete query a, some query b or the report, some all three.

It was nice to see many different approaches to query b and the report both across and within centres.

It was clear to see that some centres had spent time encouraging learners to try all three even if they could not manage all aspects. These learners tended to do well in terms of marks even if some of the criteria and calculations were not correct/working. As previously mentioned, achievement in traits 1 and 3 can boost the marks for those that are weaker in the more technical aspects.

However, it was sad to see a number of learners did not achieve some of the marks due to not ensuring all of their field/label names, criteria etc. could be seen, creating appropriate field/label names for the generated values in the queries/report and paying little attention to the presentation of their results.

Part A Activity 4 – Structure testing

This task is designed to test the learners' ability to test the structure of their database by carrying out **only** the tests given.

Learners **must** use the template provided in each examination and should only carry out the tests specified.

Teachers are advised to download Script A, Script B, the marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	12-16
Script B	11-12
Marking Guidance	10
Example Solution	12-14

Some learners still do not appear to understand the evidence required in terms of testing. The evidence has been discussed in each Lead Examiner's report, the marking guidance, solutions and scripts over several years. In terms of completing the template it is worth telling learners to complete it with the thought in mind that another person will carry out the tests, add the screenprints for the actual results and it is they who will decide whether each test has been passed. This can help force them to make sure they include detailed test data and expected results. How could another person carry out the test without knowing exactly what test data to use in each field? How could another person judge if the test was successful without knowing the exact expected results? In many situations in real life the person who produced the test plan is not the person who carries out the testing. Many learners do not seem to grasp this.

Please note that the testing of numeric foreign keys may be classed as either extreme (X) or erroneous (R) tests. X may be used to signify extreme invalid testing (just outside of the range of values), whilst others may class that as erroneous.

Testing required in the examination:

Test to be carried out	What is it testing?
1 a record will not save without the customer's surname being present	Presence check test
2 a record will not save if the customer telephone number is not in the correct format	Format check test
3 a record will not save if the customer is assigned an invalid customer type	Table lookup (foreign key) test
4 a record will not save if the cost of a ticket is not valid for the type of ticket	Value lookup/validation rule test

5	a record will not save if a ticket sale does not have a valid customer	Table lookup (foreign key) test
6	a record will not save if a ticket sale does not have a valid ticket type	Table lookup (foreign key) test

It was surprising to see how many learners did not carry out **only** the testing required. For example:

- a test showing a record saving with a customer surname present and then a test showing an error when there was no customer surname. This wasted valuable time with the latter the only one considered as part of the testing evidence
- tests included that were not asked for e.g. saving a valid record etc. Again, valuable time wasted and of no consequence to assessment.

Please encourage learners to test only what has been requested. Time is of the essence and the number of tests reflects that.

Here are the examples of what is required in completing the template here are examples of what is required and examples of where learners go wrong.

Test data column

It is expected that learners will provide the test data for a **full** record.

Exemplar and examples of where learners provide weak evidence:

Test 1: a record will not save without the customer's surname being present		
Exemplar test data		
CustomerID: AutoNumber Surname: blank Forename: Gill Telephone: 03415610599 CustomerTypeID: 1		
Example 1	Example 2	Example 3
Surname: blank	I will test to make sure the surname cannot be left blank	CustomerID: AutoNumber Surname: Meek Forename: Gill Telephone: 3415610599 CustomerTypeID: 1
Comments		
Test data for the full record has not been given	This is describing the purpose of the test not the test data	There is a surname present so cannot possibly be testing the record will not save if the surname is missing. Also, the telephone is not in the correct format. The test data should fail only the given test.

Some learners also used test data in this format:

	5	Butler	Ruby	07975693071	3
	12		Jane	07975693072	3

This is not appropriate. The test data is for the planned test not the test as it is being carried out.

Expected results column

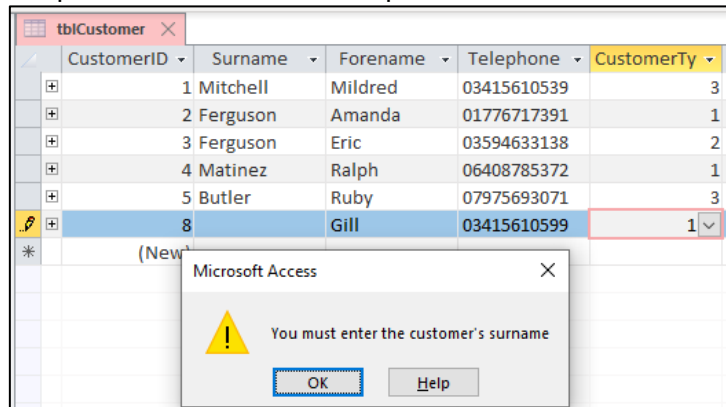
Exemplar and examples of where learners provide weak evidence:

Test 1: a record will not save without the customer's surname being present		
Exemplar expected results		
Error message to appear saying the customer's surname must be present		
Example 1	Example 2	Example 3
Error message	I left the surname empty and an error message popped up telling me to put a surname in	N/A
Comments		
This is not specific. What error message?	This is past tense. This is describing the actual results. This column is for 'expected results'	Clearly there must be a result for the test otherwise the test would not be carried out

Actual results column

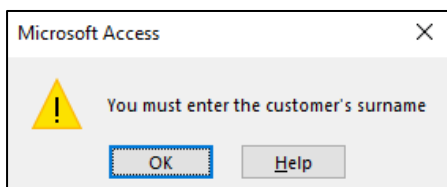
Test 1: a record will not save without the customer's surname being present.

Exemplar and examples of where learners provide weak evidence:



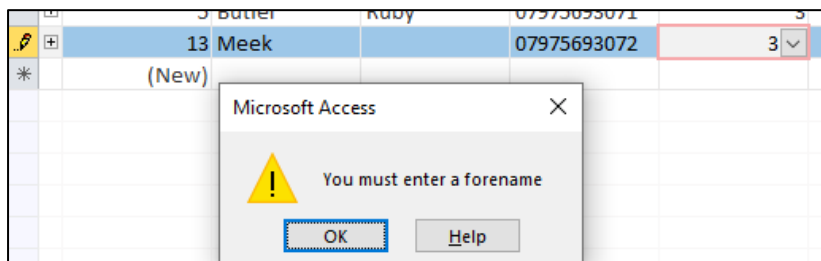
Exemplar

Example 1



Impossible to judge whether the test has been carried out successfully as none of the test data has been shown in the record

Example 2



The results are not for the test that should have been carried out i.e. the forename is triggering the error message.

Some learners also weaken their evidence because the actual results do not use the test data they said they were going to use.

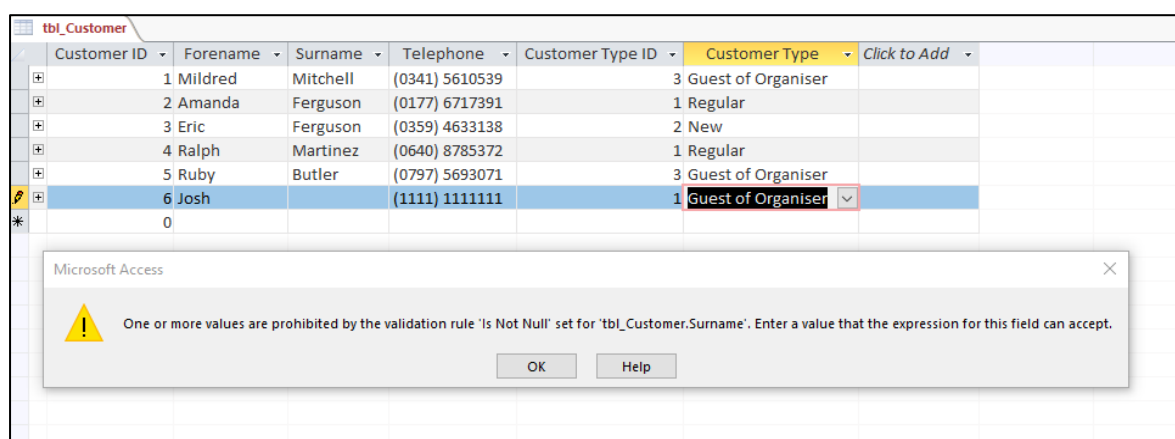
At times learners do not get credited with the actual results because the screenprints cannot be read. The template is A3 size and uses landscape orientation. Some learners change this to A4, which is obviously a lot smaller, some do not check their pdf versions where the layout seems to have been automatically changed to portrait. Both result in screenprints either being truncated or too small to read.

Learners can change the width of the columns in the template and could delete the final column if they have no errors to discuss. They can also place the screen prints underneath the table so long as they ensure they clearly label which test number the screenprint(s) belongs to.

Error column

Learners should only complete this column if they have found errors during testing. Learners are not penalised for having a 'perfect' solution, however, where it is clear the actual results are not what should be expected or where they could have been better, they should be identifying this.

For example:



Customer ID	Forename	Surname	Telephone	Customer Type ID	Customer Type	Click to Add
1	Mildred	Mitchell	(0341) 5610539	3	Guest of Organiser	
2	Amanda	Ferguson	(0177) 6717391	1	Regular	
3	Eric	Ferguson	(0359) 4633138	2	New	
4	Ralph	Martinez	(0640) 8785372	1	Regular	
5	Ruby	Butler	(0797) 5693071	3	Guest of Organiser	
6	Josh		(1111) 1111111	1	Guest of Organiser	
0						

Microsoft Access

One or more values are prohibited by the validation rule 'Is Not Null' set for 'tbl_Customer.Surname'. Enter a value that the expression for this field can accept.

OK Help

This is a wasted opportunity. The learner should have realised the error message is not appropriate. Remember, presence checks are supposed to have custom error messages associated with them. The learner could have rectified this error by setting and evidencing 'Required' being set to 'No' adding a validation rule and validation text and the results of the test being carried out again. Even if learners do not amend errors, they should be adding comments to show they recognise and understand the solution is not perfect.

Part A Activity 5 – Structure evaluation

This task is designed to test the learners' ability to evaluate the structure of their database.

Teachers are advised to download Script A, Script B, marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	17-18
Script B	13-14
Marking Guidance	11
Example Solution	15

The evaluation in Part A is distinctly different from the evaluation in Part B. Part A is designed for learners to showcase their knowledge and understanding about normalisation, minimising data duplication and how this can help ensure requirements are met. Part B is all about the interface and the usability of it from the user's point of view. It is clear to see some learners do not understand this.

Some learners also do not appear to understand that the evaluation is based upon 'minimising data duplication' as well as meeting requirements.

- Some paid lip service to minimising data duplication, some did not consider it all.
- Others concentrated solely on meeting the given requirements.
- Others gave a running commentary of what they had done to complete all the activities in part A.
- Others took this as an opportunity to talk about how they were taught/how hard tasks were/how they had performed etc.

We expect a discussion of how **their** structure has minimised data duplication. The discussion should demonstrate their knowledge and understanding of the process of normalisation in terms of the **data extract** and the **given requirements** and **why their structure is suitable**. It should not be taken as an opportunity to regurgitate theory learned about normalisation etc.

Consider these examples.

Example 1

When creating this database, I took great care in ensuring that there was little to no data duplication, I have minimalised data duplication by doing several things, one of those things was having 4 different Tables in the database, so that when someone typed out all of their, for example: customer details, they would not ~~have to retype those customer details every time they purchased a ticket, they would need only select their customer id when writing in the ticket sales table, this can be seen done twice with both customer ID1 Mildred and also Customer ID3 Eric.~~

I have made a table for customer type, and in this table used a lookup wizard with custom text of the customer types that are available in a list, by using this, whenever you are typing a customer's details, you will not have to Re-Type the Customer Type, ~~this not only minimalizes data duplication, but also it minimalizes risk of error, when re-typing the customer type, as there is no chance of typing it wrong thanks to the use of the list.~~

I have placed the ticket price inside of the ticket type table, and linked it to the ticket type itself. ~~by doing this you no longer have to re-type the ticket price every time, as you would have to do if you were to put it inside the ticket sales table, minimalizing risk of typing it incorrectly subsequent time, however, as these prices will only be typed once, if that price typed once happens to be incorrect, then the price will be incorrect every time, however also this method allows for the entering of brand new ticket types and the accompanying prices with much ease~~

This example clearly shows that the learner understands normalisation and how they have minimised data duplication in their database. It is specific to their solution. They have given specific examples based upon their structure.

They have given a fully supported justification of their structure and it is clear to see the scenario/activity requirements have been considered.

Technical language has been used well.

Example 2

Evaluation

My database structure minimizes data duplication through the use of primary keys and the auto number data type. The auto number data type generates a unique code for each record. All records must have a unique code which separates them from all the rest. I also broke down the initial data structure into tables. Each of these tables owns a primary key which enables me to make relationships with other tables, this makes the database more organised which reduces errors within the database.

I created a value lookup list in order to create the different types of customer. Through the use of the lookup wizard datatype I was able to create my own values that can be entered into the database. This creates a drop down list the user can select which values they want such as 'New' or 'Regular'. This reduces errors by having the user select a value from a predetermined list. The user won't have to enter the value themselves, therefore eliminating the possibility of spelling errors.

My database was able to meet the requirements of three different types of ticket by creating records within a table. I was able to create a table which hosts the three ticket titles and their assigned prices. Each ticket had an ID which connects both the ticket's name such as 'Friday' and the cost of said ticket.

Paragraph one is paying lip service to minimising data duplication. It is general and could be used to talk about any database. It does not show any knowledge and understanding other than what could be learnt and recited. They have not discussed minimising data duplication in terms of their own solution and the scenario/activity requirements.

Example 3

Evaluation

I have minimised data duplication by separating the data into tables with one-to-many relationships between them, this limits what can go into the tables and prevents duplicate values appearing. I have further accomplished this by adding table look ups which prevent values being entered wrong and increasing the sizes of the tables. The table tbl_Ticket Sales acts as a bridging table between tbl_Customers and tbl_Tickets, this means all duplicate values are entered into one table to minimise the impact on the main two tables.

I have achieved the different types of customer through a table look-up. I entered the three kinds of Customer they can be: Regular (1), New (2), and Guest of Organiser (3) into a table for the field. The user then selects from the three options preventing them mistakenly misspelling or incorrectly adding another type. I have done this for both the Customer Type ID and Customer Type fields.

The different types of tickets were achieved in much the same way as the types of customers were. I created the table tbl Tickets for the three kinds of tickets. It is then linked to tbl_Ticket Sales through a table look-up for the Ticket Type ID field attached to the Ticket Type and Ticket Type ID fields, it only displays Ticket Type ID, keeping the values to those I want and prevents incorrect data being entered.

This is relevant but could have been expanded to include some specific examples of data that would have been duplicated if this had not been done.

This is relevant but could have been linked back to minimising data duplication e.g. 'the kind of customer would have been duplicated without doing this'. The explanation about doing this for both Customer Type ID and Customer Type is not entirely understandable. Do they mean they minimised data duplication by using a table lookup for in Customer table for the Customer Type ID rather than having to input both the Customer Type ID and the Customer Type each time they added a new customer? Or do they mean they have used table lookups on both, which would not be appropriate? The explanation for the Ticket Type is better. No mention of ticket costs though, which they were asked to evaluate.

Example 4

My data helps minimise data duplication in many ways. I have put this set of data into 4 tables and used relationships in order to link them together. This will create an efficient yet effective database that will allow users to view data with the least possible duplicated data. I have met the requirement of different types of guests by adding a combo box to my database. This allowed the user to choose from the three types of guests that are available. I have made it clear that there are 3 types of ticket prices. I have done this by adding a validation rule to my database only allowing the user to choose the correct ticket prices. I have also added validation so the users ticket type and ticket price have to match also.

This pays lip service to minimising data duplication. Nothing specific in terms of their own solution.

This is relevant but could be expanded to tie in with minimising data duplication.

There is no need to mention the user at all in Part A. Part B evaluation is about usability and the user.

Example 5

Structure Evaluation

My data base has successfully reduced the amount of duplication. This is seen in the surname and forename part of my table. In my table, customers names are only listed once where as in figure 1, names are listed up to 2 times. I have successfully met requirements of the music organisers but for users, I could improve my accessibility options. For example, giving my data entry points different language options or a font enlarger.

When evaluating the three price points, I have realised that I could have added a link table to minimise the data duplications with the foreign keys and I could have included a table of unsold tickets to make the queries easier to do. When looking at the report, I have seen that it is really efficient and simple when showing and presenting data to the user or the person who is reading the report but the colours could be a problem for people who a colour blind so I think a colour option would make a great addition to the report.

This is good. Clearly relates to their solution and the data extract.

This is not relevant at all.

This is relevant but not clearly understandable. Do they mean they put the ticket price in the wrong table and in doing are duplicating data?

This is irrelevant. Learners should not be evaluating the queries or the report and should not be discussing accessibility.

Example 6

My Database has minimised duplication by creating primary and foreign keys for my fields such as Customer ID so that all fields related to it are unique. I also created an integrity between the customer type ID so that they are linked and share data. I made a Value lookup for customer Type so that you can choose it from a selected list and an error message will occur if not used.

Lip service paid to minimising data duplication. Not detailed at all.

Example 7

Evaluation of part A

The structure of my database and its tables meant that there was no data duplication, and each of the tables were linked to one another through a primary key, meaning a table could be linked for use of a query, or a form.

My database meant that each customer had a customer type ID, 1, 2, or 3, and because of this, it meant that each of them only had one specific type, New, Guest Of Organiser Or Regular.

My database was able to distinguish between three types of ticket through the Ticket Type ID, giving each a value of 1 = £39.00, 2 = £49.00, and 3 = £88.00. However, when it came to testing, I was unable to make the values stay the same, therefore, if I had more time to do so, I would correct my mistake by adding a combo box of each, and making the ID mean that when you choose that ID, you must have to use that ticket Cost.

In activity 2, I was able to do each of the validation requirements, except the three money ones, in which I decided the best option would be to leave it, carry on with my work, and if I thought of the answer come back, however, it got to a point in time where I could not.

I was very happy with how well Activity 3, a and b, worked out as I spent more time than I should have on the second query, but all of my queries worked out the way I planned and gave the correct values of which I asked for.

For my Reports, I cannot say the same thing, I Made a query to work out the Ticket Sales and the overall total of the tickets, the ticket revenue, but I didn't do any arithmetic working out for the discounts using Access, which is disappointing, but every time I tried to get the value I wanted it didn't work, therefore, I had to resort to using a calculator and my brain to do the working out.

In conclusion, I am overall pleased with my database, and the way it was able to manipulate data the way I wanted it to most of the time, I would however, need to improve the database to improve the arithmetic skills and using more table/value lookups and leave more time to complete the validation checks to full.

This is relevant but could have been expanded to show their understanding of data duplication e.g. could have said that the customer type would be duplicated if it had been included in the customer table.

This is relevant but, again, could have expanded to show their understanding of exactly what would have been duplicated without doing this.

The rest is irrelevant other than the brief mention of the 'three money ones'.

Part B Activity 6 – Interface and functionality

This task is designed to test the learners' ability create and automate two forms. The first requires validation and a customised, automated save process, the second may require calculations/criteria/filtering etc. and some for of an automated process.

Learners **must** use the template provided in each examination.

This was the first time this has appeared as a standalone activity purely based on the forms.

Teachers are advised to download Script A, Script B, the marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	19-25
Script B	15-18
Marking Guidance	12-15
Example Solution	17-22

As this is the first time this standalone activity has been assessed it is worthwhile stressing the focus of assessment for each trait.

Trait 1 Assessment of this trait focusses on the presentation of the forms and how 'fit for purpose' they are in terms of what the learners have been told the forms will be used for and what they must do. Across the forms examiners will be looking for:

- whether they match the given purpose
- sensible titles
- instructions telling the user how to use the forms
- asterisks where data entry is required
- field widths that are appropriate for data they will hold
- a good layout
- a consistent house style
- fields that have content that **should** be automatically generated are disabled
- relevant, consistent, easy to read labels (e.g. spaces)
- combo boxes (or equivalent) where relevant to make it easier for the user to input data

Whether the forms include automated routines or not is of no consequence in this trait.

Trait 2 Assessment of this trait focusses on the addition of any criteria/calculations required in order to meet requirements. What the

form looks like and whether the automation of the form works is of no consequence in this trait.

Trait 3 Assessment of this trait focusses on the validation and automated routines that should be present in order to meet requirements. Validation must be at form level and not applied to any of the tables – the structure of the tables must not be altered in any way. What the form looks like is of no consequence in this trait.

Trait 4 Assessment of this trait can be determined by how well the learners has met the requirements of the other three traits as they all play, their part in the functionality of the forms and how well they meet the requirements criteria. The band awarded for this trait was automatically calculated.

Form1 – Add a member of staff

The purpose of this form was to *add a new member of staff* to the database.

This form was the simpler of the two and it was expected that this form could be created, customised and automated by all learners with Pass and above ability.

Trait 1

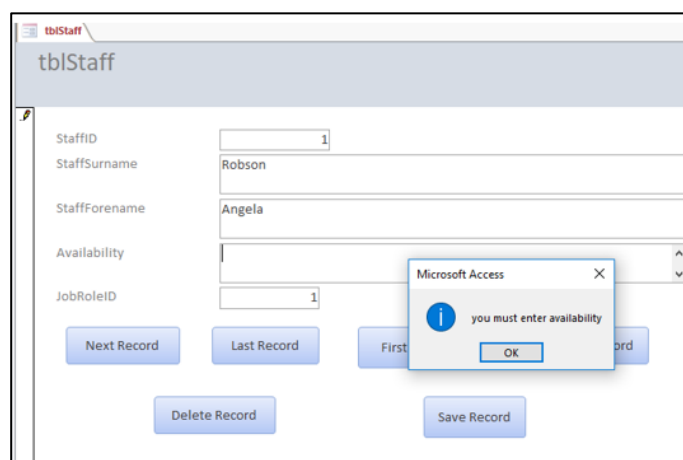
It was good to see some centres have taken past Lead Examiner reports and resources including sample scripts etc. into account and had prepared their learners well in terms of the requirements for this trait. It was also nice to see the many different house styles that learners used for this form and how well they took usability etc. into account.

However, it was very disappointing to see the number of learners who still cannot produce anything other than a default form. It is relatively easy for learners to achieve band 4 in this trait, which can really help boost marks awarded for those who find the calculations, criteria and automation more difficult. Consider these examples:

Example 1

Whilst the form is relevant in terms of the given purpose it is a very weak form. Think about the user.

- tblStaff does not give them any indication of what this form will be used for.
- The labels are hard to read e.g. StaffSurname.
- The fields are too wide in every case.
- There are no user aids i.e. no instructions on how to use, no asterisks, StaffID has not been disabled, there are no combo boxes where selections should be



made rather than direct input (availability and job role).

- There are far too many buttons, which bear no relevance to what the learner was asked to do - only a save button was required.
- There is a message box on display, the examiner does not need to see this.

Example 2

This form is relevant for the given purpose but could still be massively improved and the chance of better marks.

Good points

- The title is not a default title (though see improvements).
- List boxes have been used to allow the user to select availability and job role information (though see improvements)
- The button is labelled clearly – the user would know what would happen if it was clicked.
- There are no irrelevant buttons.
- Some of the labels are useful.

EmergencyContactID	Forename	Mobile	OrderToCall
1	Tadeo	070617736854	1
2	Alysa	09475657921	2

Improvements

- The title does not really indicate the purpose of the form
- There are no instructions telling the user how to use the form
- There are no asterisks to show where data entry should occur
- The StaffID has not been disabled
- Some of the labels are poor e.g. JobRoleID.
- The field widths are poor
- It does not make sense to have a combo box for Job Role and a field for JobRoleID in this format i.e. which is used for the actual selection of a job role? The other should have been disabled etc.
- The emergency contact information is irrelevant – learners were told to use the tblStaff and tblJobRole only.
- Having the emergency contact information in the middle of the job role information is confusing

Example 3

This form has some good points but there is still room for improvement and the chance to achieve better marks.

Good points

- The design is clearly not the default results of creating the form using a wizard, it has a house style
- The title is not a default title (see improvements).
- There are some user aids that would be useful i.e. the instructions on how to use and the asterisks.
- The StaffID has been disabled and does not have an asterisk – clear to the user no input is required.
- The widths of the fields are sensible – though the numeric fields could have been narrower.
- The button clearly tells the user what will happen if they press it and there are no irrelevant buttons.



Improvements

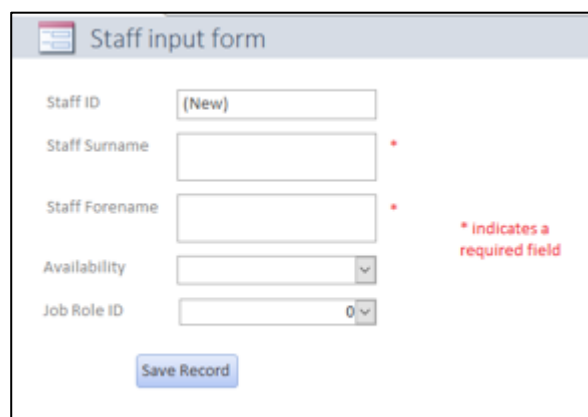
- The title of the form is irrelevant – this is a form to add new members of staff not register for anything.
- The labels are very poor.
- There are no combo boxes where selections should be made rather than direct input.
- The width of the fields could be a bit better.

Example 4

This form has some good points but there is still room for improvement and the change to achieve better marks.

Good points

- The title reflects the purpose of the form
- There are asterisks to show where data input is required
- There is one instruction on how to use
- The button clearly tells the user what it is for and there are no irrelevant buttons
- The labels make sense
- There are combo boxes to allow the user to select choices rather than manually input where mistakes could occur – see improvements



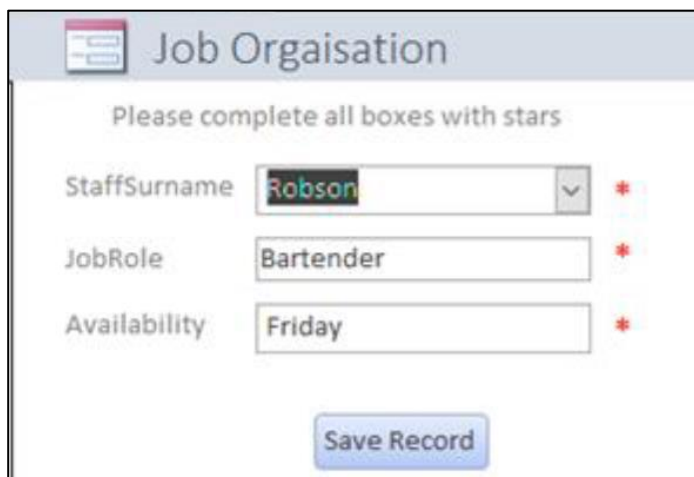
Improvements

- Some of the fields are too wide e.g. Staff ID, Job Role ID etc.
- Some of the fields are too deep e.g. Staff Surname, Staff Forename.
- It would have been nice to see more instructions on how to use the form.
- The sources for the combo boxes have not been shown.

Example 5

It was surprising to see how many learners did not include the StaffID and Staff Forename fields on the form. Even though StaffID is an AutoNumber field it is still expected to be present on the form.

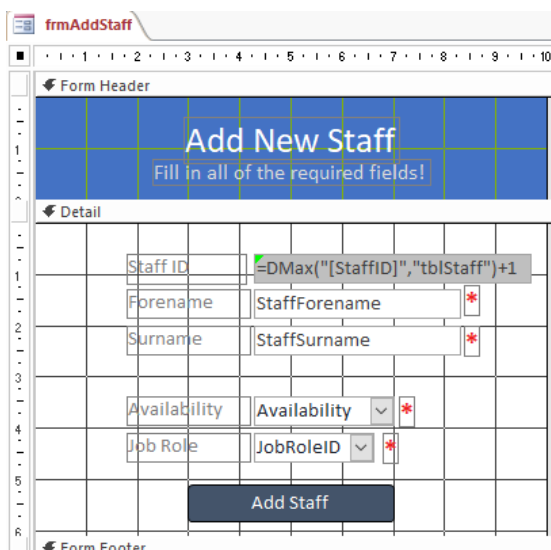
Whilst the activity instructions will point towards presence checks etc. learners must think about whether other fields from the table(s) would be relevant to include. However, learners must pay attention to the tables they have been told to use.



Trait 2

This form was the simpler of the two in terms of calculations/criteria. The only calculation required was to ensure the StaffID would be incremented. The data type for StaffID in tblStaff was AutoNumber so this did not require learners to use an actual calculation.

If the StaffID appeared on a **bound** form then this was enough evidence. If DMax was used on the StaffID field on an **unbound** form then this was enough evidence for incrementing the ID. However, it would not have been suitable to try to save this value in the automation process for trait 3 – the data type was AutoNumber. We did expect to see the StaffID on the form as this was taken to mean learners had taken the fact that the StaffID would need to be generated into account. However, so long as the examiner could determine the StaffID would be incremented it was fine not to include the StaffID.



This is an example of a learner who used DMax in a StaffID field that was unbound with the rest of the form bound. As previously mentioned there was no need to use DMax at all in this paper (data type AutoNumber) the learner could have just left the StaffID bound to the StaffID in tblStaff. However, they were given credit for generating the ID here too. Please see the comments in trait 3 regarding this form to see an example of how of what examiners looked for in terms of the save process where this method had been used.

Most learners did provide enough evidence to say this calculation had been considered.

Trait 3

This form is the form that requires validation as part of/along with an automated save process. In this examination validation had to ensure:

- the staff member's surname was present, invalid availability and an invalid JobRoleID/job role could not be selected
- a suitable error message should appear where invalid data had been used

Automation should have been present to:

- ensure the form was ready for data entry
- append valid data to the staff table and display a save message.

Higher ability students should also have considered that the save process should clear the form ready for the next new member of staff's details once the save had taken place.

It was good to see many of the learners successfully validated and automated this form. Surprisingly, despite Lead Examiner reports, example scripts etc. from past papers, many learners still do not ensure they include the relevant evidence. It is very unlikely that learners can provide enough evidence through the use of a single screenprint.

Consider these examples.

Example 1

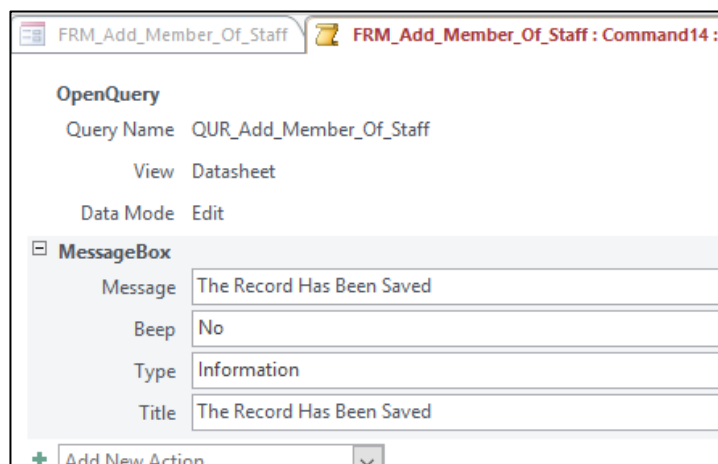
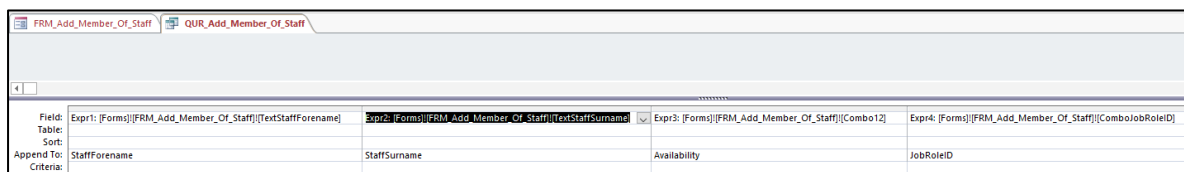
Automation: The form is clearly ready for data entry – the form is blank.

A screenshot of a web form titled "Add Member Of Staff". The form contains five input fields: "StaffID", "StaffSurname", "StaffForename", "Availability", and "JobRoleID". The "Availability" and "JobRoleID" fields are dropdown menus. At the bottom of the form is a blue button labeled "Add Member Of Staff".

A screenshot of the same "Add Member Of Staff" form, but with a grid overlay. The grid highlights the form elements, and the word "Unbound" is written next to each input field, indicating that the form is unbound. The "Add Member Of Staff" button is also highlighted by the grid.

The form is an unbound form so there should be some evidence in terms of how the StaffID will be generated and how the data will be taken from the form and

appended in tblStaff. The learner has provided evidence of an append query, the screenprint could be clearer though, when zoomed in, each field on the form can be clearly seen (no truncation) and each field that the data will be appended to can be clearly seen (no truncation). At this stage though there is not enough evidence to say the save process is automatic.



This screenprint does now show the save process is automatic – the query is being executed in the macro. This is enough now to say the StaffID would be automatically 'saved' too.

The learner has gone on to display a save message.

The learner could have gone on

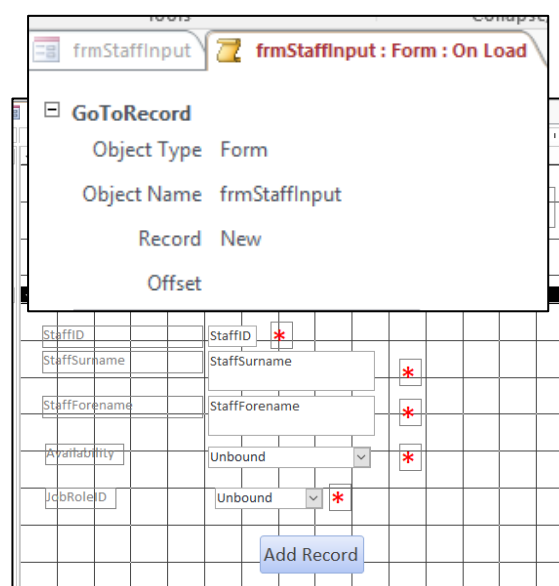
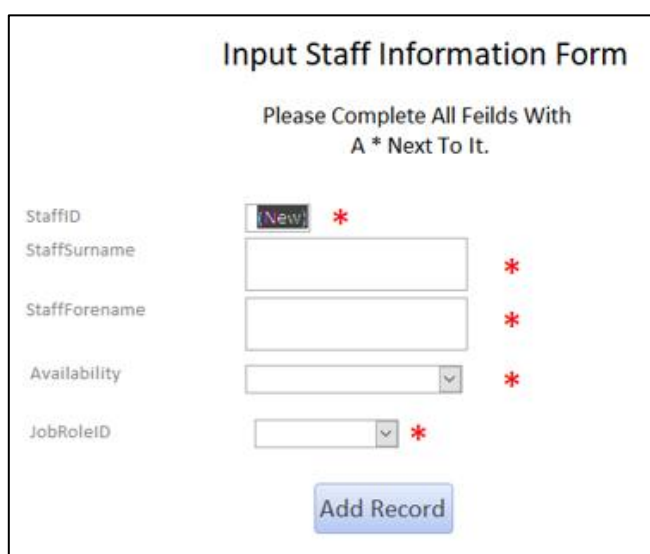
to clear the form ready for the next record.

Validation:

There is no evidence to suggest the learner has validated the form.

Example 2

Automation: The form is clearly ready for data entry – the form is blank, The learner has also provided a screenprint of the macro behind the 'On Load' event of the form that shows the movement to a new record. It is enough to see the form is blank to give credit for this form of automation.



The form is bound to the fields in tblStaff. The command 'Save Record' can be seen in the save macro. This is enough evidence to judge that a valid record would save in tblStaff and that the StaffID would be incremented. The learner has also provided a suitable save message.

Validation: The learner has included an If statement that checks to ensure their staff surname field cannot be left blank. It includes a suitable error message that would be displayed. The learner has not evidenced the validation of Availability and JobRoleID. For example, showing the source of these combo boxes. Availability could have used a value lookup, JobRoleID a table lookup or equivalent.

The learner could have gone on to clear the form ready for entry of the next staff member's details.

```
frmStaffInput frmStaffInput : Add Record :
  If IsNull([txtStaffSurname]) Then
    MsgBox
      Message Please Add Staff Surname
      Beep Yes
      Type Warning!
      Title Missing Data
  Else
    RunMenuCommand
      Command SaveRecord
    MsgBox
      Message Record Saved
      Beep Yes
      Type Information
      Title Saved!
```

Example 3

Automation: The form is clearly ready for data entry – the form is blank.

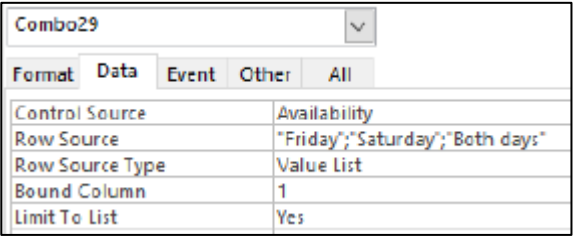
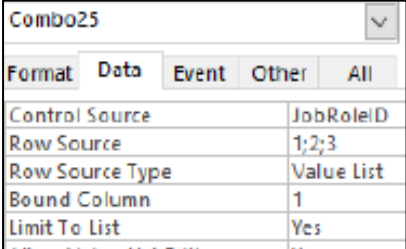
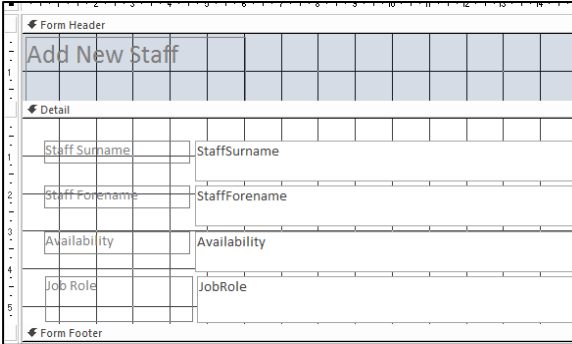
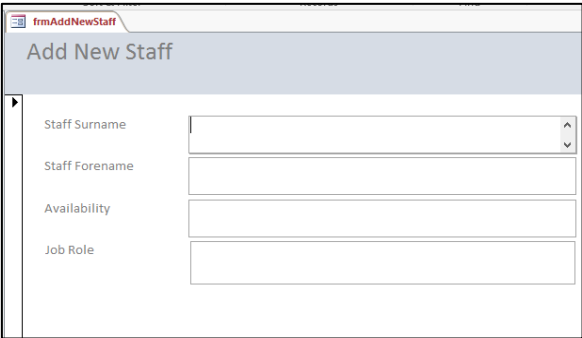
```
FRMAddStaff FRMAddStaff : BTNSaveNewStaff : On Click
  OnError
    Go to Next
  Macro Name
  If [MacroError]<>0 Then
    MsgBox
      Message =[MacroError].[Description]
      Beep Yes
      Type None
      Title
    End If
    RunMenuCommand
      Command SaveRecord
  If IsNull([StaffSurname]) Then
    MsgBox
      Message Please enter staff surname.
      Beep Yes
      Type Warning?
      Title Can not save new staff member.
    StopMacro
  End If
```

The form is bound to the fields in tblStaff. The command 'Save Record' can be seen in the save macro. This is enough evidence to judge that a valid record would save in tblStaff and that the StaffID would be incremented. There is no save message

displayed.

Validation: The learner has used an IF statement in their macro code to ensure their StaffSurname field cannot be left blank. It includes a suitable error message. However, the attempt to save takes place before the check to make sure the surname is present: this means that whilst an error message will be displayed, the record will already have been saved without the surname. This learner appears to have used the wizard to draw the save button and automatically generate the code to save the record and have then added the IF statement. If this method is used learners must ensure it is customised appropriately. The learner has also not shown how the JobRoleID and Availability were validated. See previous comments.

Example 4



There is no evidence of either validation or automation. Trait 2 would also be affected here as there is no StaffID present on the form. Without evidence of automation the calculation cannot be said to be correct, whereas if the StaffID had been on the form then credit would still have been given for trait 2.

Example 5

Automation: The form is clearly ready for data entry – the form is blank.

```
Private Sub cmdSave_Click()
    DoCmd.Save
    MsgBox "The staff member has been saved", vbOKOnly
    DoCmd.GoToRecord , , acNewRec
End Sub
```

The form is bound to tblStaff and the learner has included the code behind their save button. DoCmd.Save is enough to show a valid record would save. The learner has also provided a suitable save message and has cleared the form ready for the next staff member's details.

Validation:

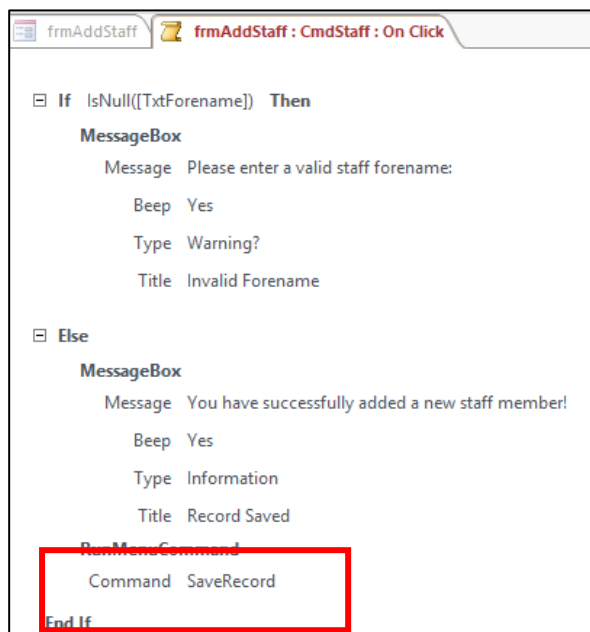
Input Mask	
Default Value	
Validation Rule	Is Not Null
Validation Text	You must enter a surname
Filter Lookup	Database Default

The learner has attempted to add a presence check to the Surname field but this is not appropriate. A presence check applied to the field properties on the form in this manner does not work. The learner has not shown how Availability and JobRoleID were validated. See earlier comments.

Example 6

This learner had chosen to use DMax to show the generation of the ID. As previously mentioned there was no need to do this. When it came to the automation of the save process this could have had a detrimental effect. However, in this instance it did not.

The learner did not use an append query and try to append the generated StaffID into the table. They have used the SaveRecord command. This would not have attempted to append the generated ID as it was not bound the StaffID field in tblStaff and therefore would have incremented correctly via its data type.



Form 2 – Staff availability form

The purpose of this form was to be able to find staff that matched a particular job role and particular availability i.e. find staff to work during the festival.

Some aspects of this form were more challenging when compared to the first form in order to discriminate between the different abilities.

It was expected that the majority of learners would be able to build the form, even if they could not manage to manage to get it fully functional. It was expected that the higher ability learners would be able to get some of the more challenging aspects functioning and the highest ability to get all the aspects functioning.

It was disappointing to see that several learners did not attempt this form at all – it is worth building the form even if it does not function correctly as marks can still be obtained.

Trait 1

In terms of trait 1 and how the form should look, the requirements given in the activity were clear:

- the user should be able to select the job role
- the user should be able to select either Friday or Saturday as the day they want to check availability for
- after the job role and day have been selected the form must display:
 - a list of the names of staff members who are available
 - the total number of staff available for the job role and day.

This should have led to the form including:

- a combo box (or equivalent) in order to select the job role

- a combo box (or equivalent) in order to select the day
- a list box (or equivalent) to display the list of staff names
- a field to display the total number of staff available
- the usual – title, clear labels, asterisks etc.

Even if learners could not go on to complete any of the functionality they would still have been credited for 'fitness for purpose' and presentation. Clearly, this would have helped to boost marks.

Across the learners who attempted this form it was disappointing to see that not very many appeared to spend time thinking about how fit for purpose the interface would be and considering its presentation. Some learners had included a very good interface for the first form but did not carry that through into this form. At times, this did affect the marks awarded. It is worth remembering that there is no weighting applied to the traits – they are all equal. Consider these examples:

Example 1

This is a good attempt at the form but there is room for improvement.

Good points

- Title is good, it clearly indicates what the form will be used for.
- The learner has included an instruction underneath the title to tell the user how to use the form.
- There are combo boxes present in order to select the job role ID and availability.
- The learner has included an extra field to display the job role – this makes it easier for the user to see which job role the results are for.
- It is clear to see which fields will not require data input via asterisks and the fact that the fields have been disabled.
- There is a list box ready to display the results of the search.
- There is a field present to show the number of employees. #Error is present purely because there is no input yet. At this level we would not expect to see learners trying to overcome this. (See improvements).

Improvements

- The font on the final label is too small compared to the rest
- The label for JobRoleID could be better e.g. spaces.
- The label for number of employees working could be better i.e. it is the 'number of staff available'.
- Alignment of the fields could be better e.g. the availability list and the number

of employees working field could be better when compared to the other three fields.

- The field width could be better for the number of employees working. Only a number will be displayed.

Overall though it is a very good attempt.

Example 2

This form is relevant to the purpose and there are some good points. However, there is room for improvement and the chance for better marks.

Good Points

- The title is good, it clearly indicates what the form will be used for.
- There are combo boxes present to select the job role and availability.
- There is a list box present to show the results.
- There is an object present to see the number of staff available.

Staff Avalibility List		
Alfonsi	Sofia	Saturday
Briggs	Janet	Friday
Brown	Andrew	Saturday
Catterill	Valerie	Friday

Improvements

- There could be instructions to tell the user how to use the form.
- There could be asterisks to show where data entry is needed.
- The list box and total staff combo box could be disabled as no data entry should be possible.
- The total staff combo box should be a text control as there should be nothing the user needs to select.
- The label for the JobRole combo box could be better.
- Alignment of the Availability combo box could be better when compared with the JobRole combo box and the Total Staff combo box.

The content of the list box was not assessed in this trait – that would be part of trait 2.

Example 3

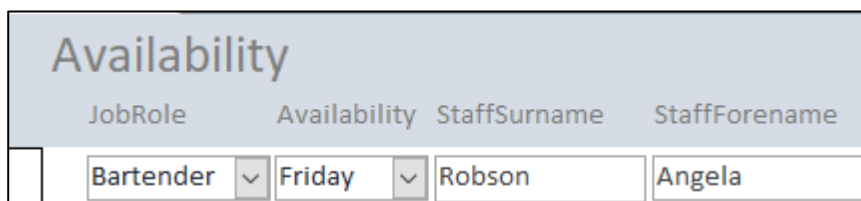
This form is not fit for purpose. It is not a form that would be useful for displaying a list of staff members who are available to work. There is still some markworthy content though:

- The title is relevant to the purpose of the form
- The job role field and availability field are relevant to the purpose of the form.

Available Staff members	
New staff members will select their job role (Bartender, Steward, Security) and their availability the days they are in (Friday, Saturday).	
JobRoleID	<input type="text" value="1"/>
JobRole	<input type="text" value="Bartender"/>
StaffSurname	<input type="text" value="Robson"/>
StaffForename	<input type="text" value="Angela"/>
Availability	<input type="text" value="Friday"/>

Example 4

This form is also not fit for purpose. However, the title is just about ok and it does include drop down boxes for the JobRole and Availability so there is some markworthy content.



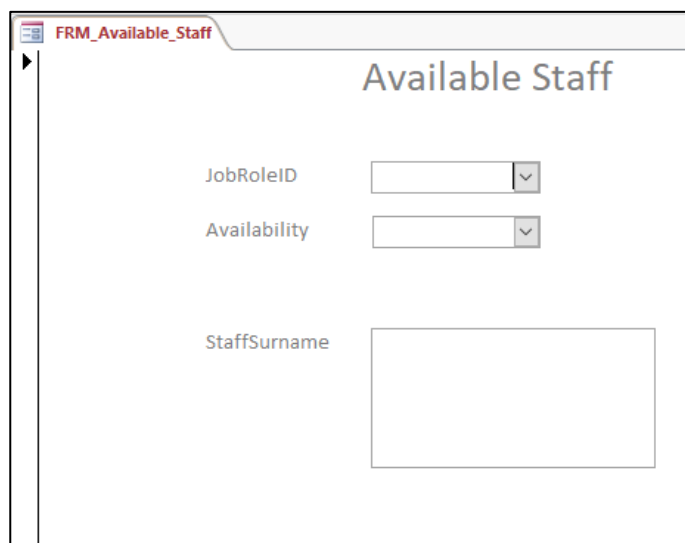
The screenshot shows a form titled "Availability". It has four input fields: "JobRole" with a dropdown menu showing "Bartender", "Availability" with a dropdown menu showing "Friday", "StaffSurname" with a text input field containing "Robson", and "StaffForename" with a text input field containing "Angela".

Example 5

This form is relevant to its purpose. There are some good points but, again, there is room for improvement.

Good points

- Combo boxes are present in order to select the job role and availability.
- There is space for the list of available staff.
- The title does give an indication of the purpose of the form.



The screenshot shows a form titled "Available Staff" within a window titled "FRM_Available_Staff". It has three input fields: "JobRoleID" with a dropdown menu, "Availability" with a dropdown menu, and "StaffSurname" with a large empty text input field.

Improvements

- Instructions could have been used on how to use the form
- Asterisks could have been used to show where data entry would be needed.
- The available staff list could have been disabled as no data entry would be needed.
- There should have been a field to show how many staff were available
- The labels could be better e.g. JobRoleID, StaffSurname.

Trait 2

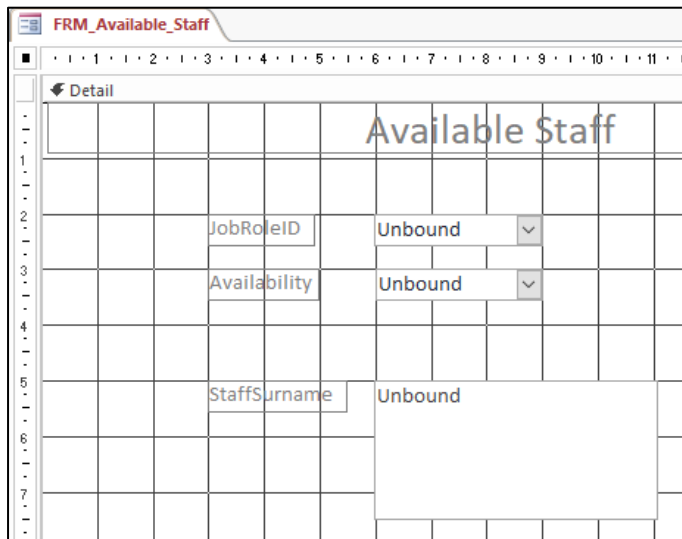
In terms of criteria and calculations, this is what was expected:

- the JobRole (or JobRoleID if that was the method used by the learner) selected on the form would be used as criteria in the filtering method chosen.
- The Availability combo box would take into account that learners were told it had to include Friday and Saturday only and there should have been some consideration of this in terms of the criteria used to filter e.g. OR 'Both days'.
- the Availability on the form would be used as criteria in the filtering method chosen
- the results of the filter would be used as the source for the list box showing the staff available (or equivalent)

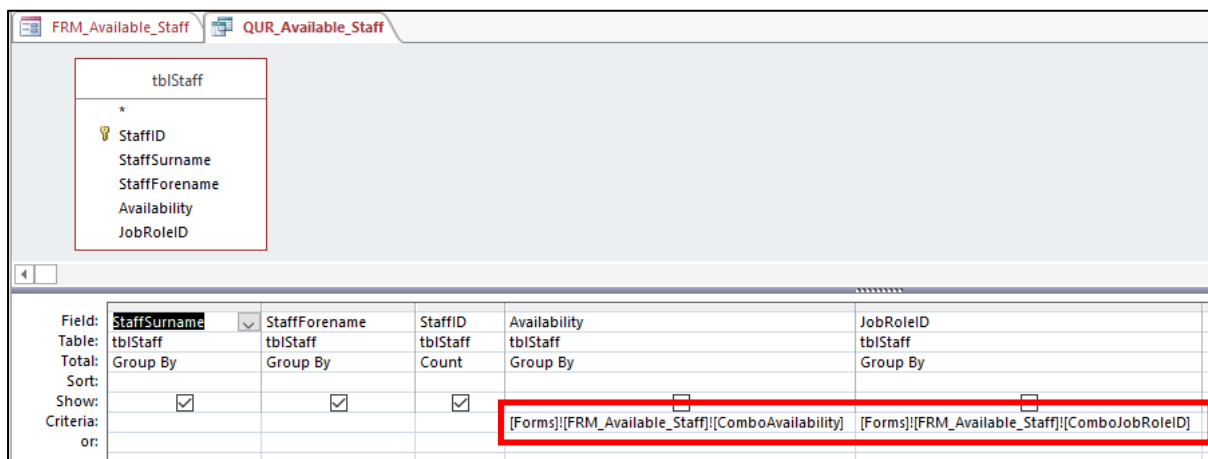
- the results of the filter would be used to determine the number of staff available.

It was good to see the creativity of the learners in terms of this trait. Many different methods were used, some of them were successful in producing the correct results in the manner intended: some were successful in producing the correct results but not in the manner intended, some successfully managed some of the results and some had tried but not managed to successfully produce any of the results. All these solutions were markworthy in one form or another. Consider these examples:

Example 1



This learner successfully implemented some of the criteria. A query screenprint was included that showed the JobRoleID combo box and the Availability combo box being used as criteria in order to try and find the suitable staff. Availability should also have incorporated the fact that those who can work both days can work Friday or Saturday.



However, there is a lot of evidence missing, which affected the awarding of marks:

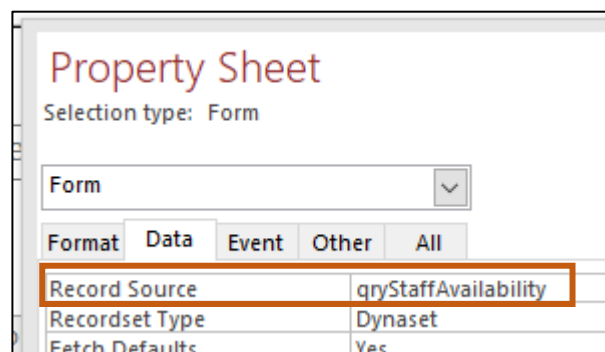
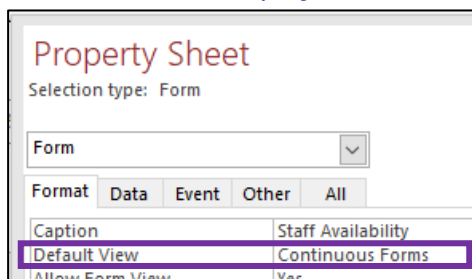
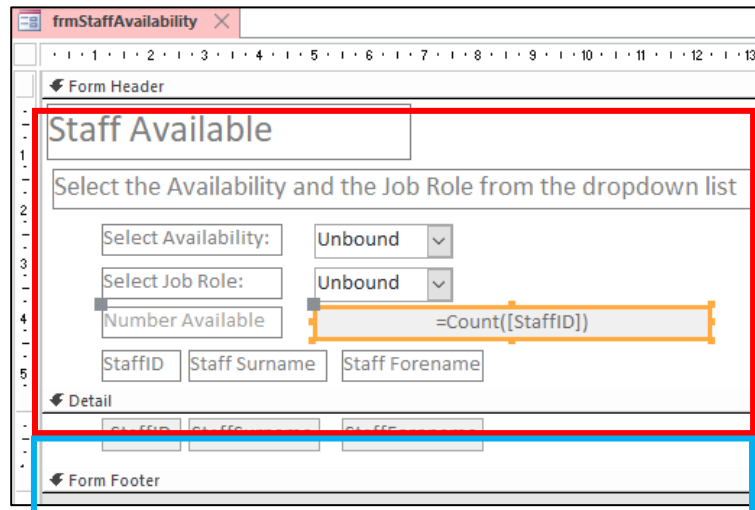
- the source of the JobRoleID combo box and Availability combo box has not been shown. It cannot be determined whether the learner took into account the combo box should have included Friday and Saturday only.
- the source of the list box has not been shown – presumably it is the query - however, examiners cannot ‘guess’ at what the learner has done.
- there is no attempt to try and calculate the number of staff available

It is a shame the learner missed out on some marks purely for not including enough screenprints to ensure their **full** method could be seen.

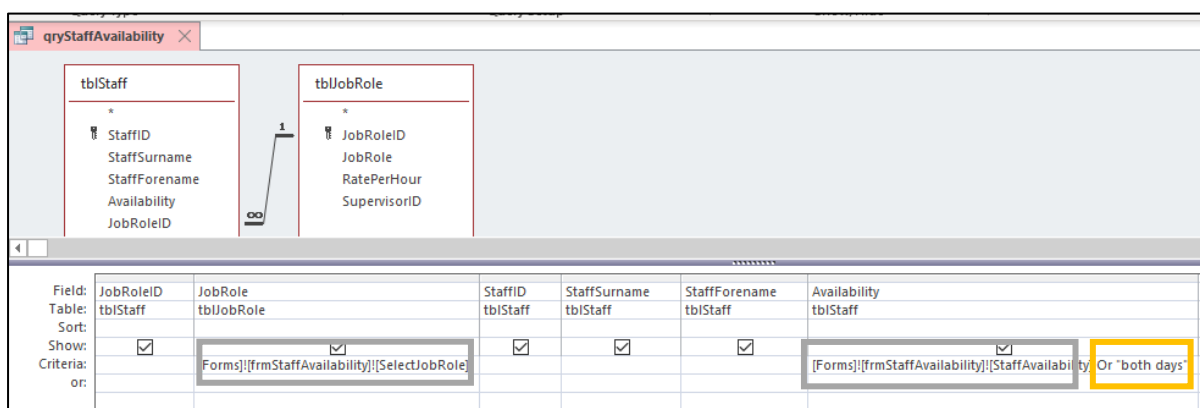
Example 2

This learner successfully implemented all aspects of trait 2. They have used the form header to display the fields and labels that should only appear once on the form and the detail section to display the fields that will appear more than once.

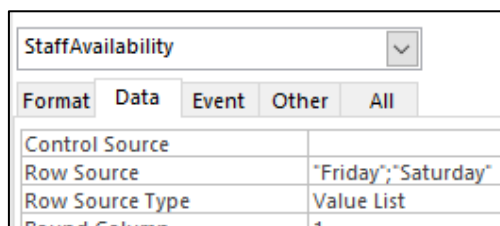
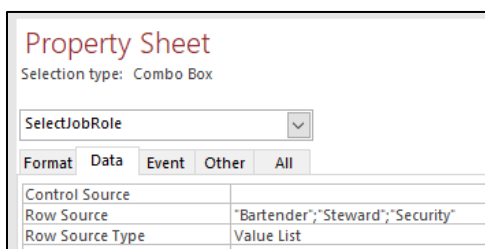
The default view has been set to continuous (so that more than one record will display).



The record source for the form has been set to `qryStaffAvailability`. `qryStaffAvailability` has been included. This shows that the JobRole combo box and the Availability combo box are being used as criteria. The learner has also ensured 'Both days' has been taken into account.

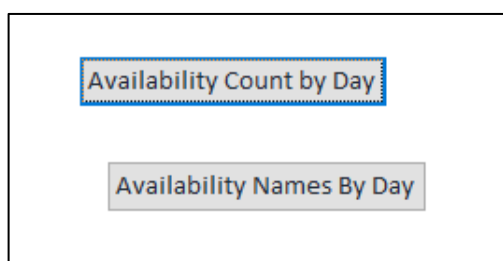


The learner has shown the sources of their two combo boxes. They could have used a table lookup for the Job Role combo box (tblJobRole as the row source). However, this is fine.

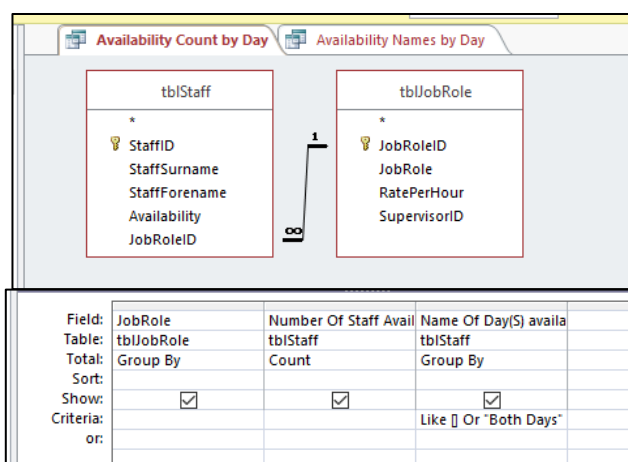


Example 3

This learner did not follow the requirements set in the activity but has attempted to provide some functionality in terms of checking staff availability. This was not classed as a form and was not classed as fit for purpose but was considered as evidence and did play a part in the marks awarded.



JobRole	Number Of Staff Available	Name Of Day(S) availab
Bartender	2	Both days
Bartender	2	Saturday
Security	2	Both days
Security	1	Saturday
Steward	2	Both days
Steward	1	Saturday



The learner has attempted to filter to a particular job role and has also taken into account 'Both days'. However, this has been completed as a standalone query.

The user would input the job role and it would then display the results of the query. Truncation has occurred in the field names. The learner has also not shown the full process. Presumably this is the query behind the 'Availability

Count by day'. The examiner cannot guess at this nor can they guess at the process behind the 'Availability Names by day' button. Nothing in terms of the functionality of that has been shown.

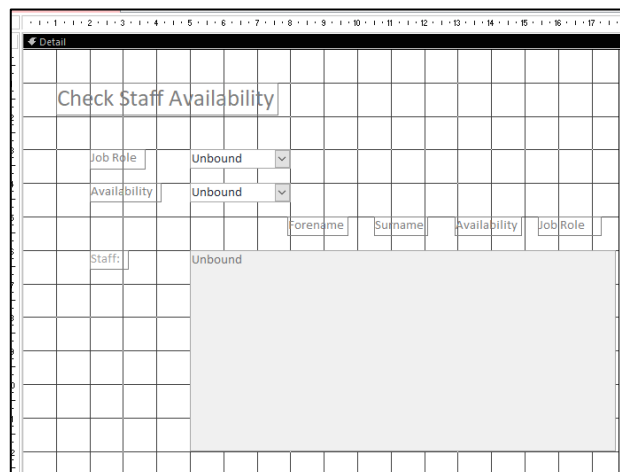
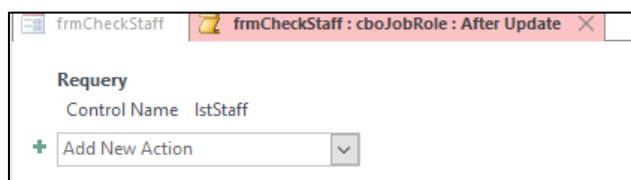
This has been included as an example to show that learners should attempt the second form. It did achieve some credit for this work in trait 2, which did impact on the marks awarded even though it was not fit for purpose at all.

Trait 3

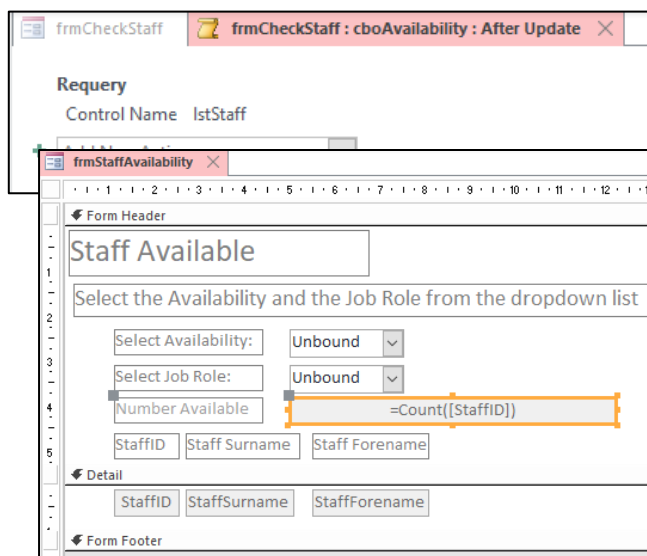
In terms of trait 3 for this form, we wanted to see that the results would be updated automatically after the selections had been made.

Many learners did not appear to consider this or forgot to include evidence of it. Those who did include evidence tended to either use the 'After Update' event of the combo boxes to update the results list box or equivalent based on those selections.

Example 1

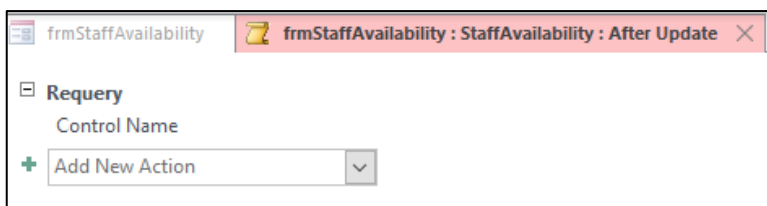
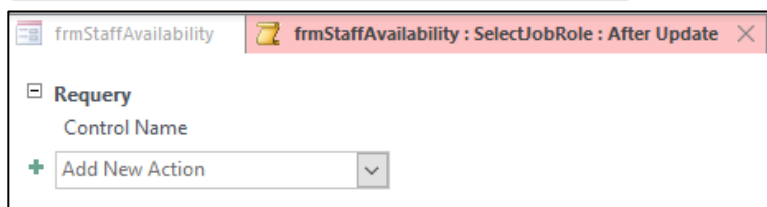


This learner chose to requery each combo box after a selection had been made i.e. the 'After Update' event. This fully met expectations.



Example 2

This learner also used the 'After Update' event on each combo box. However, they did not specify a control name so that the form itself would be refreshed. This is because this learner based the form on a query (see trait 2, example 2 for more detail).



Part B Task 7 – Interface and functionality testing

This task is designed to test the learners' ability to test the interface and functionality of the database by carrying out **only** the tests given. Learners **must** use the template provided in each examination and should only carry out the tests specified.

Teachers are advised to download Script A, Script B, the marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	26-32
Script B	19-20
Marking Guidance	16
Example Solution	24-29

As with the testing activity in Part A, some learners still do not appear to understand the evidence required in terms of testing. The evidence has been discussed in each Lead Examiner's report, the marking guidance, solutions and scripts over several years.

Please note that the testing of numeric foreign keys may be classed as either extreme (X) or erroneous (R) tests. X may be used to signify extreme invalid testing (just outside of the range of values), whilst others may class that as erroneous.

As discussed in Activity 4, in terms of completing the template it is worth telling learners to complete it with the thought in mind that another person will carry out the tests, add the screenprints for the actual results and it is they who will decide whether each test has been passed. This can help force them to make sure they include detailed test data and expected results. How could another person carry out the test without knowing exactly what test data to use in each field? How could another person judge if the test was successful without knowing the exact expected results? In many situations in real life the person who produced the test plan is not the person who carries out the testing. Many learners do not seem to grasp this.

Testing required in the examination:

- 1 the user cannot select an invalid job role on the input form that adds a member of staff
- 2 the user cannot select invalid availability on the input form that adds a member of staff
- 3 a record will not save in the staff table without a staff member's forename
- 4 a record will save in the staff table if the staff member's details are present and valid
- 5 the correct list of staff members displays when the job role is 'Bartender' and the availability is 'Friday'
- 6 the correct total number of staff displays when the job role is 'Steward' and the availability is 'Saturday'

It was expected that some learners would not complete tests 5 and 6 (i.e. if they did not complete the second form) or that the evidence may be weaker than that present for tests 1 to 4. Tests 5 and 6 were aimed at higher ability learners.

What was disappointing was the weaknesses found in terms of test data, expected results, actual results etc. At times learners are throwing away marks because of not taking into account the requirements of this activity. The requirements have been discussed, stressed and demonstrated in the various resources published after each examination over the years.

It was also disappointing to see some learners do too many tests or making up their own tests entirely. Please encourage learners to test only what has been requested. Time is of the essence and the number of tests reflects that.

As with the testing activity in Part A, learners may use X or R when they are testing foreign keys or just outside of range. See comments in Part A for a more detailed explanation of this.

Here are examples of what is required in completing the template and examples of where learners go wrong.

Test data column

It is expected that learners will provide the test data for a **full** record.

Exemplar and examples of where learners provide weak evidence:

Test 1: the user cannot select an invalid job role on the input form that adds a member of staff		
Exemplar test data		
StaffID: Autonumber Surname: Meek Forename Gill Availability: Friday JobRoleID: 0		
Example 1	Example 2	Example 3
Cannot Select an invalid job role.	frmAddStaff Data: 33	17/02/2020
Comments		
This is not test data. It is more like the purpose of the test	This is relevant but it is not specific. You have to guess what field the data is for. The learner should be giving every field name and the data that will be used in it	This appears to be the date of the test rather than the test data that will be used.

Expected results column

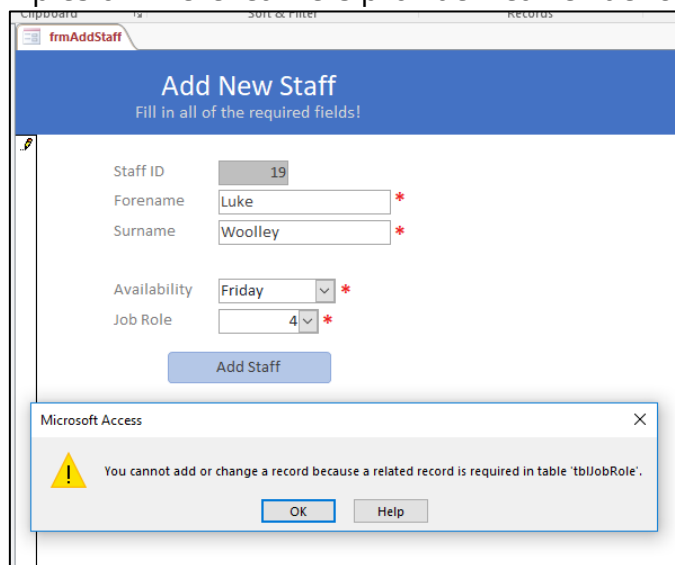
Exemplar and examples of where learners provide weak evidence:

Test 1: the user cannot select an invalid job role on the input form that adds a member of staff		
Exemplar expected results		
An error message to appear to say a record with that ID cannot be found in tblJobRole		
Example 1	Example 2	Example 3
I expected this to show up and state the job role was invalid when entering the data on the form	I have used a combo box to select the job role which means that the new member of staff cannot choose an invalid role and only one of the current job roles and if they do I have added validation rules to prevent the data from saving unless the job role is correct	Error message
Comments		
This is past tense and, taken in isolation, you would have no idea what the expected result should be. The expected result is part of <i>planning to test</i> and should be what is expected not what happened.	This is not an expected result it is a commentary of how the learners has implemented this feature.	This is relevant but of no use. It does not show that the learner understands what their system should do i.e. how would a tester know if it was the correct error message?

Actual results column

Test 1: the user cannot select an invalid job role on the input form that adds a member of staff

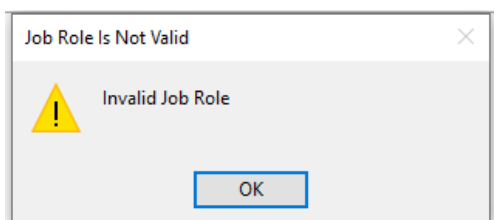
Exemplar and examples of where learners provide weak evidence:



Exemplar

Note, in the timeframe given for activity 6 it is not expected that learners will spend time creating macros or code to generate a custom error message for combo boxes. However, it would be nice to see them acknowledge in the testing/evaluation that these default error messages not very 'user friendly' and are of limited use.

Example 1



Impossible to judge whether the test has been carried out successfully as the form, with the test data, has not been shown.

Some learners also weaken their evidence because the actual results do not use the test data they said they were going to use.

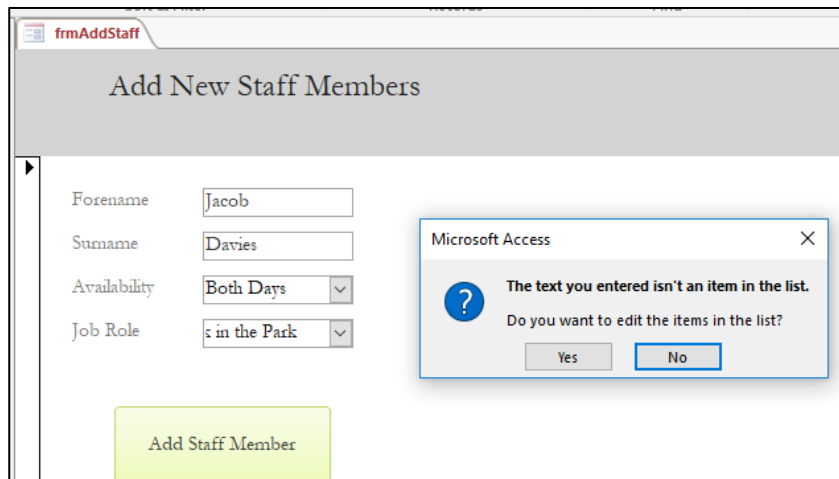
At times learners do not get credited with the actual results because the screenprints cannot be read. The template is A3 size and uses landscape orientation. Some learners change this to A4, which is obviously a lot smaller, some do not check their pdf versions where the layout seems to have been automatically changed to portrait. Both result in screenprints either being truncated or too small to read.

Learners can change the width of the columns in the template and could delete the final column if they have no errors to discuss. They can also place the screen prints underneath the table so long as they ensure they clearly label which test number the screenprint(s) belongs to.

Error column

Learners should only complete this column if they have found errors during testing. Learners are not penalised for having a 'perfect' solution, however, where it is clear the actual results are not what should be expected or where they could have been better, they should be identifying this.

Example 1



The screenshot shows a Microsoft Access form titled "frmAddStaff" with the heading "Add New Staff Members". The form contains the following fields:

- Forename: Text box containing "Jacob"
- Surname: Text box containing "Davies"
- Availability: Dropdown menu with "Both Days" selected
- Job Role: Dropdown menu with "in the Park" selected

At the bottom of the form is a green button labeled "Add Staff Member". A "Microsoft Access" dialog box is open in the center, displaying the following message:

The text you entered isn't an item in the list.
Do you want to edit the items in the list?

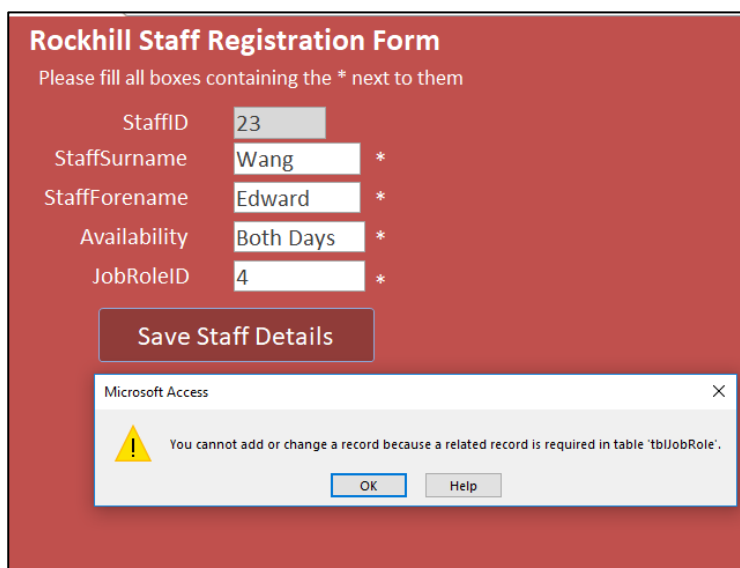
The dialog box has "Yes" and "No" buttons.

The learner did not pick up on the fact that the Job Role is truncated. This could have easily been rectified by widening the combo box.

Example 2

The expected results were 'A message should appear on the screen saying that the ID number they have entered is not valid. and they should enter a number within the range between 1 and 3'.

The actual results were:



The screenshot shows a Microsoft Access form titled "Rockhill Staff Registration Form" with a red background. The form contains the following fields:

- StaffID: Text box containing "23"
- StaffSurname: Text box containing "Wang" with an asterisk (*) next to it
- StaffForename: Text box containing "Edward" with an asterisk (*) next to it
- Availability: Text box containing "Both Days" with an asterisk (*) next to it
- JobRoleID: Text box containing "4" with an asterisk (*) next to it

At the bottom of the form is a button labeled "Save Staff Details". A "Microsoft Access" dialog box is open in the center, displaying the following message:

You cannot add or change a record because a related record is required in table 'tblJobRole'.

The dialog box has "OK" and "Help" buttons.

The learner failed to identify and discuss the fact that the error message did not match the expected error message, nor that they user should be able to select the job role and availability. Even if learners do not amend errors, they should be adding comments to show they recognise and understand the solution is not perfect.

Part B Task 8 – Interface and functionality evaluation

This task is designed to test the learners' ability to evaluate their interface and its functionality in terms of the quality, performance and usability of the interface.

Teachers are advised to download Script A, Script B, the marking guidance and the example solution. In terms of this task these pages are of relevance:

Script A	33-34
Script B	21
Marking Guidance	17
Example Solution	30

The evaluation in Part B is distinctly different from the evaluation in Part B. Part A is designed for learners to showcase their knowledge and understanding about normalisation, minimising data duplication and how this can help ensure requirements are met. Part B is all about the interface and the usability of it from the **user's point of view**. It is clear to see some learners do not understand this. Consider these examples:

Example 1

<u>Interface Evaluation</u>	
<p>My interface provides users with an easy way of inputting valid data onto their system.</p> <ol style="list-style-type: none">1. The user cannot input invalid data onto the system due to the restrictions I have put in place, if a job role which is not available (there are three valid options 1, 2, and 3) then the system will not allow for the record to be saved.2. I have created a dropdown for users so that they have the choice of either working Friday or Saturday, this will stop any confusion and will allow for the staff to easily notify managers of their availability. If the data is not one of the options given then you cannot save the work, therefore it is an effective system.3. The presence of a forename is needed in order to save a new staff record, this is due to the required option that was used within the database, without a forename you cannot continue to input data and save it, making it very efficient.4. If all data presented is valid then it is very simple to input data into the staff table, the button at the bottom of the frm_staff allows you to instantly save the record in the table, when the data is valid this will continue to happen every time making the performance very good.5. The quality could be better when showing who is available when the job is "bartender" and availability is selected to "Friday" this is because my system doesn't allow for users to choose certain criteria instead it just gives a view of the staff and their availability and job type.	<p>Some valid justification</p> <p>Limited justification</p> <p>Limited justification</p> <p>Limited justification as hard to understand</p>

Consider this 'tweaking' of 1 and 2 and how it takes this part of the learners evaluation from having *some valid justification* to a *valid and fully supported justification*, clearly showing the 'user' is the focus behind the quality, performance and usability of the interface.

1. The user cannot input invalid data onto the system due to the restrictions I have put in place, if a job role which is not available (there are three valid options 1, 2, and 3) then the system will not allow for the record to be saved.
2. I have created a dropdown for users so that they have the choice of either working Friday or Saturday, this will stop any confusion and will allow for the staff to easily notify managers of their availability. If the data is not one of the options given then you cannot save the work, therefore it is an effective system.

1 and 2: the user cannot input invalid data onto the system due to the restrictions I have put in place, if a job role which is not available (there are three valid options 1,2, and 3) then the system will not allow for the record to be saved. I used combo boxes so that they did not have to input a JobRoleID or the day they wanted to search for. This means they do not need to remember what the IDs and days are and would also stop them becoming frustrated by keep getting an error message if they did not input valid data.

Example 2

Despite my attempts whilst attempting to build a functioning interface successfully. I struggled to link components within my forms together.

The forms can be viewed and have got some relevant components within them however the functionality and effectiveness is lacking. I would attempt to build macros to allow for new fields to be built but it wouldn't work successfully as I was having issues making the relevant links with the correct validation. As a result I was left with a series of errors and broken links. However the form did have various pieces of functionality which did function and you were able to see existing staff members and they're job role. Which were important as these are what should be used to categorize the new staff member components I have managed to include interface testing and despite various pieces of functionality not functioning as they should I attempted to rectify them and get them to work to the best of my ability.

Limited justification

Example 3

Today's part of the exam was the most challenging for me as I struggle the most with form design and making the forms. In my opinion, most of my struggling with doing so is that we (as there is only one other student with me sitting this exam today) have not had a stable teaching in over a year, and we now do not have an IT teacher to teach us the course so have been reliant by ourselves. The problem with this means that if I don't know how to do something, I've had to try to learn it off something else, and since the syllabus has changed for this exam, neither my friend or I were prepared for two halves, or what was even in the exam, except for the one resource that we found on our own online. I did not take this course to self-teach. Enough of my ranting, here is my full evaluation.

Sad but irrelevant

It took me many tries to get the first form to work. At first I was able to get all of the data onto the form, but I couldn't make the availability into a "combo box" to select the dates, so I left it at first. I then decided to try and make a query to show only the dates, in which I did, and only the three dates, Friday, Saturday and Sunday were there for me to choose, however I didn't know how to input this into the form, so therefore, I decided to leave it as I was now wasting time.

More like a description of how they have completed the paper though there is some aspect of performance there. Cannot see quality of usability and little thought of the user. Limited

I was able to change the form so the staff member's name must be present, I set the validation rule to 'Is Not Null' so that there must be one present, and I was able to make a combination box for the job role so the user could select it.

I wasn't able to create any display to show a save message, but an error message showed if I didn't enter a surname or forename.

The second form was very difficult for me, trying to figure out how to get it to do what the exam wanted made me have to think about it a lot. At first I made a form with surname, forename, Job roles and availability, but this showed me every single item. I had to think about it for a while and then I realised I could make a query, therefore I made a parameter query for the job role and the staff availability and then it outputted results, so I then put this query onto a form. This then meant that when I opened up the form, it would ask the day that you wanted, and the job role you wanted, and it would display all of the workers on that night, except it wouldn't also display the ~~Both nights workers, so if you wanted to know who was working both nights for a certain job role, you would have to add an extra step, which isn't ideal yet it was still working.~~

Still a description but there is some valid justification. This touches on quality and usability.

No consideration of the user though

~~I spent a lot of my time trying to figure out the forms that I didn't have enough time to complete all of the validation, I need to improve on my time management, but I was able to complete both forms and the evaluation. My forms didn't work the way I wanted them to and I didn't complete them fully to the extent that the company would have wanted them to but I was able to complete them to a working standard.~~

Irrelevant

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