

Paper Reference(s)

6957/01

Edexcel GCE

Applied Information and Communication Technology

Unit 7: Using Database Software

12–30 January 2009

Assessment window 3 weeks

Time: 10 hours

Materials required for examination

Short treasury tag
Perfume_exam.txt
Order_exam.txt
Logo_exam.jpg

Items included with question papers

Cover sheet

Instructions to Candidates

Complete your candidate details on the cover sheet provided.

At the end of each session you should hand your materials in to your teacher.

All tasks must contain your name, candidate number, centre number and activity number in the page footer.

At the end of the examination:

all printouts should be placed in the correct order.

use a treasury tag to attach your printouts (**as shown**) to Page 2 of the cover sheet.

Information for Candidates

There are **five** activities in this examination totalling **88** marks. **2** further marks are allocated to Standard Ways of Working giving a paper total of **90** marks.

Use relational database software to carry out the activities in this examination.

The marks for parts of the activities are shown in round brackets: e.g. **(10)**.

There are suggested timings against each activity: e.g. **(15 minutes)**.

Advice to Candidates

Study all the information provided carefully.

Work through the activities in order.

Attempt **ALL** activities.

Label your printouts clearly.

Printer's Log. No.

N34389A



Turn over



LAURA ELLE Range of Perfumes

Laura Lewis and Steven Gee are setting up a small business to produce and market perfumes.

Together they have developed recipes for eleven different perfumes.

The 11 perfumes are named

- Midnight Flight
- Aftermath
- Mirepoix
- Joix
- Sabre
- Clubbin
- Opus
- Gorgeous
- Crazy Knights
- Lotus Leaves
- Crystal Web

Laura has approached a large department store chain, which has agreed to provide an outlet for the Laura Elle range of perfumes. They have designed a different 30ml bottle for each of their perfumes.

Steven is concentrating on production. He believes you can advise him on the amount of each ingredient that should be bought and the amount of each perfume that should be produced in a process based on orders received.

The Production Process

The 11 perfumes are mixtures of 12 different ingredients and water in different proportions. Each recipe uses different proportions of the ingredients. The ingredients are supplied in one litre bottles. A production line has been set up.

The production line consists of 12, 15-litre vats, each containing a different ingredient. These vats are positioned above a conveyor belt onto which the perfume bottles are placed at regular intervals. The bottles pass under each of the vats in turn. Each vat has a control which can be set to deliver a fixed number of millilitres (ml) of the ingredient into each bottle as it passes. When a bottle reaches the end of the production line it is automatically filled to the brim with water, shaken and sealed. The bottles are packed in batches of 100.

A trial of the production process has identified a major problem – if a vat runs out of its ingredient in the middle of producing a particular perfume, it ceases to supply that ingredient. The consequence of this will be that the remainder of the perfume bottles in that run will not be filled with the correct proportions of ingredients.

Steven will control production. He requires a database system to enable him to monitor the production process and to ensure that sufficient ingredients are available to complete a production run.

Steven will receive orders for the 11 perfumes from individual stores in the department store chain. Orders for each perfume will be in batches of 100 bottles. For example, if a store orders two batches of Midnight Flight it is requesting 200 bottles. An order may include a request for batches of more than one perfume.

The production process can only produce one perfume at a time. For efficiency, Steven would like the database system to collect together all of the outstanding orders and to calculate how much of each perfume he must produce. He will then do production runs for each perfume in turn producing enough of each to fulfil all of the orders.

For each run Steven would like the system to calculate and display how much of each of the ingredients will be needed for that particular run. He would also like it to display how much of each ingredient (except water of which there is a constant flow) is currently in the vats. If there is enough of an ingredient in a vat for the run to be completed, the system should display that this ingredient is "OK". If there is not enough the system should display "Refill".

Before each run, Steven will look at the display and if any of the ingredients are marked "Refill", he will go into the store room. For each of the vats that need to be refilled, he will retrieve the appropriate number of litre bottles of the ingredient and empty them into the relevant vat. Steven will then input the number of litre bottles of each ingredient used into the system. The system will be updated to reflect the current amount of ingredient in each vat. It will also be adjusted to reflect the number of litre bottles remaining in the storeroom taking into account the number of litre bottles that have been removed. Once the system displays "OK" for all vats, Steven will start the run.

Steven will tell the system when the run has been completed. The system will be updated to reflect how much of each chemical has been used during the run.

As a perfume is produced, the orders on the system will be updated to reflect that the requirements for that perfume have been fulfilled. The run for the next perfume will then commence.

As each perfume production run is completed, the batches will be sent down to the dispatch department, where they will be arranged into orders. Dispatch will have a different interface to the system which will display the complete order for a particular store to ensure that they send the right number of batches, of the right perfumes, to the right stores. When a complete order has been collected together the dispatch manager will tell the system that this has happened and the system will mark the order as having been processed.

In summary, Steven wants a database where he can check the stock levels of ingredients and manage the production of each perfume. Laura is interested in a database which allows her to track the orders from the branches. A database to meet all these needs would be ideal. Being non-ICT specialists they need it to be user friendly and intuitive to use.

All word processed documents must have a header and a footer. The header must contain the Activity number. The footer must contain your name, candidate number and centre number.

All database reports must have the Activity number, name, candidate number and centre number in the page header.

Activity 1 – Understanding the problem (suggested time 1 hour)

Draw a diagram showing the process required to produce bottles of a perfume in response to any outstanding orders. The diagram should include

- the processes the system needs to undertake
- the inputs to each process
- the outputs from each process.

Evidence to be submitted

- A print out of a dataflow diagram or similar.

(Total 8 marks)

Activity 2 – Structure (suggested time 2 hours)

Study the data files provided in your examination work area.

- Use data modelling techniques to design an efficient database structure that minimises duplication of data.
- Create the database structure.
- Load the existing data from the data files into your database.
- Use a range of validation checks to ensure correct input of data.

Evidence to be submitted

- A screen print showing each table structure with data types
- A screen print showing the relationships in your database
- Evidence of the application of any validation checks that you have included
- Screen prints of the tables after import, showing the **number of records** and at least five records. (If the number of fields are too big to fit on one page, all the fields do not have to be displayed.)

(Total 23 marks)

Activity 3 – Creating the production interface (suggested time 3 hours 30 minutes)

- Create the interface that Steven will use to monitor the production process.
- Describe how the interface will work using screenshots to show any forms, queries and macros.
- Use your system to process the unprocessed orders on the system.

Evidence to be submitted

- A description of how your interface works with screen prints of any forms, queries and macros that you have created for this purpose (26)
- Screen prints of any forms in your system with perfume “LE01” displayed prior to any refills (6)
- Screen prints of forms with “LE01” showing after the vats have been topped up and the system is ready to run the production process for perfume “LE01” (1)
- Screen prints of relevant tables showing ingredient levels in the vats after the run for “LE01” perfume (5)
- Screen prints to show that the order for “LE01” has now been completed. (2)

NOTE: Forms should be shown in both data entry and design views. Queries and macros should be shown in design view. Comments and annotations should be used to describe the effects of any macros.

(Total 40 marks)

Activity 4 – Creating the dispatch interface (suggested time 1 hour)

- Create the interface for the dispatch manager.
- Describe how the interface will work using screenshots to show any forms, queries and macros.
- Use your system to process the completed orders.

Evidence to be submitted

- A description of how your interface works with screen prints of any forms, queries and macros you have created for this purpose.

NOTE: Forms should be shown in both data entry and design views. Queries and macros should be shown in design view. Comments and annotations should be used to describe the effects of any macros.

(Total 6 marks)

Activity 5 – Producing delivery notes (suggested time 2 hours 30 minutes)

Note: this activity requires you to produce a report. The activity number, you name, candidate number and centre number should be in the page footer for the report. (You need to modify your report in design view to do this.)

Delivery notes need to be printed for the orders which you have just processed. The delivery notes will be included with the order when it is dispatched to the store. The purpose of this is to ensure that stores can check the contents of deliveries that they have received.

- Create a report to generate delivery notes for those customers whose orders have been processed.

Evidence to be submitted

- The report.

(Total 11 marks)

(Standard Ways of Working: 2 marks)

TOTAL FOR PAPER: 90 MARKS

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