Edexcel GCE

Applied Information and Communication Technology

Unit 7: Using Database Software

7–25 January 2008

Assessment window 3 weeks

Time: 10 hours

Materials required for examination	**Items included with question papers**
Short treasury tag	Cover sheet
reservation_exam.txt	

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.
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 **four** 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 database 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

Read through the scenario carefully.
Work through the activities in order.
Attempt **ALL** activities.
Printing must be undertaken within the examination time.

Turn over

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Scenario

Bronco Brian Gunn's Wild West Theme Park

Brian Gunn grew up in the fifties at the height of the Western films' popularity. Brought up on John Wayne films and television programmes like the Lone Ranger, he became fascinated by the Wild West. At the age of ten he joined the Billericay Wild West Club that boasted forty-five members. Brian's crowning moment was when he won the World Quick-Draw Tournament in 1976 after being National Champion for eight consecutive years.

Inevitably Brian's working life was going to be connected in some way with the Wild West. Consequently on leaving school he opened the first of his fast-food restaurants in Billericay. The "Bronco Brian's Burger & Beans Bars" chain of restaurants is now countrywide and has, over the years, netted Brian a fairly substantial fortune. His empire has expanded and he has opened a theme park "Bronco Brian Gunn's Wild West Theme Park" in Burnham-on-Crouch.

The theme park

Initially customers paid no entry fee for the theme park but paid individual prices for the rides. There were two problems with that. Firstly the queues taking the money became really long as fees had to be paid and change given which tended to delay the process. Secondly the high volumes of cash made the kiosks which took the money vulnerable to theft. Brian devised a membership scheme. Members were issued with a swipe card similar to a credit card. Members could purchase points for the card either via the internet or at a kiosk in the theme park itself. An alternative entrance to each ride was installed for members only. Each ride was assigned a points value between 10 and 150 points. The members' entrance was an automated gate activated by swiping the membership card through a reader. The number of points a member had available was held on a database. Swiping the card not only activated the gate but subtracted the number of points the ride was allocated from the member's record on the database. The member then merged with the normal queue a little later on. The card was identified using a 16 figure number displayed in four groups of four digits separated by a space.

Reservations

Although the new system did reduce the queue a little there were a number of complaints from the members. Firstly, they felt that their membership should give them some kind of priority in the queue as they still had to wait over an hour for some rides. Secondly, when the queues were very long there were a number of disputes where the queues merged. Bronco Brian decided that the two entrances should not meet until they were about to get on the ride and then the attendant will choose people to mount the ride alternatively from each queue. This helped but the members asked if they could reserve rides. Bronco Brian decided that this might be a good idea so he came up with the following system which he intends to trial at his theme park one weekend during June of 2008.

Bronco Brian has decided to reserve five places on each of his main rides at three times (sessions) throughout the day. The times of these reserved rides will be the next ride after 11:00, 14:00 and 16:00. Members will be able to book places on these rides via the internet any time prior to their visit.

Bronco Brian would like the system to work in this way. When members sign on to the theme park website and go to the 'Reserve Rides' link, they will be presented with a form asking them to enter their card number. Non members are offered the opportunity to register. If they need to register, they press a button which presents them with a screen to enter their details. When they have entered all their details and hit the enter button, the system will generate a card number for them and display it on the screen. The first eight digits of the card number will always be 5555 1946. The remaining eight digits are formed by an eight digit customer ID. When a new customer registers they are assigned a customer ID of one more than the highest customer ID currently in the system. The customer now becomes a member and should be asked to write this number down for future reference. They will then click a button which will take them back to the original 'Reserve Rides' form. They now have a card number which they can enter. New members are initially allocated 2000 points and their cards will be waiting for them at the entrance of the theme park. These cards will cost the member £55.

Once the member has entered the card number on the 'Reserved Rides' form their details are displayed. An error message is displayed if the card number does not exist and the member is returned to the original form to resubmit the number. The member is asked to confirm the details as correct and, having done so, is taken to another form where they choose the rides they want to reserve. In each case they must enter the ride and the time they require. The system will check if there is a reserved place available and, if not, will display a message and not store the reservation. If there is a space available and the member has enough points on their card to reserve the ride, the reservation will be stored. The number of reserved places available will be reduced by one and the member's points will be reduced by the points value of the ride, plus ten points as a reservation fee. If the member does not have enough points then a message is displayed and the reservation is not made.

A waiting room is to be created at each of the rides for the members with reservations. To claim their ride the members must arrive at the waiting room prior to the allocated time. The attendant will check their cards on a computer to confirm they are entitled to the ride. The members with reservations are then the first people let on to the first ride after the allocated time.

The proposed system

You need to create a new database which will hold the data from the old membership system and handle the proposed new reservation process.

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.

Minimum font size of 10 should be used throughout. Screen prints should be large enough for the detail to be easily read.

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

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

Produce a word processed functional specification identifying:

❑ the tasks the database has to perform

❑ the information it must supply, and to whom

❑ the data to be input into the database, and how this is done

❑ the processing that is required.

Evidence to be submitted

• A word processed functional specification identifying the requirements of the database. This can be in note form.

(Total 8 marks)

Activity 2 – Structure (suggested time 2 hours)

For this activity you will need to use reservation_exam.txt

❑ Use data modelling techniques to design an efficient database structure that minimises duplication of data

❑ Create the database structure

❑ Load the existing data from reservation_exam.txt into your database

❑ Use a range of validation checks and input masks 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 any validation checks and input masks applied.

• 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 18 marks)

Activity 3 – Making a booking (suggested time 4.5 hours)

❑ Create the interface the customer will use to reserve rides over the internet. **(Important note: It is not necessary to create a web interface. Use normal database forms for the interface.)**

❑ Use your system to enter the 'Reserved Rides' data, taking screen prints and making word processed notes to describe what happens. After you have entered each customer take screen prints of the customer record and all the relevant session and reservation data to show the effects of your system:

'Reserved Rides' data

Card Number	To be assigned (new member)	
Name	Eric Hendrix	
Address	15 Helingham Mansions Eastcliff Wessex WE20 9JH	
Student	no	
Ride	**Date**	**Time**
JV945	03/06/2008	11:00
FP562	03/06/2008	14:00
GC223	03/06/2008	16:00

Card Number	5555 1946 1000 0009	
Ride	**Date**	**Time**
FX018	03/06/2008	11:00
GN638	03/06/2008	14:00
NC657	03/06/2008	16:00

Card Number	5555 1946 1000 0021	
Ride	**Date**	**Time**
JV945	03/06/2008	11:00
GN638	03/06/2008	14:00
GC223	03/06/2008	16:00

Evidence to be submitted

• A word processed description of how your interface works with screen prints of any Forms, Queries and Macros you have created for this purpose.

• Screen prints and word processed notes of what happened when you entered the 'Reserved Rides' data.

(Total 44 marks)

Activity 4 – Producing the cards (suggested time 2.5 hours)

Note: this activity requires you to produce a report. The activity number, your 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.)

The cards will be printed by Bronco Brian on special plastic using a special printer. The sheets are of A4 size and the cards are to be printed 6 to a page.

Each card will contain

- the card number, printed right across the card

- the last name and first initial of the member

- the theme park logo

- student cards should be shown by printing the word 'Student' in large letters on the bottom of the card.

❑ Create the report to generate cards for those members who have not yet received them. You should also create a method of updating the appropriate record to show that the card has been printed.

The report footer should contain the total cards printed and how many of these cards were for students.

Evidence to be submitted

The report, which should be printed on ordinary A4 paper.

Screen prints of any Macros, Queries, or other methods, used to undertake the task with an explanation of how they work.

(Total 18 marks)

(Standard ways of working: 2 marks)
TOTAL FOR PAPER: 90 MARKS

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