Edexcel GCE

Applied Information and Communication Technology
Unit 7: Using Database Software

14 May – 1 June 2012 **Assessment Window: 3 weeks** **Time: 10 hours**	Paper Reference **6957/01**

You must have:
Short treasury tag, cover sheet, Officials_exam.txt, Runs_exam.txt

Instructions

- Complete your candidate details on the cover sheet provided.
- All printouts 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

- The total mark for this paper is **90**. There are **six** activities in this examination totalling 88 marks. 2 further marks are allocated to Standard Ways of Working.
- The marks for **each** question, within an activity, are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Use relational database software to carry out the database activities in this examination.
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- Read through the Scenario carefully.
- Work through the activities in order.
- Attempt **ALL** activities.
- Label your printouts clearly as instructed.
- Printing must be undertaken within the examination time.

Turn over ▶

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PEARSON

Scenario

Weekend Run Club

Weekend Run Club is a voluntary organisation that hosts running events at different locations around the country. Each location has a difficulty level between 1 and 5 with 5 being the most difficult. The difficulty level is set according to the terrain.

One branch of the club is based in the North East of England. It hosts runs at the same three locations every Saturday.

Volunteers act as officials for each location. These include:

- a Race Manager, who has overall responsibility for the location and for emailing weekly results to the North East of England coordinator

- Registrars, who record the details of each runner. For new runners the Registrar will record their name and date of birth, otherwise the RunnerID is recorded

- Number Allocators, who assign each runner with a bib

- Timers, who record the finishing time and details of each runner.

Tracy Little is the coordinator for the North East of England branch and she is responsible for maintaining the records. She currently uses a paper-based system, which is not efficient. Tracy knows you are studying ICT and thinks you could develop an IT-based solution to replace the current system. In the first instance, it has been agreed that you will design and build a **prototype** relational database system that will focus on four tasks. The final system will be based on your evaluation of the prototype and your recommendations for further functionality.

These are the tasks.

1. **Registration**, which involves:

    - the input of personal details

    - ensuring name and date of birth are present

    - generating the age of the runner

    - determining the age category of the runner

    - generating a unique RunnerID, which is a sequential number that is always one more than the highest currently in use

    - storing the runner's details if all requirements are met

    - providing a suitable message for Tracy so that she knows what is happening.

2. **Creating Runs**, which involves:

- entering or selecting one of the three run locations

- automatic generation of the run date

- generating a unique code for the run, which combines letters from the run location with a sequential number that is always one more than the highest currently in use

- storing the run details.

3. **Recording Results,** which involves:

- searching for a particular run

- displaying details of the run

- entering the runners and their times

- storing the results

- updating the total number of runs for each runner

- updating their personal best time if necessary.

4. **Printing Results** – printout of the results including location, run and runner details.

The printout will need to look professional and be easy to read.

Activity 1 – Understanding the situation (suggested time 30 minutes)

(a) A good database will minimise data entry wherever possible.

   Part of the task of registering runners is given in this table.

   Use word processing software to create a copy of this table.

Step	Input	Process	Output
Determine age category			
Display message			
Get personal details			
Generate age			
Generate RunnerID			

   For each step in the task, identify whether it is an input to the system, a process automatically carried out by the system or an output from the system by adding a cross in the appropriate cell.

   (3)

(b) One of the steps in the Registration process is to ensure the runner's name and date of birth are present. This can be achieved by applying validation. Identify which form of validation would be best.

   (1)

(c) One of the steps in the Recording Results task is to carry out a search for a particular run. Describe how this could be done.

   (2)

Evidence to be submitted for Activity 1.

A printout, on one side of A4, displaying:

❑ your completed table for part (a)

❑ your answer for part (b)

❑ your answer for part (c).

(Total for Activity 1 = 6 marks)

Activity 2 – Structure (suggested time 2 hours)

You will need to use the data files **Officials_exam.txt** and **Runs_exam.txt**

These are provided in your examination area.

Study the data files.

(a) Create an efficient database structure that minimises data duplication.

Screenprint the relationships in your database.

(9)

(b) Use the correct data types and key fields.

Produce screen prints in **DESIGN** view of each of your tables showing **only** the field names, data types and primary keys.

(3)

(c) An efficient database must include suitable validation.

Note: you can use the same field more than once if appropriate. In (i)-(iv) you **MUST** name the type of validation used.

(i) Screenprint in **DESIGN** view **ONE** example of a **Format Check** on an appropriate field. Ensure you can clearly see the field it is applied to and the format.

(1)

(ii) Screenprint in **DESIGN** view **ONE** example of a **Range Check** on an appropriate field. Ensure you can clearly see the field it is applied to and the range specified.

(1)

(iii) Screenprint in **DESIGN** view **ONE** example of a **Presence Check** on an appropriate field. Ensure you can clearly see the field it is applied to.

(1)

(iv) Screenprint in **DESIGN** view **ONE** example of a **List Check** or **Table Lookup** on an appropriate field. Ensure you can clearly see the field it is applied to and the list items or row source.

(1)

(d) Import the data from the text files provided into your database.

Screenprint each table showing **at least three records** and the **full record count**. (If the number of fields is too big to fit on the width of the page, all the fields do not have to be displayed.)

Ensure you can see the total number of records imported in each table.

(5)

You must assemble your screen prints in the order you were asked to complete them.

(Total for Activity 2 = 21 marks)

Activity 3 – Dealing with registration, creating runs and recording results (suggested time 4 hours and 30 minutes)

(a) A registration form is needed so that Tracy can enter and save runner details.

    (i) Create a data entry form for Tracy to use.

        For each runner the form should collect, generate or set:

- runner's name
- date of birth
- gender
- RunnerID
- age
- age category
- total runs
- personal best.

(1)

    (ii) Generate the new RunnerID, which is always one more than the highest currently in use, and display it on the form.

(1)

    (iii) Generate the runner's age and display this on the form.

(1)

    (iv) There are three age categories. Seniors are 60 and over, Juniors are younger than 20, everyone else is an Adult.

        Generate the runner's age category and display it on the form.

(3)

    Screenprint the form in **DESIGN** view.

    Ensure you show how the RunnerID, age and age category have been generated and that any calculations can be seen in full.

    It does not need any annotations.

    (v) Set the total runs to 0

(1)

    (vi) Set the personal best to 05:00:00

(1)

    (vii) Customise the form to make it easier to use.

        Screenprint the form in **FORM** view.

        It does not need any annotations.

(2)

(b) Create an automated method of saving a runner's details.

   (i) The automated method of saving should include:

   - storing the record in the relevant table

   - a message to indicate that the record has been saved

   - clearing the form, ready for the next runner's details.

   Screenprint in **DESIGN** view any macros, code and/or queries you have used.

   Ensure that the detail can be seen in full.

   (2)

   (ii) The process must start by clicking a save button.

   Create a button on the form and link it to the automated method of saving the runner's details.

   Screenprint the form in **DESIGN** view showing the save button and its **OnClick** event property, or equivalent.

   (2)

(c) A form is required that will allow Tracy to create a new run.

   (i) Create a data entry form for Tracy to use.

   The form should allow Tracy to select or enter the LocationID of the run.

   (1)

   (ii) Generate the RunID and display it on the form. A RunID consists of the LocationID, a dash and a number one more than the highest currently in use.

   (4)

   (iii) Generate the run date which should be 7 days later than the last run date for the particular location and display it on the form.

   (4)

   Screenprint the form in **DESIGN** view.

   It does not need any annotations.

   Ensure you show how the RunID and run date have been generated and that any calculations can be seen in full.

(d) An automated method of saving a new run record is required.

   Create an automated method of saving the run details.

   Screenprint in **DESIGN** view any macros, code and/or queries you have used.

   Ensure that the detail can be seen in full.

   (1)

(e) A form with a sub-form is required that will allow Tracy to record the results of a run.

   (i) Create a query that Tracy can use to find a particular run.

        Screenprint the query in **DESIGN** view.

        It does not need any annotations.

        Ensure that the detail can be seen in full.

        (1)

   (ii) Create a form with a sub-form for Tracy to use.

        The query created in (i) should be used.

        The main form should allow Tracy to see:

        •   the RunID

        •   the run date

        •   the location name.

        The sub-form should allow Tracy to:

        •   select or enter the RunnerIDs

        •   see runner names

        •   see genders

        •   see age categories

        •   enter runner times.

        Screenprint the form in **FORM** view.

        It does not need any annotations.

        (2)

(f) Tracy wants the system to update the total runs and personal best times for all runners that took part in the race.

   Create an automated method of doing this.

   The automated method of updating should include:

   •   adding 1 to the current total runs for each runner

   •   updating the personal best field for each runner if appropriate.

   Screenprint in **DESIGN** view any macros, code and/or queries you have used.

   Ensure that the detail can be seen in full.

   Annotate to explain how the automated method works.

   (2)

   (Total for Activity 3 = 29 marks)

Activity 4 – Testing (suggested time 1 hour)

(a) Use the registration form you created in Activity 3 to enter the details of this runner:
   Stephen Meek
   DOB: 20/07/1964
   Gender: Male

   (i) Enter the data into the registration form and screenprint in **FORM** view.

   (1)

   (ii) Save the runner details and produce:

   •   a screen print of the message that appears when the runner details have been saved

   •   a screen print of the new record in the relevant table

   •   a screen print of the form in **FORM** view.

   (3)

(b) Enter the details of this runner on the registration form:
   Waqqar Mendi
   Gender: Male

   Click the Save button and screenprint any message.

   (1)

(c) Use the create run form you created in Activity 3 to enter and save a run for
   LocationID: NE0001

   Produce:

   •   a screen print of the completed form in **FORM** view

   •   a screen print of the relevant table showing the new run details.

   (4)

(d) Use the form you created in Activity 3 to enter and save these results for
   RunID: NE0002-1174

RunnerID	Runner time
20774	00:19:03
20775	00:29:15
20776	00:17:00

   Enter the data into the form and produce:

   •   a screen print of the completed form in **FORM** view

   •   a screen print of the relevant table showing the new results

   •   a screen print of the relevant table showing the updated records.

   (3)

(Total for Activity 4 = 12 marks)

Activity 5 – Printing results (suggested time 1 hour)

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

Tracy would like to be able to print results that show the location and run date, runner details, the overall number of runners in each location, the fastest time in each location and the total number of runners overall. The reports will be printed on A4 paper.

(a) Create **one** query that will find results for 21/04/12 for LocationID NE0002 and for LocationID NE0003

For each location, the query should display:

- the location

- the run date

- the runner forename, runner surname, gender, age category and runner time of all runners who have taken part.

Screenprint the query in **DESIGN** view.

Ensure that the criteria can be seen in full.

(2)

(b) Create a database report based on the query.

(i) Group the report appropriately and add a suitable title that will appear on every page.

(2)

(ii) Ensure that the group header shows:

These fields:

- location

- run date.

These labels:

- runner surname

- runner forename

- gender

- age category

- runner time.

(2)

(iii) Ensure that the detail section shows these fields:

- runner surname

- runner forename

- gender

- age category

- runner time.

(1)

(iv) Ensure that the group footer section shows:

- the total number of runners

- the fastest time.

(2)

(v) Ensure that the report footer shows:

- the total number of runners overall.

(1)

Screenprint the report in **DESIGN** view.

Ensure any calculations can be seen in full.

(c) Format the report.

(1)

Print the database report.

Evidence to be submitted for Activity 5.

❑ A screen print of the query in **DESIGN** view.

❑ A screen print of the database report in **DESIGN** view.

❑ The printed database report.

(Total for Activity 5 = 11 marks)

*Activity 6 – Evaluation (suggested time 1 hour)

You need to evaluate the prototype you have produced.

In a word processed report:

- evaluate your prototype. This must be an evaluation of how well the prototype carries out the tasks identified in the scenario rather than a commentary of what you have done or your own performance in doing it.

- discuss your recommendations for further functionality. In the scenario you were told that your system was to be the first prototype and that it would only carry out certain tasks. In this section of the evaluation, describe what else you think the fully functioning version should do.

The Quality of your Written Communication (QWC) will be assessed in this question.

(Total for Activity 6 = 9 marks)

Standard Ways of Working.

All printouts must contain the activity number, your name, candidate number and centre number.

Pages must be fastened securely to the cover sheet and in the correct order.

A minimum font size of 10 should be used for all word processed documents.

(Standard Ways of Working = 2 marks)

TOTAL FOR PAPER = 90 MARKS