

Please check the examination details below before entering your candidate information

Candidate surname		Other names	
Pearson Edexcel International Advanced Level		Centre Number	Candidate Number
Assessment Window: 3 weeks Monday 6 - Friday 24 May 2019			
Time: 10 hours		Paper Reference WIT04/01	
Applied Information and Communication Technology International Advanced Level Unit 4: Using Database Software			
You must have: Cover sheet, short treasury tag, WalkRegistrations_exam.txt			Total Marks

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** section, within an activity, are shown in brackets
 - use this as a guide as to how much time to spend on each activity.
- Use relational database software to carry out the database activities in this examination.
- Activities 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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Scenario

School Walking Club

Maureen Little set up a walking club for schools in January 2019. The club is initially operating during 2019 only. Maureen hopes it will be successful and continue annually.

One walk is scheduled per week. Each walk will take place on a Sunday. The distance of each walk is between 10 and 19 kilometres inclusive. Each walk has a difficulty level of between 1 and 5 inclusive.

Maureen will allocate one leader per walk. At least one teacher from each school will also accompany their students.

Schools have sent details of their establishment and the students who wish to take part in the walks.

Currently Maureen uses a paper-based system to manage the walks. However, she realises this is not a very efficient system. It has been agreed that you will design and build a prototype relational database system.

Maureen has thought of a range of possible tasks that could be included in the prototype.

Possible tasks are:

- adding schools, students and teachers
- adding walks
- assigning students to walks
- assigning leaders to walks
- assigning teachers to walks
- recording walk attendance
- printing walk statistics
- printing certificates for students
- printing school reports.

The final system will be based on your evaluation of the prototype and your recommendations for further functionality.

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Instructions to Candidates

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, your name, candidate number and centre number in the page header.

Minimum font size of 10 must be used throughout.

Screen prints must be large enough to be easily read.

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

These are the processes Maureen uses to recruit schools onto the walk programme. These are not ordered correctly.

Process	Process description
A	Maureen uses the internet to find schools that are not already part of the programme.
B	On receipt of the email response, Maureen adds the name of the school to those taking part in the programme.
C	Maureen opens her 'recruitment' email where Maureen introduces herself and the walk programme. She adds the school's email address.
D	When a new school is added to the programme, she opens her 'walks information' email and adds their email address. This email provides details of walks for the year. The 'walks information' email is sent.
E	The 'recruitment' email is sent.
F	Email responses are received from schools wishing to take part with details of the student attached.
G	When Maureen finds schools not already taking part, she adds the school name and email address to the list she keeps.
H	Maureen adds a tick next to each school's details so she knows a 'recruitment' email has been sent.
I	After the email has been sent, Maureen adds the details of the school and students to her list of walkers.



Use a word processor to create a copy of this table.

Step	Process
1	A
2	
3	
4	E
5	
6	
7	
8	
9	I

The correct processes for Steps 1, 4 and 9 have been identified for you.
Complete the table by arranging the remaining processes into the correct order.

Evidence to be submitted for Activity 1:

On one side of A4, your completed table.

(Total for Activity 1 = 6 marks)



Activity 2 – Structure (suggested time 2 hours)

You will need to use the data file **WalkRegistrations_exam.txt**

This is provided in your examination area.

Study the data file.

- (a) Create an efficient database structure that minimises data duplication. Ensure you use all and only the fields provided.

Screenprint the relationships in your database, making sure that the table names, fields and relationships can be seen clearly.

(9)

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

Produce screenshots 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) to (iv) you **MUST** name the type of validation used.

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

(1)

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

(1)

- (iv) Screenprint **ONE** example of a **Table Lookup** on a foreign key. Ensure you can clearly see the field it is applied to and the row source.

(1)

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

Screenprint each table showing at **least five records**, or all records if there are fewer than five, and the **full record count**.

If the fields are too wide to fit on one page, truncated data is allowed.

(5)

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

(Total for Activity 2 = 21 marks)



P 5 6 1 9 9 A 0 5 1 6

Activity 3 – Dealing with registrations for new walks and attendance on existing walks (suggested time 4 hours)

(a) A form is required that will allow Maureen to create a new walk.

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

For each walk the form should collect the:

- walk name
- date
- difficulty rating
- distance
- leader.

(1)

(ii) A WalkID is a number one higher than the number currently used. Generate the WalkID.

Screenprint the form in **DESIGN** view.

It does not need any annotations.

Ensure you show how the WalkID is generated.

(1)

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

Screenprint the form in **FORM** view.

(1)

(b) An automated method of saving a new walk record and generating walk registrations for the new walk is required.

(i) Create an automated method of saving a walk's details.

The automated method of saving should ensure the presence of the:

- walk name
- date
- difficulty rating
- distance
- leader.

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It should also ensure that:

- the walk will take place on a Sunday
- a walk has not already taken place on that date
- the difficulty is not out of range
- the distance is not out of range.

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

Ensure the detail can be seen in full.

(5)

- (ii) Create an automated method of generating walk registrations for the new walk.

The automated method of saving should:

- ensure a registration is generated for each student
- automatically set their attendance to yes
- be triggered after the new walk record has been saved.

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

Ensure the detail can be seen in full.

(3)



P 5 6 1 9 9 A 0 7 1 6

- (c) A search form is required so that Maureen can update the attendance status of those who did not attend a walk.

The design has been provided for you.

Student Search

Select the walk date and then you must enter data in at least one of the other text boxes and click Search.

Wildcards can be used. For example, S* in the Lastname text box will find all lastnames beginning with S.

Select the date  *Combo box*

Enter Lastname

Enter Firstname

Enter School name

*Button. When it is clicked automated method should ensure date has been selected. The Lastname, Firstname and School name should be defaulted to * (wildcard) if no criteria has been entered. Subform should refresh to show results of the query.*

Subform

StudentID	StudentLastname	StudentFirstname	SchoolName	Attended
####	#####	#####	#####	☐
####	#####	#####	#####	☐
####	#####	#####	#####	☐

Grey fields are disabled

Query used as the source for the fields StudentID, StudentLastname, StudentFirstname, Schoolname. The query should use what has been entered in the search as criteria. Attended field should be unbound.

When the attendance is updated an update query should run to update the attendance for the particular student and walk.

Figure 1

- (i) Create the Student Search section of the form as shown in **Figure 1**.
- Do not attach any actions to the Search button at this stage.
- Screenprint the form in **FORM** and **DESIGN** view.
- Ensure you show the source of the date combo box.
- (4)
- (ii) Create a query which will use the data entered in the search section of the form as criteria to find a student (or students) for whom Maureen wants to update the attendance.
- Screenprint the query in **DESIGN** view.
- Ensure all criteria can be seen in full.
- (2)



(iii) Create the subform section of the form as shown in **Figure 1**.

Do not attach any actions to the Attended field at this stage.

Screenprint the Search form in **DESIGN** view.

Screenprint in **DESIGN** view any macros or code you have used.

Ensure the detail can be seen in full including the:

- source of the subform
- Attended field as unbound
- relevant fields are disabled.

No annotations are needed.

(4)

(iv) The Search button needs developing.

When the button is clicked, ensure:

- a date has been selected
- the last name text box defaults to a wildcard (*) if no criterion has been entered
- the first name text box defaults to a wildcard (*) if no criterion has been entered
- the school name text box defaults to a wildcard (*) if no criterion has been entered
- the subform refreshes to show the results of the query.

Screenprint in **DESIGN** view the method you have used.

Ensure the detail can be seen in full.

(3)

(v) Create a query that will update the attendance of the student for the walk.

Screenprint the query in **DESIGN** view.

Ensure all criteria can be seen in full.

(2)



(vi) The Attended field needs developing.

When the attendance has been changed for a student, the query created in 3(c)(v) should run.

Screenprint in **DESIGN** view any macros/code you have used.

Ensure the detail can be seen in full.

(1)

(Total for Activity 3 = 27 marks)

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Activity 4 – Testing (suggested time 1 hour)

(a) Enter the details of this walk on the relevant form you created in Activity 3:

Walk name: Washington Circular

Walk date: 05/05/2019

Difficulty: 2

Distance(km): 14

LeaderID: 3

Produce:

- a screen print of the completed form in **FORM** view
- a screen print of the relevant table showing the new walk record
- a screen print of the relevant table showing at least ten new registration records.

(3)

(b) Enter your choice of test data that proves a new walk cannot be saved if the date is not a Sunday.

Produce:

- a screen print of the completed form in **FORM** view and the message that appears.

(1)

(c) Enter your choice of test data that proves a new walk cannot be saved if the date has already been used for a walk.

Produce:

- a screen print of the completed form in **FORM** view and the message that appears.

(1)

(d) Enter your choice of test data that proves a new walk cannot be saved if the difficulty is out of range.

Produce:

- a screen print of the completed form in **FORM** view and the message that appears.

(1)



P 5 6 1 9 9 A 0 1 1 1 6

- (e) Enter your choice of test data that proves a new walk cannot be saved if the distance(km) is out of range.

Produce:

- a screen print of the completed form in **FORM** view and the message that appears.

(1)

- (f) Using the Search form you created in Activity 3.

- (i) Input this data:

Select the date: 28/04/2019

Enter last name: C*

Enter first name: C*

Enter school name:

Screenprint this input.

(1)

- (ii) Click the search button.

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

(2)

- (iii) Update the attendance:

StudentID: 57

Attended: No

Produce:

- a screen print of the form in **FORM** view
- a screen print of the record in the relevant table showing the updated attendance.

(2)

(Total for Activity 4 = 12 marks)

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Activity 5 – Printing walk attendance (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.)

Maureen wants to print a report showing a breakdown of walks by school for Arklebury Secondary School and Elm Free School. She would like it to show the school name and the total number of students from that school.

For each walk she would like to see:

- the walk name and date
- the total number of students who have attended
- the total number who have not attended.

She would like it sorting into ascending order of school name and walk date.

A design has been provided in **Figure 2**:

Attendance by School			
Arklebury Secondary School			
Number Students At School ##			
Walk Name	Date	Attendance	Non Attendance
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
Elm Free School			
Number Students At School ##			
Walk Name	Date	Attendance	Non Attendance
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##
#####	##/##/##	##	##

Figure 2



- (a) Create a query that will count the numbers of students at Arklebury Secondary School and at Elm Free School.

It should show:

- the SchoolID
- the SchoolName
- the number of students from each school.

Produce a screen print of the query in **DESIGN** view.

Ensure all criteria can be seen in full.

(4)

- (b) Create a query based on the query created in 5(a).

It should show the:

- SchoolName in ascending order
- number of students from each school
- WalkName
- WalkDate in ascending order
- number of students who attended the walk
- number of students who did not attend the walk.

Produce a screen print of the query in **DESIGN** view.

Ensure all criteria can be seen in full.

(4)

- (c) Create a report based on the query created in 5(b) using the design shown in **Figure 2**.

Screenprint the report in **DESIGN** view.

Print the database report.

(2)

Evidence to be submitted for Activity 5.

- A screen print of any queries used in **DESIGN** view
- A screen print of the database report in **DESIGN** view
- The printed database report.

(Total for Activity 5 = 10 marks)



***Activity 6 – Evaluation (suggested time 1 hour)**

You need to evaluate these aspects of the prototype you have produced.

- The new walk and walk registration form.
 - How user friendly the form was and why.
- Testing the search and update attendance form.

The form should prevent unacceptable data from being entered and cope with normal, extreme and abnormal data. Explain:

- why you chose the test data used for 4(b), 4(c), 4(d) and 4 (e)
- what other tests you would carry out, including the test data you would use.
- Future proofing.
 - How the prototype could be developed for reuse in 2020 in terms of walks and walk registrations only.

Evidence to be submitted for Activity 6:

A print out of your evaluation.

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

(Total for Activity 6 = 12 marks)

Standard Ways of Working.

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

Pages must be securely fastened 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



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