

Pearson Edexcel International Advanced Level

Time 3 hours

Paper
reference

WIT14/01

Information Technology

International Advanced Level

UNIT 4

You must have:

The files Project.accdb, Project records.xlsx, Candidate evidence template.docx

Instructions

- Answer **all** questions using the template provided.
- Paste your screen prints into the appropriate places in the template.
- Type your responses to Question 1(e) and Question 5 in the appropriate places in the template.

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
– use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Instructions

A template for your evidence is provided in your examination area.

Open the template and type in your centre name, centre number, candidate name and candidate number in the boxes provided.

Save the template using a filename in this format.

Centre number_candidate number_surname_first letter of first name.

For example, 12345_9212_Smith_J

The screen prints you produce should be copied into the appropriate places in the template.

After you add a screen print to the template check that all the text can be read and enlarge the image, if necessary.

Remember to save the template regularly.

Responses to Question 1(e) and Question 5 must be typed in the appropriate place in the template.



Scenario

Isayas owns a software creation company that employs programmers.

The company creates software for customers. For example, websites.

The creation of a piece of software is called a project.

Each project has a start date and a target end date.

The project is split into programming phases.

Each phase has an actual start date and the number of days it has taken to complete.

Each phase uses one programming language and a programmer who can program in that language.

Isayas keeps a list of programmers in a single table within the database project.

Isayas has provided the project records spreadsheet file, which contains an extract of his records of software creation.

Isayas is finding it increasingly difficult to keep track of:

- the programmers and the programming languages they can use
- the phases and whether they are completed in time to meet the project end date.

He wants a solution that will allow him to manage the system more effectively.

The screen prints you produce should be copied into the appropriate places in your template. Remember to save the template regularly.

Responses to Question 1(e) and Question 5 must be typed in the appropriate places in the template.

The project database and the project records spreadsheet file are provided in your examination area. Study these files carefully.

1 (a) The programmer table in the project database needs to be improved.

(i) A programmer record must only save if the last name:

- is present
- begins with an uppercase letter followed by lowercase letters
- has no more than 25 characters.

Set up validation so that a last name must be present, begin with an uppercase letter followed by lowercase letters and have no more than 25 characters.

Screenprint the table in **Design** view, making sure that the validation can be clearly seen.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(3)

(ii) There is **one** error in the use of data types in this table.

Identify and correct the error.

Screenprint the table in **Design** view, making sure that the data type you have changed can be clearly seen.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(1)



(b) Isayas needs a form to enter data about a new programmer.

The form must:

- open ready for data entry
- allow the input of a programmer's first name, last name and availability
- provide a button that:
 - generates the programmer's company email address in the format `FirstName.LastName@gmpost.com`
 - saves the record in the table
 - displays a message to say that the record has been saved.

Create a user-friendly data entry form for the programmer table that will allow Isayas to add new records to the database.

Screenprint your form in **Form** view.

Paste the screen print into the appropriate place in the template.

Produce screen prints in **Design** view to show any macros, code, queries and/or properties you have used. Ensure that all fields and details can be clearly seen.

Paste the screen prints into the appropriate place in the template.

Re-save your template.

(8)

(c) Isayas currently uses a spreadsheet to keep a record of the projects.

He has given you an extract of the spreadsheet.

Develop the project database to add this functionality.

Do **not** change the structure of tblProgrammer.

You must create an efficient data structure that minimises data duplication, uses correct data types and primary keys, and enforces referential integrity.

Produce a screen print that clearly shows the relationships including table names, field names and primary keys.

Paste the screen print into the appropriate place in the template.

Produce screen prints showing the field names and data types in the tables **you** have created.

Paste the screen prints into the appropriate places in the template.

Re-save your template.

(11)

(d) Import the data from the project records spreadsheet file into the project database.

Produce screen prints of **your** tables showing at least five records and the full record count. (If the fields are too wide to fit on one page, truncated data is allowed.)

Paste the screen prints into the appropriate places in the template.

Re-save your template.

(3)

(e) Isayas has been told that the structure of the programmer table is not entirely suitable for recording the details of a programmer.

Analyse the data and recommend how the structure of the database could be improved to allow a more efficient recording of a programmer's details.

Type your response in the appropriate place in the template.

Do not include any screen prints.

Re-save your template.

(9)

(Total for Question 1 = 35 marks)



- 2 (a) Isayas wants to know the number of programmers who can use each programming language.

Create a query that calculates the number of programmers who can use each programming language.

Display the name of the programming language and the number of programmers who can use that language.

The results should be displayed in order of lowest number of programmers to the highest.

Screenprint your query in **Design** view, making sure that all required tables, fields and criteria can be clearly seen.

Paste the screen print into the appropriate place in the template.

Screenprint your query in **Datasheet** view, making sure that the contents of all of the fields can be clearly seen.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(6)

(b) (i) Isayas would like to know if project 1 and project 7 finished on time.

He wants to use the standard report in **Figure 1**. This will use information from the database.

Project Check		
Project ID	101	
Customer	Mabinti Conteh	
Target Project Length (days)	8	
Phase ID	Start Date	Phase Duration
1	15/02/2021	3
2	18/02/2021	2
3	20/02/2021	3
Actual Project Length (days)	8	
<hr/>		
Project ID	93	
Customer	Farida Mohammed	
Target Project Length (days)	4	
Phase ID	Start Date	Phase Duration
1	12/02/2021	3
2	15/02/2021	2
Actual Project Length (days)	5	

Figure 1

Create a query that will extract and use appropriate data from the database.

Screenprint your query in **Design** view, making sure that all required tables, fields and criteria can be clearly seen.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(3)



(ii) Isayas wants to print the standard report.

He will use the report format shown in **Figure 1**.

Use your query from Question 2(b)(i) to extract the data for the report.

The actual project length field should use conditional formatting.

It should be shaded red if the project was not completed within the target project length, otherwise it should be shaded green.

Create the report.

Screenprint your report in **Design** view.

Paste the screen print into the appropriate place in the template.

Screenprint the conditional formatting rules applied to the actual project length field.

Paste the screen print into the appropriate place in the template.

Screenprint your report in **Print Preview** view.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(11)

(Total for Question 2 = 20 marks)

- 3 (a) Isayas needs information about customers who have commissioned more than two projects.

Create a query that will do this.

The query should display each customer's last name and the number of projects they have commissioned.

Screenprint your query in **Design** view, making sure that all required tables, fields and criteria can be clearly seen.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(4)

- (b) Isayas would like the information in chart format to make it easier to understand.

The chart needs to show each customer's last name and the number of projects they have commissioned.

Use the query you created in Question 3(a) to extract the data for the chart.

Create a report that displays this information as a chart.

Display your report in **Design** view.

Ensure the chart is visible on your screen.

Screenprint the entire window.

Paste the screen print of the entire window into the appropriate place in the template.

Screenprint your report in **Print Preview** view.

Paste the screen print into the appropriate place in the template.

Re-save your template.

(6)



(c) Isayas wants a button added to the report you created in Question 3(b).

Create a button that prints the report.

Screenprint your report in **Design** view.

Paste the screen print into the appropriate place in the template.

Produce screen prints in **Design** view to show any macros or code you have used.
Ensure that the details can be clearly seen.

Paste the screen prints into the appropriate places in the template.

Re-save your template.

(2)

(Total for Question 3 = 12 marks)



4 Isayas needs a dashboard for the database.

Use a list box to do this.

Figure 2 shows the layout of the list box.

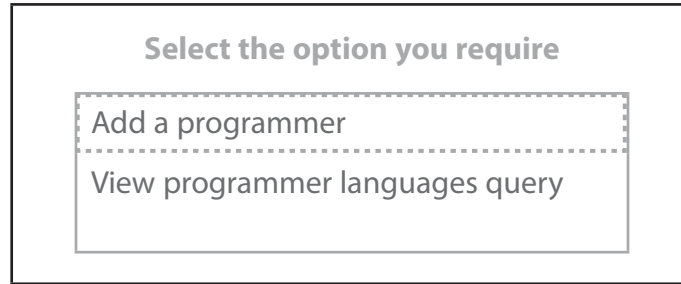


Figure 2

An automated method is needed for the list box.

- If the 'Add a programmer' option is selected, the data input form you created in Question 1(b) will open.
- If the 'View programmer languages query' option is selected, the query you created in Question 2(a) will run.

Create the dashboard with a list box that meets these requirements.

Screenprint the dashboard in **Form** view.

Paste the screen print into the appropriate place in the template.

Produce screen prints in **Design** view to show any macros or code you have used. Ensure that the details can be clearly seen.

Paste the screen prints into the appropriate places in the template.

Re-save your template.

(Total for Question 4 = 4 marks)

5 User experience needs to be considered during the design and development of a database.

An early version of a form has been developed that will allow Isayas to add the details of a new project.

Figure 3 shows the completed form.

The screenshot shows a web browser window with a tab titled 'Add a project'. The main heading is 'Add a project'. Below the heading, there are three main sections:

- Add project details:** Contains a 'ProjectID' field with the value '36', a 'StartDate *' field with a date picker set to '16/05/2022', and an 'EndDate *' field with the value '01/03/2022'. A 'Save' button is located to the right of this section.
- Add phase details:** A table with four columns: 'phase ID *', 'Start Date *', 'Select language *', and 'programmer *'.

phase ID *	Start Date *	Select language *	programmer *
JavaScript	16/05/2022	2	10
HTML/CSS	15/05/2022	1	17
			(New)
- Select existing or add new customer:** Contains a 'Customer *' dropdown menu with 'Cruz Rebecca' selected, an 'Add Customer' button, and a 'Close' button. Below this are 'Address' and 'Mobile' text input fields with the values '7 Alm Hill' and '011171839145' respectively.

Figure 3

Look carefully at the form and its use when adding a record for a new project.

Analyse positive and negative contributions to the user experience and recommend how the form could be modified to improve the user experience.

You should consider:

- appropriateness of features
- data accuracy
- user help
- ease of use.

Type your response in the appropriate place in the template.

Re-save your template.

(Total for Question 5 = 9 marks)

TOTAL FOR PAPER = 80 MARKS

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