

**10.** A company sells computers using a database-driven website.

Maintenance is needed to ensure that the website is compatible with the latest 2023 versions of web technologies, including the server-side database used to store product and order details and the programming languages used in the development of the website.

- (a) Name the type of maintenance required. 1
- (b) The project manager creates a Gantt chart to plan the development work that will be needed. The design section of the Gantt chart is shown below.

Design Tasks							
User interface design							
Design of server-side processes							
Develop low-fidelity prototype							

The project manager claims that use of this Gantt chart for planning will help to:

- improve efficiency and ensure work is completed on time
- manage resources.

By making reference to the section of the Gantt chart shown, explain why you agree or disagree with these claims. 2

- (c) A prototype of an updated web page is shown below. This page should allow the user to select the type of computer they wish to buy.

COMPUTER SALES  
SCOTLAND WIDE!

Select computer type

Desktop
Desktop
Laptop
Tablet

Submit selection

Screen 1 User selects ‘Desktop’, ‘Laptop’ or ‘Tablet’

- (i) Making appropriate use of the `name` and `value` attributes, write the HTML statements that would be used to implement the ‘Select computer type’ drop-down list shown in the prototype above. 2

[Turn over

## 10. (c) (continued)

- (ii) When computer type ‘Desktop’ is selected at Screen 1, Screen 2 shows the web page that is rendered.

**COMPUTER SALES  
SCOTLAND WIDE!**

Computer type selected: Desktop

Select computer make

Cell
Cell
Race
Sung

**Submit selection**

Screen 2 User selects ‘Make’

When the make ‘Race’ is selected at Screen 2, Screen 3 shows the web page that is rendered.

**COMPUTER SALES  
SCOTLAND WIDE!**

Computer type selected: Desktop

Computer make selected: Race

Select computer model

CL2
CL2
R456

**Submit selection**

Screen 3 User selects ‘Model’

Write the lines of PHP and HTML code required to create the following part of the output on Screen 3. This code should make use of the input selected by the user at Screens 1 and 2.

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Computer type selected: Desktop  
Computer make selected: Race

## 10. (c) (continued)

- (iii) The data required to generate the new drop-down list required for Screen 3 is extracted from the Product table of a database called ComputerSales.

Sample data stored in the Product table is shown below.

prodID	type	make	model	price
1	Desktop	Cell	C34	399
2	Desktop	Race	CL2	299
3	Desktop	Race	R456	499
4	Laptop	Sung	S34	359

The query used to extract this data from the database is stored in a PHP variable called \$query.

Using PHP, write the code needed to successfully connect to the database and extract the values required for the 'Select computer model' drop-down list from the database.

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Your code should make appropriate use of the following connection details:

```
password = Comp5A135
server = ComputerSales_Host
user = visitor
```

- (iv) Explain how the results returned from the query in (c) part (iii) above would be used to display the data shown in the drop-down list for Screen 3.

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Your explanation should refer to relevant HTML and PHP statements and constructs.

[Turn over

**10. (continued)**

- (d) The changes made to the updated website must be tested.

The test plan includes the following test cases:

Test	Expected Result	Actual Result	Test Successful?
Select the following computer: Type = Desktop Make = Race Model = CL2	Specified computer selected using drop-down lists for type, make and model		
Add selected computer to the cart	Selected computer appears in cart		
Choose delivery date of Friday 17 June 2023 and make payment	Delivery date selected from calendar and payment made		

Two testers are chosen to complete these tests:

- Jill — a member of the development team
- Ben — an existing customer asked to test the updated website.

- (i) Name the type of testing Jill is undertaking. Give one reason for your choice.
- (ii) Name the type of testing Ben is undertaking. Give one reason for your choice.