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School code

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School name

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Given name/s

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Family name

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Attach your  
barcode ID label here

Book

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of

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books used

External assessment 2025

Question and response book

# Digital Solutions

## Time allowed

- Perusal time — 15 minutes
- Working time — 120 minutes

## General instructions

- Answer all questions in this question and response book.
- Planning paper will not be marked.

## Section 1 (10 marks)

- 10 multiple choice questions

## Section 2 (36 marks)

- 5 short response questions

## Section 3 (21 marks)

- 1 extended response question



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**THIS PAGE WILL NOT BE MARKED**

## Section 1

### Instructions

- This section has 10 questions and is worth 10 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- Choose the best answer for Questions 1–10.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	B	C	D
Example:	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	A	B	C	D
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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6.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ensure you have filled an answer bubble for each question.

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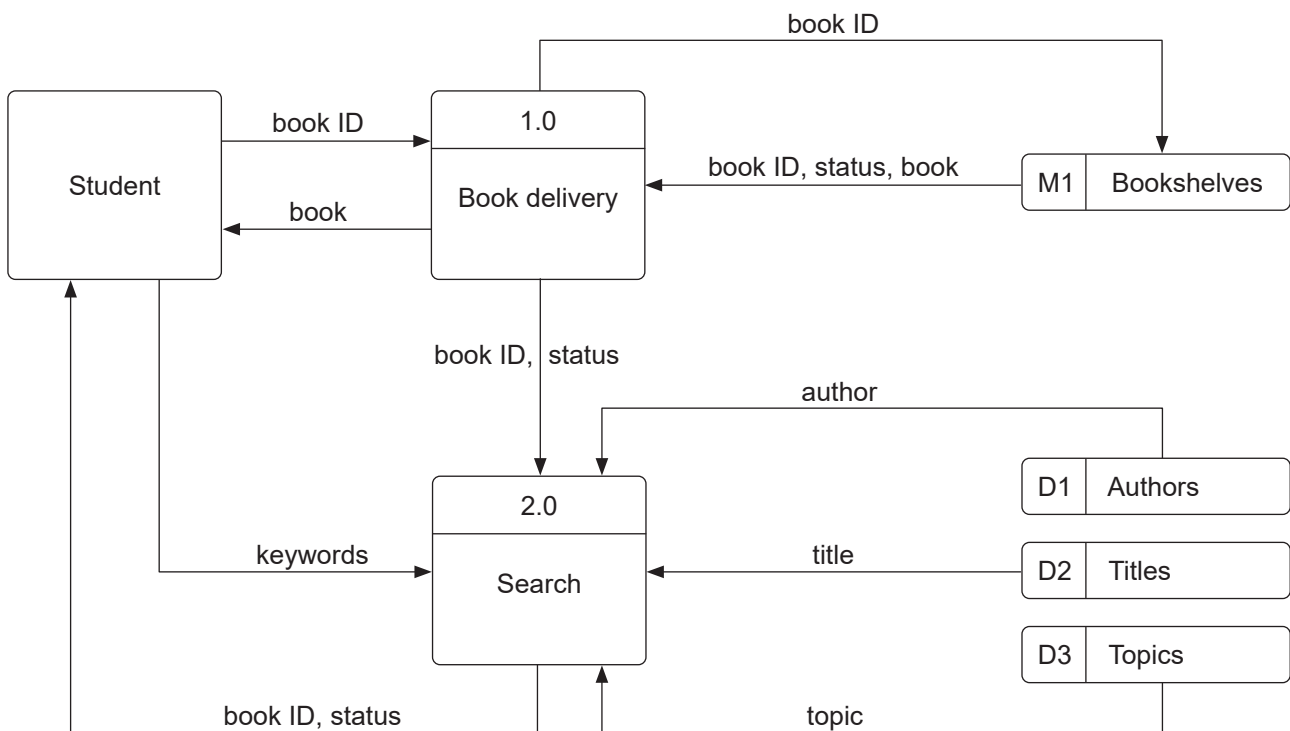
## Section 2

### Instructions

- Write using black or blue pen.
- If you need more space for a response, use the additional pages at the back of this book.
  - On the additional pages, write the question number you are responding to.
  - Cancel any incorrect response by ruling a single diagonal line through your work.
  - Write the page number of your alternative/additional response, i.e. See page ...
  - If you do not do this, your original response will be marked.
- This section has five questions and is worth 36 marks.

### QUESTION 11 (7 marks)

The data flow diagram of a library system is shown.



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**QUESTION 12 (9 marks)**

A high school coding club was asked to develop a mobile app to manage the sale of items at fundraising events. To comply with school policies, app data must be stored on the school’s local servers. The coding club has four weeks until the next fundraising event.

- a) Identify and explain the impact of three constraints on the app’s development. *[3 marks]*

Constraint 1: \_\_\_\_\_

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Constraint 2: \_\_\_\_\_

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Constraint 3: \_\_\_\_\_

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The coding club was unable to develop all the app's intended features in four weeks. The following processes were done manually during the first fundraising event:

- updating inventory
- authenticating users
- updating account balances.

b) Analyse the scenario to determine a risk to data confidentiality, integrity and availability. Justify each risk in your response.

*[6 marks]*

Risk to data confidentiality: \_\_\_\_\_

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Risk to data integrity: \_\_\_\_\_

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Risk to data availability: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

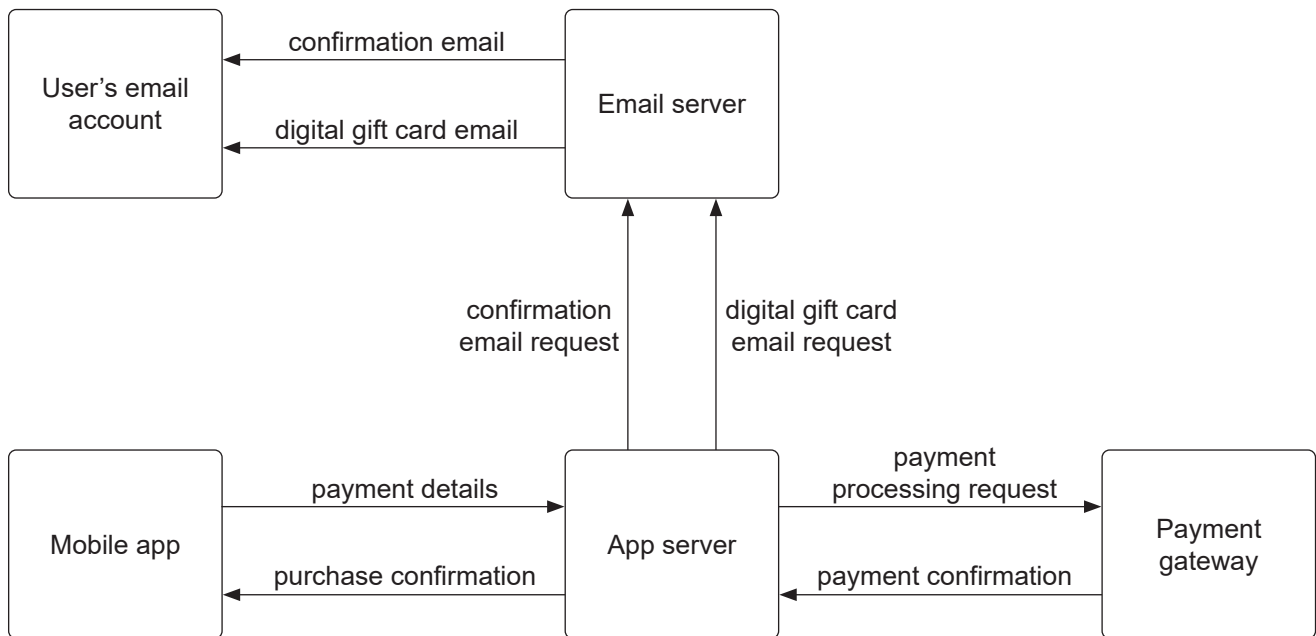
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**QUESTION 13 (4 marks)**

The diagram shows the data exchange involved in purchasing digital gift cards on a mobile app. After making a purchase, the user receives a confirmation email, and then a second email containing the digital gift card.



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### QUESTION 14 (8 marks)

Refer to Stimulus 1 in the stimulus book.

The algorithm shown calculates the average ratings from movie review data.

```
0 BEGIN
1 READ jsonData into movieData
2 INITIALISE a dictionary object to store averageRatings
3
4 FOR each movie in movieData DO
5     SET totalRating = 0
6     SET numberOfReviews = 0
7
8     GET movieTitle = movie["title"]
9     GET reviews = movie["reviews"]
10
11    FOR each review in reviews DO
12        totalRating = totalRating + review["rating"]
13        numberOfReviews = numberOfReviews + 1
14    ENDFOR
15    IF numberOfReviews > 0 THEN
16        averageRating = totalRating / numberOfReviews
17    ELSE
18        averageRating = "No ratings"
19    ENDIF
20    STORE averageRating in the dictionary object with the movie title
    as the key
21    OUTPUT "Average Rating for ", movieTitle, " is: ", averageRating
22 ENDFOR
23 RETURN averageRatings
24 END
```

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### QUESTION 15 (8 marks)

A journalist used an open data source about Queensland driver licence holders to add statistics to a newspaper article. An excerpt of the article is shown.

The average age of people with valid driver licences in Central Queensland, Maranoa and Wide Bay–Burnett is 22 years old. Across all three regions, there are more people on provisional licences than on learner licences. The most popular month for getting a new licence is December.

Most licences are valid for five (5) years, but people on learner or provisional licences usually have shorter licence periods. A lot of new licences are registered between 10 and 20 December.

- a) Based on this excerpt, complete the data dictionary shown.

[6 marks]

<b>_id</b>	<b>Field name</b>	<b>Data type</b>
1	region	
2	valid_licence	
3	licence_type	
4	registration_period	
5	date_of_birth	
6	registration_date	

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b) Recommend a change to the data dictionary in Question 15a) that would help the journalist explore **one** of these questions:

i) Is the average age of drivers higher for certain postcodes or licence types?

ii) How many learner licences expire before conversion to provisional?

Justify your response.

*[2 marks]*

Selected question number: \_\_\_\_\_

Recommendation and justification: \_\_\_\_\_

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- e) Create a user interface mock-up symbolising features that will improve the Road Maintenance mobile app's implementation of the two useability principles identified in Question 16d) and prevent errors and delays. Use annotations to explain your ideas. *[2 marks]*

**Note:** If you make a mistake, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this book.

**END OF PAPER**

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**ADDITIONAL PAGE FOR STUDENT RESPONSES**

Write the question number you are responding to.

Do not write outside this box.

**ADDITIONAL PAGE FOR STUDENT RESPONSES**

Write the question number you are responding to.

Do not write outside this box.



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