**Victorian Certificate of Education
2019**

Letter

STUDENT NUMBER

COMPUTING: SOFTWARE DEVELOPMENT
Written examination

Thursday 14 November 2019

Reading time: 3.00 pm to 3.15 pm (15 minutes)
Writing time: 3.15 pm to 5.15 pm (2 hours)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	20	20	20
B	5	5	20
C	17	17	60
			Total 100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied
- Question and answer book of 30 pages
- Detachable insert containing a case study for Section C in the centrefold
- Answer sheet for multiple-choice questions

Instructions
- Detach the insert from the centre of this book during reading time.
- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination
- Place the answer sheet for multiple-choice questions inside the front cover of this book.
- You may keep the detached insert.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions

Question 1

Hannah has stored a list of sports within the following one-dimensional array.

tennis	cricket	handball	basketball	baseball	kayaking	golf	lacrosse	diving	swimming

The number of comparisons required to find the item 'kayaking' using a linear search is

A. 3

B. 5

C. 6

D. 10

Question 2

Which one of the following is an advantage of a wireless network over a wired network?

A. more reliable data transmission

B. less expensive set-up costs

C. slower data transfer rates

D. increased data security

Question 3

```
a ← [5, 6, 7, 8]
total ← 0
For i ← 0 to End of a
      total ← total + a[i]
Next
print total
```

Which trace table is representative of the algorithm above immediately after the loop is executed for the second time?

A.

a				i	total	Output
0	1	2	3	i	total	Output
5	6	7	8	0	0	0

B.

a				i	total	Output
0	1	2	3	i	total	Output
5	6	7	8		0	
				0	5	5

C.

a				i	total	Output
0	1	2	3	i	total	Output
5	6	7	8		0	
				0	5	
				1	11	11

D.

a				i	total	Output
0	1	2	3	i	total	Output
5	6	7	8		0	
				0	5	
				1	11	

Question 4

When analysing a new software solution, the developers identified the following non-functional requirement: 'All users of the solution will be using their own mobile device.'

To which characteristic is the non-functional requirement related?

A. reliability

B. portability

C. maintainability

D. user-friendliness

Question 5

Saritha researched the different methods used to calculate whether an individual is within a healthy weight range. She chose to use the body mass index (BMI) method. Instead of entering values into a spreadsheet to calculate an individual's BMI, she used her programming skills to write an application for mobile phones.

Shown below is the user interface for the application that Saritha developed. It shows the BMI displayed when Jim, one of her classmates, entered his details into the application.

The values for height and weight to calculate BMI need to be of which data types?

A. string and integer

B. integer and string

C. integer and integer

D. floating point and floating point

Question 6

Mei is required to sort 10 values stored in an array. The unsorted data appears as shown below.

6	56	3	45	67	40	58	78	2	99

If a pivot of 6 is used, then after the first pass of the sort, the values appear in the following order.

3	2	6	56	45	67	40	58	78	99

What type of sort is Mei using?

A. quick sort

B. bubble sort

C. linear search

D. selection sort

Question 7

Which structural characteristic makes XML files distinguishable from other types of files?

A.　appropriate indentation

B.　the use of comma or tab delimiters

C.　the use of a standard library of tags

D.　the inclusion of a header, prolog or declaration statement

Question 8

Zoe has designed the interfaces for the mobile application of an online store. She has designed mock-ups for the 'Home' and 'Account details' sections within the application, which are shown below.

Home
▷ Store
▷ Shopping cart
▷ Account details
▷ Order history
▷ Contact us
▷ Help

Account details
▷ Account overview
▷ Personal details
▷ Financial information
▷ Settings
▷ Notifications
▷ Home

From 'Home', a user can access each of the other sections within the application. From 'Account details', the only way for users to access the other sections of the application is to go back to 'Home' and then make their next selection.

To improve the user's navigation experience when using the application, which modification should Zoe make?

A.　Reduce the number of user interfaces from six to three.

B.　Ensure that contrast is maximised on each user interface.

C.　Add alternative text to icons and images to meet the needs of a wider group of users.

D.　Add a menu item that allows a user to access any section from any other section in the application.

Question 9

To function, the vast range of services that operate over the internet requires a library of technical and communication standards.

The term for these technical and communication standards is

A.　HTML.

B.　malware.

C.　monitors.

D.　protocols.

Use the following information to answer Questions 10 and 11.

Courtney is designing a new GPS-based traffic monitoring application for smartphones. As part of the design process, she has decided to generate some evaluation criteria and develop an evaluation strategy.

Question 10

Which one of the following is a criterion that Courtney could use to evaluate the efficiency of the GPS application?

A. The application will allow users to update traffic conditions.

B. The application will update real-time traffic conditions for users every five minutes.

C. The application will allow users to request directions between two or more destinations.

D. The application will generate and display directions within 10 seconds of the request from the user.

Question 11

Courtney is researching how to develop an evaluation strategy for her new software solution.

Key things that she should consider as she develops an evaluation strategy include

A. software solution designs, functionality and usability testing, and how client feedback could be incorporated.

B. the software requirements specification (SRS), use case diagrams and how client feedback could be incorporated.

C. project plan evaluation criteria, how the solution will be evaluated, adjustments to timeframes and why changes occurred.

D. software solution evaluation criteria, how the criteria will be measured, appropriate timeframe for evaluation to occur and who will be involved in the evaluation process.

Question 12

A programmer has been asked to improve the processing speed of a software solution. The solution reads data from a text file stored on a USB hard drive into RAM.

Why is reading the data from RAM more efficient than reading the data from the file stored on the USB hard drive?

A. RAM is more cost-effective than USB hard drives.

B. RAM has faster read/write speeds than USB hard drives.

C. RAM generates significantly less heat than USB hard drives.

D. RAM is not affected by magnetic fields as USB hard drives are.

Question 13

Each member of an organisation needs a username and password to be able to access the organisation's local area network (LAN). Each member is allocated a unique username but they can each choose their own password.

An appropriate data structure to store the username and password for each member of the organisation is

A. a Boolean value.

B. a string value.

C. an associative array.

D. a one-dimensional array.

Use the following information to answer Questions 14 and 15.

```
1 x ← 4
2 Do
3    y ← x + 10
4    If (x < 8) Then
5        x ← x + 1
6    EndIf
7 While (y < 15)
8 print x,y
```

Question 14

What is the output generated by the pseudocode above?

A. 6,15

B. 6,16

C. 5,15

D. 15,5

Question 15

Which control structure starts on line 4 and finishes on line 6?

A. infinite

B. iteration

C. selection

D. sequence

Use the following information to answer Questions 16 and 17.

A social media platform tracks all user interactions on the platform. This includes user posts, mouse clicks, image and video views, and messages exchanged between users. This data is used to deliver targeted advertising to users and it is summarised to make changes to the platform.

Question 16

For the social media platform, the data used to deliver targeted advertising is considered to be

A. an input to the advertising module.

B. an output from the advertising module.

C. both an input to and an output from the advertising module.

D. neither an input to nor an output from the advertising module.

Question 17

For the social media platform, tracking user interactions and summarising the data to make changes to the platform is an example of

A. data mining.

B. data searching.

C. data protection.

D. data extensions.

Question 18

After repeated downtime events, the network administrators of a large supermarket chain have contracted a network security analyst to identify the cause of the downtime events. The analyst starts the investigation by implementing a network monitoring tool that will record network traffic and interactions between users on the network.

What is this approach commonly known as?

A.   implementing a firewall

B.   setting up a honeypot

C.   auditing network logs

D.   installing anti-malware protections

Use the following information to answer Questions 19 and 20.

Shown below is the Gantt chart for a project. The Gantt chart has been updated as the project has progressed.

Task	Duration (weeks)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
data collection	2															
preparation of SRS	3															
design	4															
development planning	1															
development	5															
evaluation	2															

Key

⬚ proposed duration   ▨ actual duration   ▦ updated planned duration

Question 19

The progress of this project has been recorded using

A.   annotations and adjustments.

B.   progress journals.

C.   change logs.

D.   SRS.

Question 20

Dependencies are indicated

A.   using arrows.

B.   by shading cells.

C.   in the 'Task' column.

D.   in the 'Duration (weeks)' column.

END OF SECTION A

SECTION B – Short-answer questions

Question 1 (3 marks)

Electronic validation techniques are used in a range of software solutions.

State the validation technique used for each of the examples below.

•   Confirmation that a response has been entered into a prompt

_____

•   Confirmation that a numeric value has been entered into a particular field

_____

•   Confirmation that a numeric date has a value entered between 1 and 12 for the month field

_____

Question 2 (2 marks)

Eliza is leading the development of a client management software solution for an employment agency. During a design meeting, her manager suggests that the data stored by the software solution will not need to be encrypted because the software solution will require users to log in with a username and password.

Explain why data protection and user authentication are both important within this software solution.

_____

_____

_____

_____

_____

_____

Question 3 (4 marks)

TeenCity Tutorials is a small business that offers two-hour introductory technical skills tutorials, free of charge, to young people between the ages of 13 and 21. The two mock-ups below were created as two different options for the first screen of the enrolment form to be used in the business's mobile application.

Mock-up A

TeenCity Tutorials

Enter the course you are interested in:

Select a date:

◄ **NOVEMBER 2019** ►

S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

Enter your preferred time:

Next

Mock-up B

TeenCity Tutorials

Select the course you are interested in:

Course: ▼
Python
Java
Front-end web design
JavaScript
Visual Basic
Resume Building
Interview Skills
Study Skills

Enter the preferred date:

Select a session:

Sessions ▼
Session 1 – 9:00 – 11:00
Session 2 – 11:30 – 13:30
Session 3 – 14:30 – 16:30

≫

a. Select one element from Mock-up A that would make the mobile application **more efficient** than if the corresponding element from Mock-up B were used. Explain why this element from Mock-up A is more efficient than the corresponding element from Mock-up B.   2 marks

Element _____

Explanation _____

_____

_____

_____

b. Select one element from Mock-up B that would make the mobile application **more effective** than if the corresponding element from Mock-up A were used. Explain why this element from Mock-up B is more effective than the corresponding element from Mock-up A.	2 marks

Element _____

Explanation _____

_____

_____

Question 4 (3 marks)

John is developing a software solution that requires users to enter their age and answer five questions about their daily physical activity. Based on their inputs, the software solution will generate an activity score that indicates their activity level.

Activity score	Activity level
0–20	sedentary
21–50	active
51–60	elite athlete

a. Explain why constructing test data that checks boundary values is a key part of checking that software solutions meet design specifications.	2 marks

_____

_____

_____

_____

b. State the four boundary values that should be used to test that the correct activity level is displayed to users of the software solution.	1 mark

_____

_____

_____

_____

Question 5 (8 marks)

Natasha is the new IT administrator for a small group of shopping centres in Melbourne. When she was learning about the group's existing systems, it became apparent that there had not been a clear data management strategy in place for the past 20 years. Critical shopping centre data stored on servers was not being backed up on a regular basis. Some files were modified daily, while others were updated on a monthly or yearly basis. She also found that many of the files stored on the servers had not been used in more than five years. Natasha has decided to develop a data management strategy for the handling of files to improve the group's data practices.

a. Propose and justify an appropriate backup strategy that Natasha could implement for the group's data. 4 marks

Strategy _____

_____

_____

_____

_____

Justification _____

_____

_____

_____

_____

b.   Propose and justify an appropriate archiving or disposal strategy that Natasha could
         implement for the group's data.   4 marks

Strategy _____

_____

_____

_____

_____

Justification _____

_____

_____

_____

_____

END OF SECTION B
TURN OVER

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SECTION C – Case study

```
                              Instructions for Section C

Please remove the insert from the centre of this book during reading time.

Use the case study provided in the insert to answer the questions in this section. Answers must apply to
the case study.

Answer all questions in the spaces provided.
```

Question 1 (2 marks)

At the start of the project, Peter and Jessica referred to SmallPort Financial's vision statement (Figure 1) to help them establish information system goals and objectives that would help drive the project.

Define a relevant information system goal and an associated objective.

Goal _____

_____

Objective _____

_____

Question 2 (5 marks)

Ryan has constructed a Gantt chart that outlines the tasks, time allocations and dependencies for each task within the project. The partially completed Gantt chart is shown below.

Task no.	Task	Duration (weeks)	Dependencies	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Survey clients.	2	–	▓	▓																						
2	Interview and observe Portfolio Managers.	2	–	▓	▓																						
3	Develop software requirements specification (SRS).	4	1, 2			▓	▓	▓	◆																		
4	Confirm SRS with Peter.	1	3																								
5	Generate designs.	5	4								▓	▓	▓	▓	▓												
6	Construct evaluation criteria.	1	3												▓												
7	Confirm designs with Peter and Jessica.	2	5																								
8	Refine designs.	1	7																								
9	Develop and test mobile application.	9	8																▓	▓	▓	▓	▓	▓	▓	▓	▓

a. Complete the Gantt chart using the information provided. 3 marks

b. **i.** Using the diamond symbol (◆), indicate an additional milestone on the Gantt chart above. 1 mark

    ii. Provide a justification for the placement of this milestone. 1 mark

_____

_____

Question 3 (3 marks)

Ryan has sent surveys to staff and clients to gather data and determine requirements. He will also include observation as a method of data collection.

a. State **one** advantage of using observation as a method of data collection during the analysis phase.   1 mark

_____

_____

b. Apart from conducting surveys and observations, suggest another technique that Ryan could have used to collect data from Peter and Jessica in particular, and explain why this technique might have been useful.   2 marks

_____

_____

_____

_____

Question 4 (6 marks)

Jessica has provided Ryan with the functional and non-functional requirements for the mobile application. She has also provided him with advice from the organisation's legal team, which outlines the legal requirements that the mobile application must meet, with regard to handling personal data, security, confidentiality and banking services.

a.   Identify two functional requirements, a non-functional requirement and a constraint that Ryan will need to consider when developing the mobile application.   4 marks

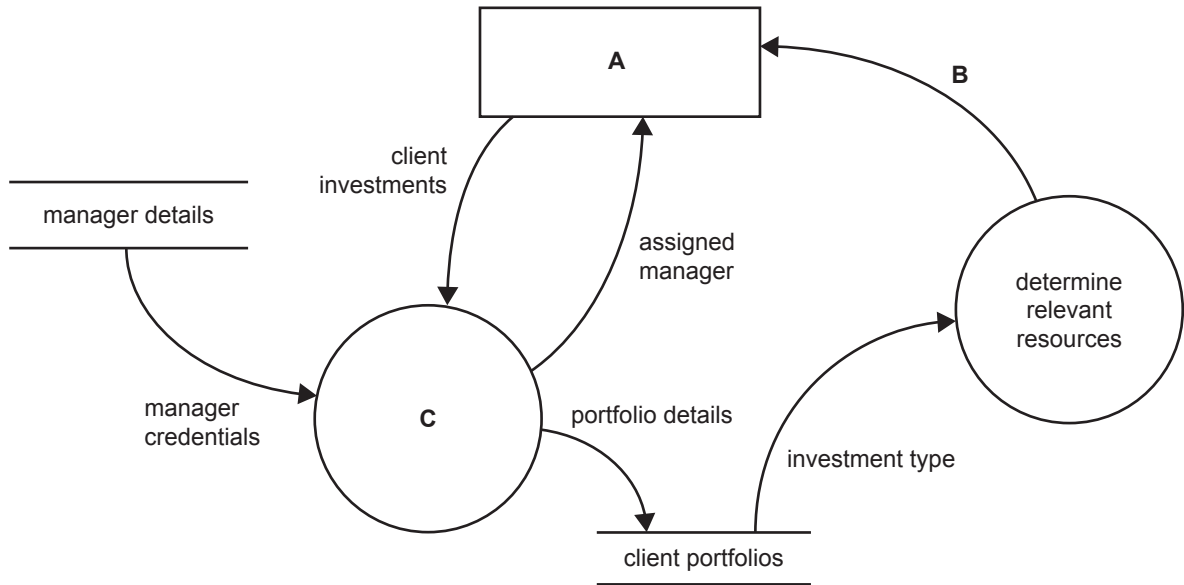Functional requirements

1. _____

2. _____

Non-functional requirement

_____

Constraint

_____

b.   Discuss how the non-functional requirement and constraint identified in **part a.** may have an impact on the scope of the project.   2 marks

_____

_____

_____

_____

_____

Question 5 (3 marks)

Ryan has analysed the existing information system at SmallPort Financial and developed the following partial data flow diagram.


Using the information provided in the case study, including the context diagram (Figure 2), complete the data flow diagram by writing the correct labels for A, B and C in the spaces provided below.

A _____

B _____

C _____

Question 6 (6 marks)

Before Ryan starts the development of the mobile application, he is required to generate some design ideas. Below are two design ideas created by Ryan, showing potential user interfaces for the mobile application.
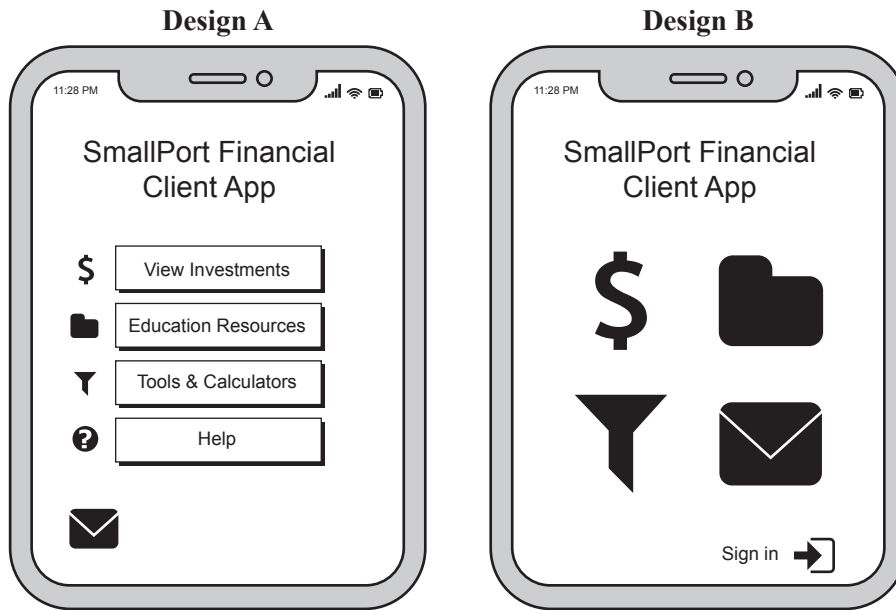
a. Select **one** design idea – Design A or Design B – based on the requirement of **security**. Justify your selection. 3 marks

_____

_____

_____

_____

_____

b. Select **one** design idea – Design A or Design B – based on the requirement of **usability**. Justify your selection. 3 marks

_____

_____

_____

_____

_____

Question 7 (2 marks)

To assist Ryan with the design of the mobile application, Jessica has produced the following data dictionary for the 'View Investments' module.

Variable name	Data type/structure	Description
strAccName	string	account holder's name
strAccNumber	string	account number
flpAccBalance	floating point	account balance
recInvestments[]	array of records (string, integer, floating point, floating point, floating point, Boolean)	share name, number of shares, current share price, total cost of shares, difference between cost of shares and current total, communication flag
flpChange	floating point	daily change in market value of shares
flpTotalProfitLoss	floating point	overall profit/loss of investment portfolio in relation to original cost
flpTotalCost	floating point	original cost of all investments

Describe a naming convention that Jessica has used and explain how this naming convention will assist Ryan when developing the mobile application.

_____

_____

_____

_____

Question 8 (2 marks)

Jessica and Ryan have debated how client data will be stored and used by the system. Jessica believes that all client data should be stored in a series of one-dimensional arrays, while Ryan believes that using records would be much better.

Explain why records, rather than a series of one-dimensional arrays, would be a better way to store the data used by the information system.

_____

_____

_____

_____

_____

_____

_____

Question 9 (3 marks)

Ryan has identified that the following variables need to be added to the data dictionary.

Complete the table below by identifying the most appropriate data type or data structure for each proposed variable.

Proposed variable name	Data type/structure	Example
AusFinancialLicenceNo		310123456
LinkedAccounts		[CRP123, STK764, RES72890]
AccountBalance		$12346.84

Question 10 (2 marks)

During the development of the mobile application, Peter attends a financial technology conference. While he is there, a representative from a software development business suggests to Peter that SmallPort Financial should develop a rich client application for their clients rather than a mobile application. Peter emails Jessica immediately to discuss the suggestion.

Explain why developing a mobile application would be a better option for SmallPort Financial than a rich client application.

_____

_____

_____

_____

_____

_____

_____

Question 11 (5 marks)

Every client at SmallPort Financial has a Portfolio Manager assigned to them. Portfolio Manager assignments are reviewed every three months to ensure that clients are linked with the best professional to advise them and manage their investments. The new cloud-based intranet currently does not have a built-in auto-assign feature, so Jessica has asked Ryan to also develop this feature for SmallPort Financial.

Each Portfolio Manager at SmallPort Financial specialises in one of three areas: cryptocurrencies (CRP), real estate (RES) or stocks (STK). Portfolio Managers are assigned according to the following criteria:

• CRP investments equal to or over $100 000 are assigned to Rachael, while those under this amount are assigned to David.

• RES investments equal to or over $1 000 000 are assigned to José, while those under this amount are assigned to David.

• STK investments equal to or over $60 000 are assigned to Frederick, while those under this amount are assigned to Christine.

Below is the pseudocode that Ryan has written for the new intranet module to auto-assign Portfolio Managers to clients.

```
BEGIN
    Case Category
        CRP: If accBalance >= 100000 Then
                Manager ← Rachael
            Else
                Manager ← David
            EndIf
        RES: If accBalance >= 1000000 Then
                Manager ← José
            Else
                Manager ← David
            EndIf
        STK: If accBalance <= 60000 Then
                Manager ← Frederick
            Else
                Manager ← Christine
            EndIf
    End Case
END
```

a. Complete the test table below.   3 marks

Test no.	Test data	Expected results	Actual results
1	Category ← CRP Amount ← 150 000	Manager ← Rachael	Manager ← Rachael
2	Category ← CRP Amount ← 60 000	Manager ← David	Manager ← David
3	Category ← RES Amount ← 1 500 000	Manager ← José	Manager ← José
4			
5			
6			

b. Describe the error in the pseudocode that would cause Portfolio Managers to be incorrectly assigned.   1 mark

_____

c. Rewrite the line of pseudocode causing the error identified in **part b.** so that the pseudocode will work correctly.   1 mark

_____

Question 12 (3 marks)

Jessica wants to ensure that the mobile application's internal documentation is clear for developers so that future changes can be made.

Ryan has developed the following module that creates a new user in the system.

```
Begin
    //Input new user data
    Input firstName
    Input surname
    Select userType
    New ← firstName, surname, userType //creates new user
End
```

a. Identify an example of internal documentation from the module above. 1 mark

_____

b. Outline **two** advantages for SmallPort Financial of including internal documentation in the mobile application. 2 marks

_____

_____

_____

_____

Question 13 (4 marks)

Ryan has assured Peter and Jessica that the mobile application he has developed for SmallPort Financial is interoperable with their new cloud-based intranet and other external systems. However, during testing, Ryan realises that the mobile application is not displaying all of a client's accounts and that the intranet is receiving week-old data from the stock exchange data service.

Discuss the impact of diminished data integrity on the

- intranet

_____

_____

_____

_____

_____

- mobile application.

_____

_____

_____

_____

_____

Question 14 (4 marks)

Once all the development issues have been addressed, Ryan and Jessica want to conduct usability testing for the mobile application with the two clients, Rosie and Andrew, who volunteered to be involved in the testing of the application.

a. Propose a usability test that Ryan and Jessica could perform with Rosie and Andrew. 2 marks

b. Explain how usability testing can be used to improve the mobile application for retirees and casual investors. 2 marks

Question 15 (3 marks)

As an investment service, SmallPort Financial must store its clients' personal and sensitive data in a secure manner. The data is stored in a secure area within the network and is encrypted when it is not being used. All of SmallPort Financial's staff members have access to this secure area of the network and are trained in how to decrypt the data.

José, a Portfolio Manager, has been approached, through a friend, to work for a new investment service. José's friend has said that, if José were to provide the new investment service with a list of the contact details and investment information of SmallPort Financial's top 10 clients, he would be employed as a Managing Director at the new service.

a.   Identify the relevant legislation that would be breached if José provides the list to the new
        investment service.   1 mark

_____

b.   Explain how José and SmallPort Financial would be breaching the legislation identified in
        part a. if he provides the list to the new investment service.   2 marks

_____

_____

_____

_____

Question 16 (4 marks)

The mobile application will be used to communicate personal data and sensitive investment instructions between Portfolio Managers and clients. As a result, the security of the mobile application is a high priority for SmallPort Financial. After attending a financial cybersecurity conference, Peter is now worried that the mobile application is susceptible to a range of threats and may not be adequately secured.

a.   Describe **two** threats to the data transmitted and used by the mobile application.   2 marks

_____

_____

_____

_____

b.   Identify and justify a security protocol that could be used by SmallPort Financial to protect
        data and information transmitted between the organisation and its clients' mobile devices. 2 marks

_____

_____

_____

_____

Question 17 (3 marks)

Six months after the release of SmallPort Financial's mobile application, Peter conducts a survey to gather information about client and employee satisfaction with the mobile application and the new cloud-based intranet. The data gathered in the survey is displayed in Figure 3 and Figure 4 in the case study. When Peter analyses the data, he finds that, compared to the data from the older survey, client satisfaction has increased but employee satisfaction has decreased. He believes that the introduction of the new cloud-based intranet and mobile application has affected employee satisfaction.

a. Refer to Figure 3 in the case study and suggest **two** reasons why employee satisfaction at SmallPort Financial has decreased since the introduction of the new cloud-based intranet and mobile application.   2 marks

b. Refer to Figure 4 in the case study and suggest **one** reason why client satisfaction with SmallPort Financial has increased since the release of the mobile application.   1 mark

END OF QUESTION AND ANSWER BOOK

Insert for Section C – Case study

Please remove from the centre of this book during reading time.

SmallPort Financial has offered financial investment services in Melbourne for the past 15 years. The organisation manages stock, real estate and cryptocurrency investments for its clients, who are mainly casual investors and retirees.

When Peter, the CEO and founder of SmallPort Financial, started the organisation 15 years ago, he established the following vision statement (Figure 1) to help guide the direction that SmallPort Financial would take.

SmallPort Financial
Vision Statement

Successful, sustainable and transparent[1] financial management through communication and knowledge

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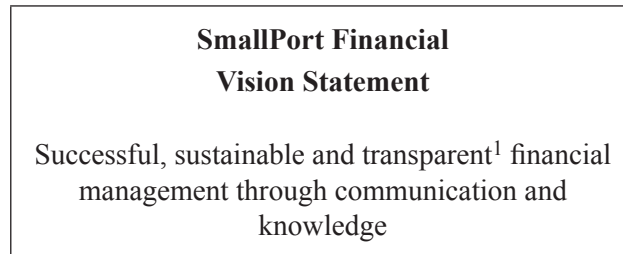
Figure 1

Over time, the organisation has expanded and Peter has felt that SmallPort Financial has started to move away from his initial vision.

Peter has managed the organisation's technology since its foundation; however, he has recently hired Jessica as SmallPort Financial's Chief Technology Officer. Jessica's first project at SmallPort Financial is to upgrade the organisation's ageing hardware and software infrastructure.

Current system and planning for solution development

The organisation's employees share resources and collaborate using an ageing intranet, which is hosted on site. Jessica has sourced a new cloud-based intranet to replace the existing service. She has hired Ryan, an external software developer, to develop a mobile application for clients to better interact with the organisation. It is proposed that the mobile application and the new intranet will share data with each other, and Ryan has indicated that this should not be a problem.

Ryan has identified that the current system and processes at SmallPort Financial engage with a range of stakeholders, including clients, external financial institutions, various stock exchanges around the world and relevant regulatory bodies[2]. As part of his initial analysis of the current system, Ryan has come up with a context diagram (Figure 2) that highlights the data flows between these stakeholders and the system. When clients first join SmallPort Financial, they are assigned a Portfolio Manager[3] based on their main investment type, the value of their investment and the credentials[4] of the available Portfolio Managers.

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[1]**transparent** – clear and honest
[2]**regulatory bodies** – organisations that define rules for particular industries
[3]**Portfolio Manager** – a person who manages a collection of investments (or portfolio)
[4]**credentials** – qualifications and/or experience

Context diagram for the existing processes at SmallPort Financial
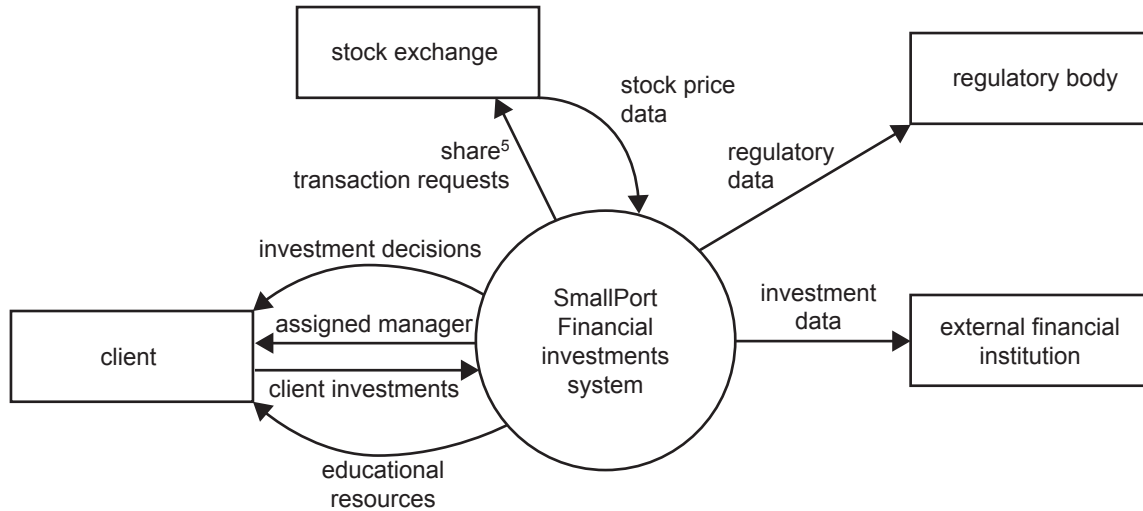

Figure 2

The mobile application should allow clients to view their investments, directly contact their Portfolio Manager and access a range of financial education resources. It is also intended that Portfolio Managers will be able to communicate with their clients via the mobile application, identify educational resources that are relevant to their clients' needs and have these resources clearly marked in the mobile application on the client's device. In the past, Portfolio Managers have communicated these resources to their clients via email, but clients had complained when managers repeatedly sent the same resources through.

Jessica wants the mobile application to be as user-friendly as possible and available on a diverse range of mobile devices. Ryan has suggested that SmallPort Financial consider targeting one particular mobile operating system first, before releasing the mobile application onto other mobile operating systems.

Both Peter and Jessica want clients to be involved in the testing and evaluation processes, and Ryan agrees that this should occur as the project rolls out. Jessica sends an email to all of SmallPort Financial's clients, requesting volunteers to support the development of the mobile application, and she receives a number of positive responses to the initiative. After going through the list of volunteers, they select Rosie, who is a casual investor, and Andrew, who is a retiree, to participate in the consultation process.

[5]**share** – a financial investment in a business that may entitle the owner to
a part of the business's profits

TURN OVER

Evaluation

Six months after the application is released, Peter conducts a survey of both his clients and his employees to determine how successful the project has been in achieving its objectives. He had already collected similar data as part of a review of the organisation 12 months before the release of the mobile application. The following data is representative of the results for both surveys.
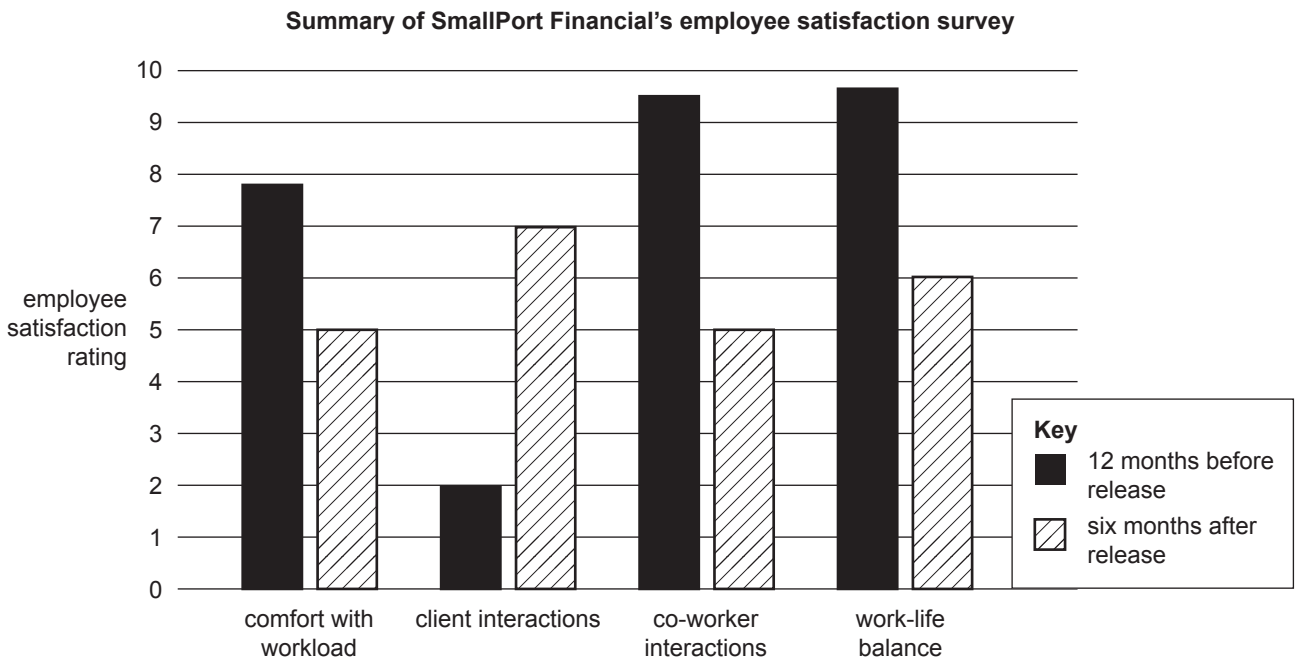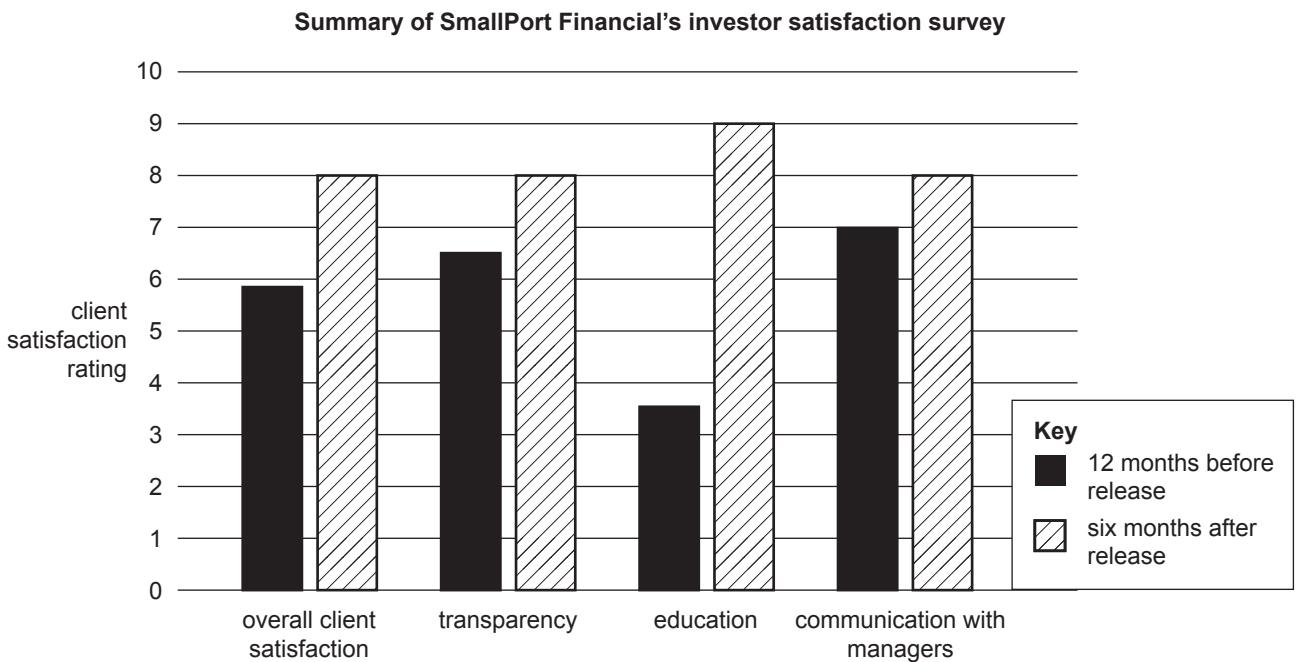
Summary of SmallPort Financial's employee satisfaction survey

Figure 3

Summary of SmallPort Financial's investor satisfaction survey

Figure 4

END OF INSERT