UOW MALAYSIA KDU PENANG UNIVERSITY COLLEGE

PART OF THE UNIVERSITY OF WOLLONGONG AUSTRALIA GLOBAL NETWORK

School of Engineering, Computing and Built Environment

Department of Computing

Bachelor of Computer Science (Hons)

Bachelor of Computer Science (Hons) in Computer & Network Technology

Software Engineering (CSE3033)

Mock Final Assessment (September 2021 Semester)

Duration: 2 hours

Total Marks: 100

Instructions:

1. This mock assessment consists of 3 questions. Answer the questions in a new Microsoft Word file then convert to 1 PDF file for submission.
2. Ensure you complete the assessment within the given amount of time.
3. Once you have completed answering all the questions, ensure you submit the assessment on time in Microsoft Teams Assignment section.

Question 1: (40 marks)

a. Your R&D software department has received a new project which involves a RM500k system development from a critical field industry company. The client has put in high attention about the project and wishes to review the project status periodically. The project requirements are also changing rapidly due to environmental change and you have to keep updating the system for the full development cycle until completion.

i) Identify which software methodology which you will use to develop the system. Explain with 2 points. (5 marks)

ii) As it is a huge investment project, you have to clearly explain the expectations of the system to the client to prevent miscommunication later. Highlight 3 advantages and 3 disadvantages of using prototyping model for system development to your client. (12 marks)

b) Figure 1 below shows the general model of the design process. Explain each of the design activities as shown in the diagram.

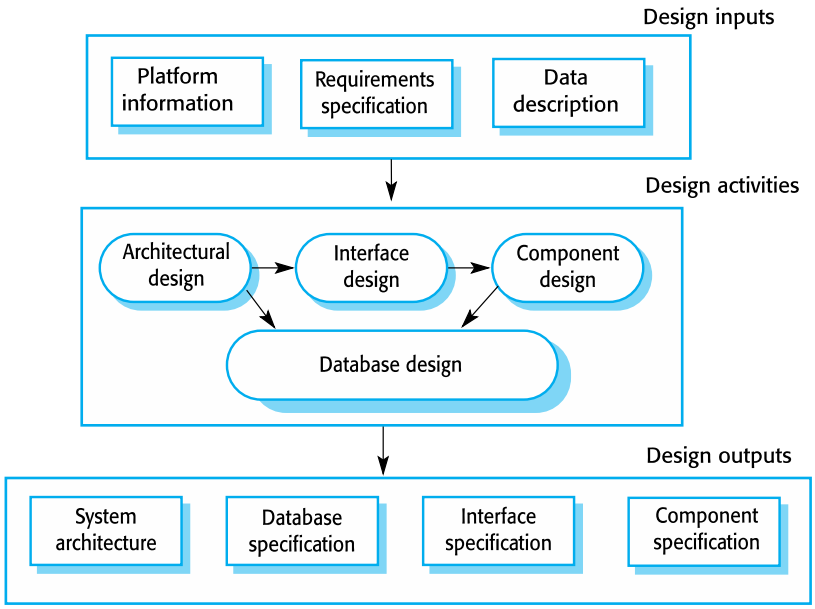

Figure 1.

(8 marks)

c) The users of the current software which you are developing comprises of national citizens from different range of age. Therefore, you have to achieve the goals of reducing the user's memory load in your software design. Propose 2 methods to achieve the goal with suitable example explanation. (8 marks)

d) Discuss the issues of professional responsibility in terms of

i) Confidentiality (2 marks)
ii) Competence (2 marks)
iii) Computer misuse (2 marks)

e) What is the professional societies which produce code of ethical practices for software? (1 mark)

Question 2: (30 marks)

a) With reference to SCRUM framework, identify 3 elements of ceremonies and 3 elements of artifacts. (6 marks)

b) You have been approached by a new café owner which requested you to design a new café website for him. He has provided you with a sample of competitor's website and requested you to include similar features in the website. In order to understand the owner's requirements better, you must try your best to list out all user stories and present to the owner. Based on Figure 1 below, write out 4 user stories. (8 marks)

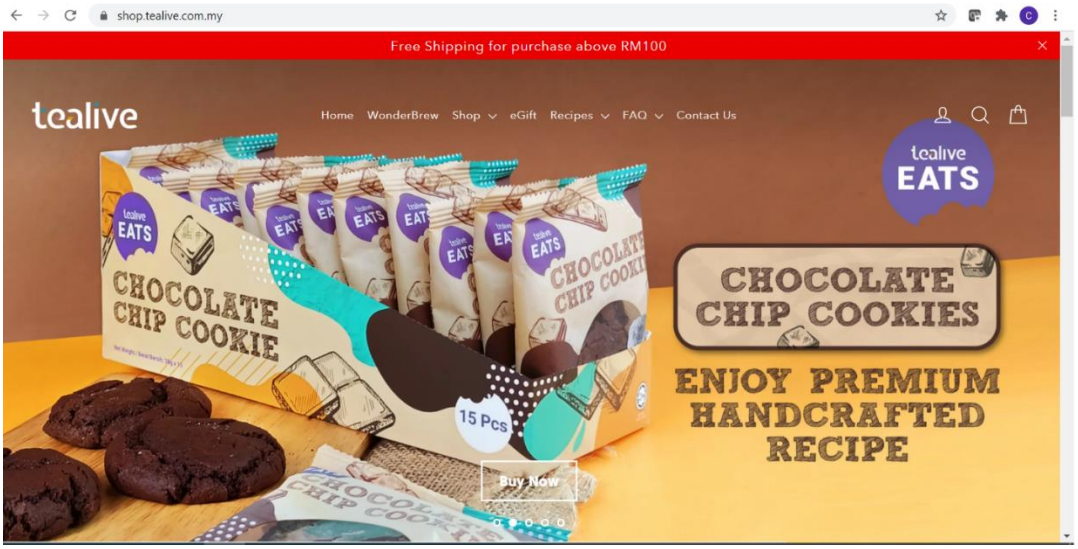

Figure 1 sample competitor website (source: www.shop.tealive.com.my)

c) What is SMART stands for in evaluating user stories? (5 marks)

d) Answer the question below by using Cost estimation solution.

Consider a database application project with the following characteristics:

1. The application has four screens and six views each and seven data tables for three servers and four clients.
2. The application may generate four reports of four sections each from six data tables for three servers and five clients. There is 15% reuse of application points.
3. The developer's experience and capability in this subject are normal. The maturity of the company in terms of capability is also normal.

Calculate the

i) application point count (5 marks)
ii) new application points (3 marks)
iii) effort to develop (effort in person per month) (3 marks)

Reference tables:

Table 1: For Screens

	Source of data tables		
Number of view contained	Total < 4 (<2 client <3 server)	Total < 8 (2-3 client 3-5 server)	Total 8+ (>3 client >5 server)
<3	Simple	Simple	Medium
3-7	Simple	Medium	Difficult
>7	Medium	Difficult	Difficult

Table 2: For Reports

	Source of data tables		
Number of section contained	Total < 4 (<2 client <3 server)	Total < 8 (2-3 client 3-5 server)	Total 8+ (>3 client >5 server)
0 or 1	Simple	Simple	Medium
2 or 3	Simple	Medium	Difficult
4+	Medium	Difficult	Difficult

Table 3: Complexity Weight

	Complexity Weight		
	Simple	Medium	Difficult
Screen	1	2	3
Report	2	5	8

Table 4 PROD reference

Developer's experience and capability; ICASE maturity and capability	Very Low	Low	Normal	high	Very high
PROD (NAP/person per month)	4	7	13	25	50

Question 3: (30 marks)

a) Determine three areas where can you apply naming conventions. (3 marks)

b) Identify two benefits of information hiding. (4 marks)

c) Discuss two impacting issues of validation testing. (6 marks)

d) Given the code snippet below in Figure 2, draw the CFG control flow graph by using the line number from 3 to 13.

```
Line 1: int luckyDraw(int []contestant, int totalPax)
Line 2: {
Line 3:         int count=0;string prize;
Line 4:         while (count < totalPax){
Line 5:                 if (contestant[count] < 3000)
Line 6:                         prize = "tier 1 ear bud";
Line 7:                         if (contestant[count]%4==0)
Line 8:                                 prize = prize + "RM100 bonus";
Line 9:                 else
Line 10:                        prize = "tier 2 smart car";
Line 11:                System.out.println("contestant" + count+1 + "receives " + prize);
Line 12:                count++;}
Line 13         System.out.println("All prizes are given away!");}
```

Figure 2.

(8 marks)

e) Write out the path if given the information below:
contestant[2] = {1200, 5000}
totalPax = 2

(3 marks)

f) Distinguish the difference among fault avoidance, fault detection and fault tolerance in terms of fault management in a software development. (6 marks)

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