



UNIVERSITI
TEKNOLOGI
PETRONAS

FINAL EXAMINATION MAY 2024 SEMESTER

COURSE : TFB1133 - SYSTEM ANALYSIS AND DESIGN
DATE : 9 AUGUST 2024 (FRIDAY)
TIME : 3:00 PM - 6:00 PM (3 HOURS)

INSTRUCTIONS TO CANDIDATES

1. Answer **ALL** questions in the Answer Booklet.
2. Begin **EACH** answer on a new page in the Answer Booklet.
3. Indicate clearly answers that are cancelled, if any.
4. Where applicable, show clearly steps taken in arriving at the solutions and indicate **ALL** assumptions, if any.
5. **DO NOT** open this Question Booklet until instructed.

Note :

- i. There are **SIX (6)** pages in this Question Booklet including the cover page
- ii. **DOUBLE-SIDED** Question Booklet.

1. a. "Systems Development Life Cycle (SDLC) is a process of gradual refinement". Explain this statement.
[NOTE: Support your answer with an appropriate diagram]
[2 marks]
- b. Describe **THREE (3)** techniques for eliciting requirements.
[6 marks]
- c. Explain the following concepts:
 - i. Business Process Reengineering
[2 marks]
 - ii. Business Process Improvement
[2 marks]
- d. Describe Agile methodology in software development life cycle.
[NOTE: Support your answer with clear diagram and detail comparison with other methodologies]
[8 marks]

2. Customers should be able to search for online movie by Title and Category (some examples of categories are: Series, Movies, Music). Once they find a product they like, they can add a streamed movie to their shopping cart. This requires that they are logged in, therefore if they do not yet have an account, they should be able to create one. When creating an account, a username and password should be chosen, and optionally, they can enter their home address and/or the credit card information they want to use for paying. Credit card information consists of the name on the credit card, the credit card company, the credit card number, and the expiration date. They can add as many movies to the shopping cart as they want, and they can also remove the movies. If they decide at some point to check out the shopping cart, then they are asked to check the shipping address and credit card information supplied, and if either of those was not supplied, they are asked to supply it. Next, they can review the contents of the shopping cart, and if they agree, they can send the order. Then, the credit card information is sent to the bank, and, if approved, the order is finalised. If the information was not approved, then the customer is made aware of this, so he/ she can change the payment option. A delivery agent can check the status of online orders, and process an order, meaning that it changes its status from "pending" to "delivered". Finally, the administrator is responsible for the movie inventory. The administrator can check the current inventory, order new movies from the supplier and add new movies to the inventory.

- a. Create a UML Use Case Diagram for the online movie shop. [6 marks]
- b. Based on your use case diagram of "check out shopping cart", create a UML Sequence Diagram. [7 marks]
- c. Design a class diagram for above scenario. [7 marks]

3. Based on the case study given in **QUESTION 2**, answer the following questions:
- a. List **FIVE (5)** functional requirements statements for the online movie system.
[5 marks]
- b. List **FIVE (5)** non-functional requirements statements for the online movie system.
[5 marks]
- c. There are three parties involved in processing an order: Shipping, Online Sales, and Accounting. The process starts when Online Sales receives an order for movies from a user. To complete the order, the store needs to charge the credit card and deliver the movies. To charge the card, Online Sales sends the credit card information to accounting, who will then validate and process the credit card. To deliver the movies, Shipping will first fill the order, then prepare the package, and finally deliver it. Once the movies are delivered and the credit card is charged, the order is closed. Create a UML Activity Diagram to depict the business process for processing a movie order.
[10 marks]

4. a. Discuss **TWO (2)** advantages and disadvantages of outsourcing design strategies. [4 marks]
- b. Capturing data at the source is one of the basic principles of input design. State **TWO (2)** reasons why most transaction processing system captures data at its source. [4 marks]
- c. Give **TWO (2)** methods of capturing data at source. [2 marks]
- d. Discuss any **TWO (2)** key factors in selecting a system development methodology. [5 marks]
- e. List the **FIVE (5)** User Interface Design Principles. [5 marks]

- 5
- a. Describe the **FOUR (4)** stages of software testing activities.
[6 marks]
 - b. Discuss **TWO (2)** ways to deliver training when the development is completed.
[4 marks]
 - c. Explain the different conversion styles in system installation phase.
[4 marks]
 - d. Explain **THREE (3)** important factors to be considered in the selection of a conversion style.
[6 marks]

-END OF PAPER-