



اونيورسيتي مليسيا فهغ السلطان عبدالله  
**UNIVERSITI MALAYSIA PAHANG**  
**AL-SULTAN ABDULLAH**

**FACULTY OF COMPUTING**

**ANSWER SCHEME MID-TERM TEST**

<b>COURSE</b>	<b>:</b>	<b>SOFTWARE ENGINEERING PRACTICES</b>
<b>COURSE CODE</b>	<b>:</b>	<b>BCS3133</b>
<b>LECTURER</b>	<b>:</b>	<b>MUHAMMAD ZUFLFAHMI TOH</b>
<b>DATE</b>	<b>:</b>	<b>6 NOVEMBER 2024</b>
<b>DURATION</b>	<b>:</b>	<b>2 HOURS</b>
<b>SESSION/SEMESTER</b>	<b>:</b>	<b>SESSION 2024/2025 SEMESTER I</b>

**INSTRUCTIONS TO CANDIDATE:**

1. This question paper consists of **TWO (2)** questions. Answer **ALL** questions.
2. Write your answers in the question paper.
3. All calculations and assumptions must be clearly shown.

**EXAMINATION REQUIREMENTS:**

NONE

**NAME:** \_\_\_\_\_

**MATRIC ID:** \_\_\_\_\_

**SECTION:** \_\_\_\_\_

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO**

This examination paper consists of **THREE (3)** printed pages including the front page.

Consider the following required functionality of a Voyage Studio request to answer **All** questions.

Voyage Studios was established in a vibrant urban area known for its music scene like Kuantan City which is famous for its metal and punk scene in Malaysia. The founders, Fendi Muhammad, had experience in audio engineering and music production but were new to studio management. They aimed to create a welcoming space for local musicians and bands, offering high-quality recording services and practice sessions to musicians.

The first challenge Mr Fendi faced was the initial setup cost. Because of the high cost of quality equipment and studio renovation, he needed to track all the costs for **equipment** and the initial renovation cost in the company account. Plus, maintenance, such as repair and part replacement for equipment, must also be recorded as cash flow to improve the company account cash flow. Besides, the solution also needs to provide preventive maintenance which can remind and record all the equipment maintenance. Moreover, music studios also need help attracting clients in a competitive market because, in Kuantan City, some music studios offer the same service to customers. Besides, the Kuantan City music community is tiny. For this reason, voyages need to be promoted strongly to the music community around Kuantan.

The most serious problem in studio booking is the overlapping bookings, which have led to frustrated clients and Voyage Studio employee. This is because the Voyage Studio did not have an application system to **manage booking** from clients, the existing system only used manual processes with the help of Google Calendar. The problem is that the client needs to call or private message the company's cell phone to get the booking slot. Studio has 3 main core businesses, First, Voyage Studio offers band practice room for local bands to practice, and second is, recording, to allows bands around Kuantan City to produce their music in digital form. Lastly, Voyage Studio also offers equipment renting for any entertainment events around the city.

Voyage Studio also needs a reliable **payment system** to handle the studio business. Some customers will pay cash, and the system needs to record all the payments. Some customers will use QR services and online payment to pay for the service, and lastly, customers will also pay using credit cards. For marketing purposes, Voyage Studio also offers a loyalty program to repeat customers, such as **promotions**. Thus, Mr. Fendi wants customers to register as studio **members and get loyalty** points to be redeemed later. Customers also can view all the upcoming promotions. In addition, all the activities conducted by Voyage Studio are conducted.

As a software engineer at your company, you need to analyze Mr. Fendi's problem. Your job is to identify the problem and provide a solution to build an automated system to manage all the Voyage studio activities using cross-platform mobile devices for customers and web platform devices for admin.

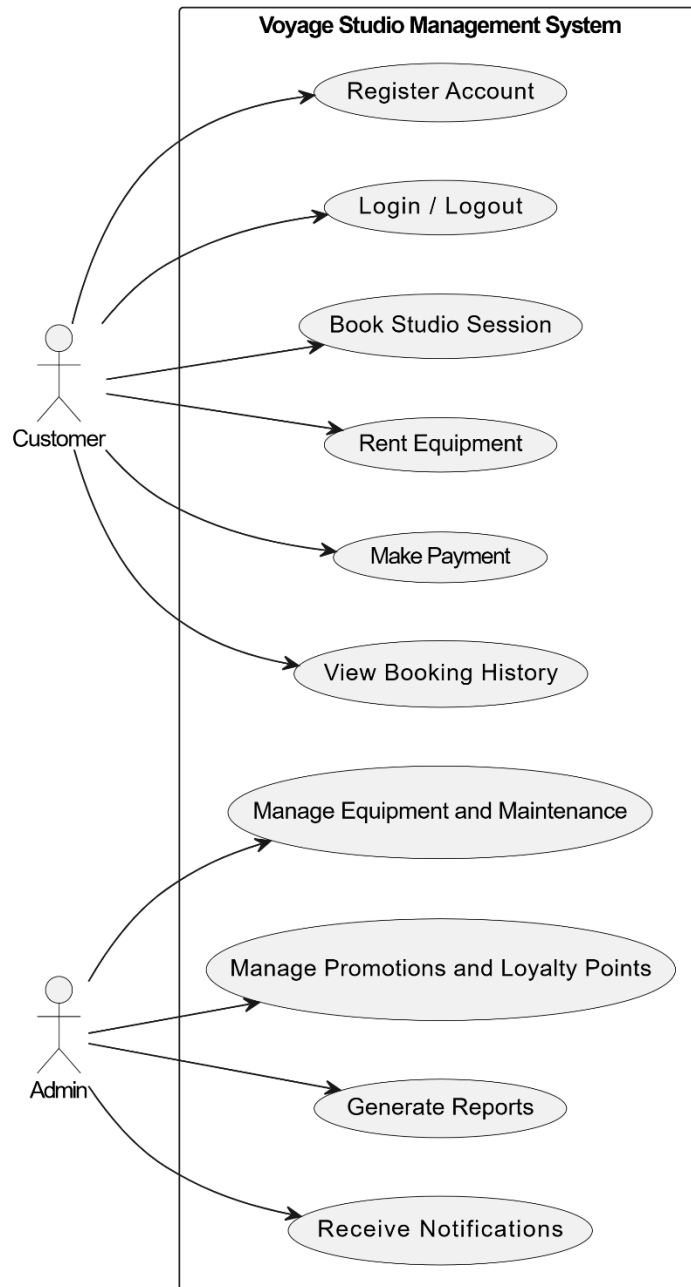
**QUESTION 1**

**Based on the case study above answer Question 1 which is how to develop a requirement for the Voyage Studio Management.**

**[30 Marks]**

a) Create a UML Use Case Diagram for the Voyage Studio Management System.

**[10 Marks]**



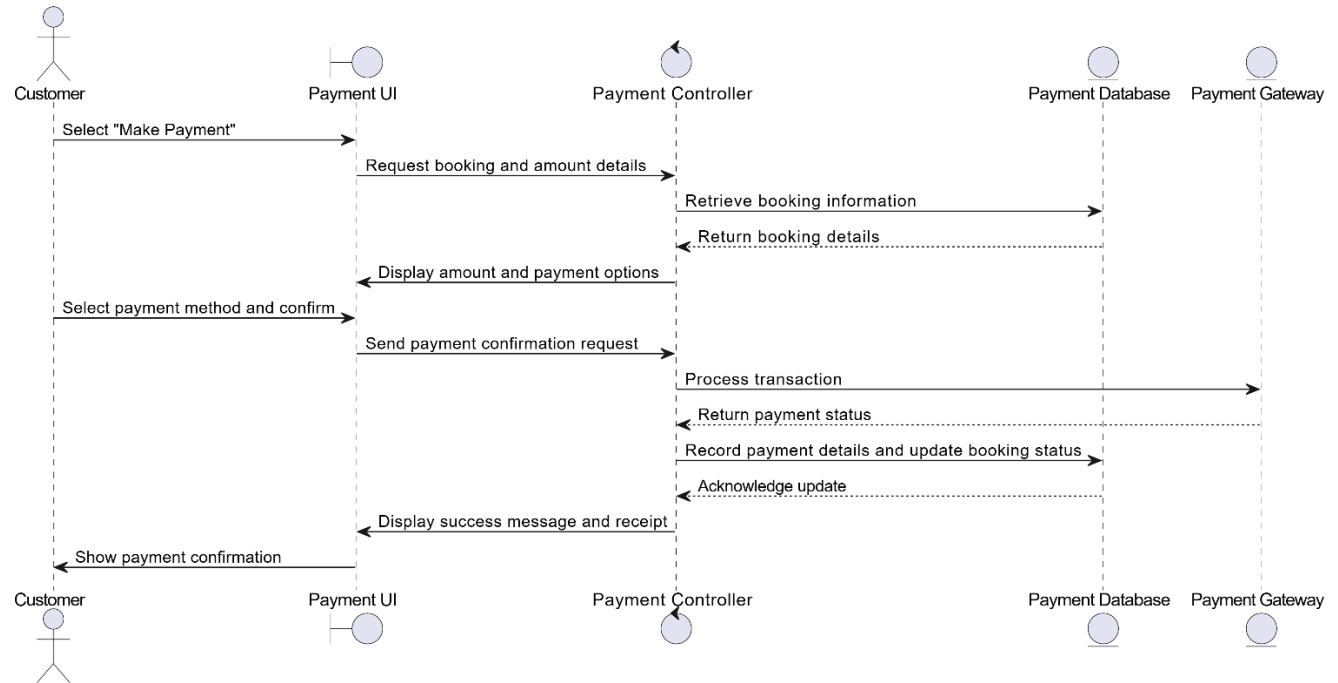
b) Based on your use case of “Make Payment”, develop structure language for **basic flow**.

**[10 Mark]**

<b>Use Case Element</b>	Description
<b>Use Case Name</b>	Make Payment
<b>Actors</b>	Customer, System, Admin
<b>Description</b>	This use case allows customers to process payments for studio bookings, equipment rentals, and other services through multiple payment options such as cash, QR payment, online payment, or credit card.
<b>Preconditions</b>	- Customer must have an existing booking.- System must have an active internet connection for online payment processing.
<b>Postconditions</b>	- Payment details are stored in the system.- Booking status is updated to “Paid.”- A digital receipt is generated automatically.
<b>Trigger</b>	The use case begins when the customer selects “Make Payment.”
<b>Basic Flow</b>	Step
<b>1</b>	The Customer selects “Make Payment.”
<b>2</b>	The System retrieves pending booking details and total payment amount.
<b>3</b>	The Customer chooses a preferred payment method (Cash, QR Payment, Online Payment, or Credit Card).
<b>4</b>	The System validates payment details and displays a summary for confirmation.
<b>5</b>	The Customer confirms the payment details.
<b>6</b>	The System processes the payment through the selected payment channel.
<b>7</b>	The System updates the booking status to “Paid” and records the transaction in the financial database.
<b>8</b>	The System generates a digital receipt and sends confirmation to the Customer.
<b>9</b>	The use case ends successfully when payment confirmation is displayed.
<b>Alternative Flow (If Payment Fails)</b>	Step
<b>A1</b>	If payment is unsuccessful, the System displays an error message.
<b>A2</b>	The System prompts the Customer to retry or choose a different payment method.

c) Construct a sequence diagram based on your basic flow in 1 (b). **Notes: No mark will be given if your basic flow is wrong.**

[10 Mark]



## QUESTION 2

From the **Answer** to question 1(a) regarding your Use Case diagram, propose a **design solution** that consists **ONLY** packages and class diagram design structure to solve the Voyage Studio Management System-related module in **Question 1**.

[30 Marks]

