

The Open University of Sri Lanka  
 Faculty of Engineering Technology  
 Department of Electrical and Computer Engineering



Study Programme	: Bachelor of Software Engineering Honours : Bachelor of Science Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	: <b>EEI3269 Introduction to Mobile Application Development</b> : <b>EEX3269 Introduction to Mobile Application Development</b>
Academic Year	: 2023/24
Date	: 30 <sup>th</sup> January 2025
Time	: 0930 - 1230hrs
Duration	: <b>3 hours</b>

### General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Four (4)** questions in **Four (4)** pages. Answer **all** questions.
3. This is a Closed Book Test (CBT).
4. Answers should be in clear handwriting.
5. Do not use red colour pen.

### Question No 1 [40 Marks]

#### The Case for Question No 1:

AI, Data Science, Machine Learning, and other emerging technologies are revolutionizing IT. These technologies address everyday challenges in just moments, making life more efficient and convenient. Many of these advancements are now integrated into mobile phones and handheld devices, which have become essential in our daily routines.

As students of Mobile Application Development, it's vital to stay informed about these trends. In the field of Library Sciences, many universities worldwide are transitioning their internal systems to AI-based solutions. At OUSL, the library already has an effective internal management system, but the team now aims to enhance their services by introducing an AI-powered chatbot (OU Libot) mobile application for library users. To bring this vision to life, the OUSL Library Team has selected the highest-performing student team from the BSE program. This innovative app will include the following four key features:

- App Dashboard: Users can search for library and book-related questions directly within the app.
- Visual Document Repository: Users will have a visual representation of the availability of search materials.
- Notifications: The app will notify users about book availability updates, especially for items they searched for previously.
- Settings: Users can customize app properties and preferences.

The goal is to create a cutting-edge mobile app for the library within a tight deadline. Your team of six members includes One UI/UX Designer, One Quality Engineer, One Project Manager, One Business Analyst, and Two Developers. Each team member possesses a solid understanding of AI concepts, making this an exciting opportunity to merge innovative technologies with practical solutions. As part of the team, it's your responsibility to contribute effectively to achieve the library's vision within the given timeline.

1. The app development process team started their activities based on the Agile methodology. Requirement gathering is a critical step in app development. The development team identified four basic components of the mobile applications. What are these four (4) components?  
(2 Marks)
2. During initial discussions, stakeholders agreed to develop the app using Native development. The Development Team explained its pros and cons to the library team. List **two (2) advantages** and **two (2) disadvantages** of Native app development.  
(4 Marks)
3. During the discussions, one of the OUSL Library's technical evaluators suggested a cross-platform development approach. As a tech team member, explain why cross-platform development would be suitable for this app. Provide **three (3) advantages**.  
(6 Marks)
4. UI/UX design is a crucial stage in the app development process, requiring significant time to create wireframes and prototypes. The UI/UX team developed both low-fidelity and high-fidelity wireframes for the app. What are the differences between these two types of wireframes? Explain them with **two (2) characteristics** for each type.  
(4 Marks)
5. While reviewing the app, the library team suggested integrating emerging technologies into the user interface (UI). As a Business Analyst (BA), critically discuss two trending technologies that can be integrated into the mobile app without disrupting its UI design. Briefly explain the two selected technologies and their potential benefits for the app.  
(4 Marks)
6. During the test case writing process, the QA team identified **three** categories of application requirements. Briefly describe these categories, providing one example for each related to this app.  
(3 Marks)
7. The OUSL Library team has not yet finalized a monetization strategy for the app. However, during progress reviews, the BA suggested using a free distribution model with advertisements. Critically evaluate why this monetization strategy would be appropriate for this application.  
(4 Marks)
8. Finally, the OUSL Library team agreed to use the free distribution model with advertisements for the app. List down the factors to consider when choosing mobile ads for this type of internal app.  
(3 Marks)
9. During the wireframe design process, the Development Team initiated implementation and created a page to demonstrate to the OUSL Library team. As a developer, you are tasked with completing the page by filling in the blanks with appropriate React Native components. (Provide your answers in the specified order on the answer sheet.)  
(1\*10 = 10 Marks)

```

import React, { useState } from 'react';
import { View, Text, TextInput, Image, ___(a)___, StyleSheet } from '___(b)___';

const AppDashboard = () => {
  const [chat, setChat] = ___(c)___('');

  const handleSend = () => {
    alert('Message Sent: ${chat}');
    setChat(''); // Clear the text input after sending
  };

  return (
    <View style={styles.container}>
      </* Heading */>
      <Text style={styles.heading}>___(d)___</Text>

      </* Bot Image */>
      <Image
        ___(e)___={require('./assets/robot.jpg')} // Adjust the path to your image
        style={styles.image}
      />

      </* Text Input */>
      <TextInput
        style={styles.textInput}
        ___(f)___="Type your message here"
        value={chat}
        onChangeText={({text} => setChat(text))
      />

      </* Send Button */>
      <___(g)___ style={styles.button} onPress={handleSend}>
        <Text style={styles.buttonText}>Send</Text>
      </TouchableOpacity>
    </___(h)___>
  );
};

const styles = StyleSheet.create({
  ___(i)___: {
    ___(j)___: 1,
    alignItems: 'center',
    justifyContent: 'center',
    padding: 20,
    backgroundColor: '#f5f5f5',
  },
  image: {
    width: 120,
    height: 120,
    marginBottom: 150,
    borderRadius: 60, // Makes the image circular
  },
  heading: {
    fontSize: 24,
    fontWeight: 'bold',
    marginBottom: 20,
    color: '#333',
  },
  textInput: {
    width: '100%',
    height: 40,
    borderColor: '#ccc',
    borderWidth: 1,
    borderRadius: 5,
    paddingHorizontal: 10,
    marginBottom: 20,
    backgroundColor: 'fff',
  },
  button: {
    backgroundColor: '#007bff',
    paddingVertical: 10,
    paddingHorizontal: 20,
    borderRadius: 5,
  },
  buttonText: {
    color: 'fff',
    fontSize: 16,
    fontWeight: 'bold',
  },
});

```



