REACT NATIVE PRACTICE PROBLEMS

INTRODUCTION (CLO-1)

Define positive impacts of mobile apps on an organization

What are the negative impacts of mobile apps.

What are native apps.

Define hybrid apps

Define swift programming language.

Define flutter framework

Define Xamarin framework

Define react native framework

Discuss four benefits of react-native framework.

JAVASCRIPT (CLO-2)

Question: 01

Create a javascript class Person with attributes: id, name, age.
Derive two classes from person, named Student and Teacher.
The extra attributes of Student are cgpa, currently enrolled semester (e.g., FA22 or SP22, etc), admission date.

The extra attributes of Teacher are salary, designation (Lecturer, Assistant Professor, Professor, etc), department, and joining date.

Populate at least 3 records in each class use class objects.

A user should be able to search a student or teacher with the provided ID. To manage that you should store objects of Teacher and Student in an array.

Question:02

Write arrow functions for the following equations:

$A = x^2 + 2xy + P.z$

$A = n^2 + qn + 1$

$Z = x^2 + 4y^2 - 8y + 2x$

Question: 03

Suppose the equation is:

$Z = x^2 + 4y^2 - 8N + 2x$

Where N is represented by a separate equation:

$N = p^2z + rq^2 + s$

Solve 'Z' with arrow function. Note, here you are calling an arrow function within an arrow function.

Question: 04

Suppose you have the following array of objects,

var myarray: [{'name': 'ali', 'age':'45'}, {'name':'noman', 'age':'34'}]
Display the values of array using map function.

Question: 05

Write an example of defining an arrow function within another arrow function.

Question: 06

Suppose we have the following arrays in JavaScript

var myArray1 = [3, 4, 5]
var myArray2 = [6, 7, 8]

Write code to append the myArray2 into myArray1.

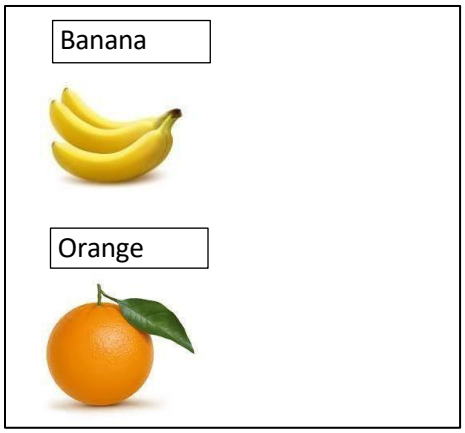
Question: 07

Suppose we have an object var myObject1 = { name: 'Devin', hairColor: 'brown' }
Write code to change value of hairColor using spread syntax (…) three dots.

REACT NATIVE CORE COMPONENTS (CLO-3)

Question:

Make an app in react native that shows the following on screen:



For this task, create a folder “images” and place the banana.jpg and orange.jpg in the images folder.

Question:

Write a function component to show grade of a student for the given marks. The marks are provided to a javascript arrow function as argument, e.g., calculateGrade(marks) which is called in the <Text></Text> of function component. Here is the grade distribution:

< 50 --- F

>= 50 and < 60 --- E

>= 60 and < 70 --- D

>= 70 and < 80 --- C

>= 80 and < 90 --- B

>= 90 --- A

QUESTION

Use props and pass names of students from a Name() function component to Attendance() function component. The following should be the output by Attendance() function component.

Ali Khan	Present
Noman	Present
Faisal	Absent
Javed	Absent

QUESTION

Write code to add a button in React Native. The text showing in the button should be Click Here. When the button is clicked, an alert dialog should be shown with message “hello world”.

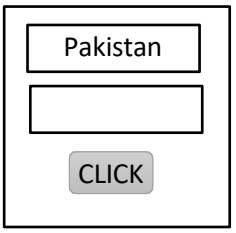
QUESTION

Write the code of App function.

When a user enters any text in the TextInput, it is also automatically written in another TextInput.

QUESTION

Suppose we have a layout like this:



When the button is clicked, the value from above TextInput should be written to the below TextInput. You need to write the code for the event handler defined for button.

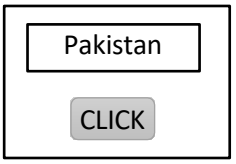
QUESTION

Create a program with following layout:

When the button is clicked, the text “hello world” should be shown in the textbox, and the button should be disabled. You can use hooks and state variables.

QUESTION

Suppose we have layout like this:



When the button is clicked, the message in the TextInput should display in a dialog. Write code for event handler of button.

QUESTION

Create a simple registration page in react native asking for users username, email, name, and cell number. When the user click on register button, the information should be shown using <Text></Text> elements. However, if any input is missing, message should be shown about the missing element.

QUESTION

Use the class component to do the following:

Create a simple registration page in react native asking for users username, email, name, and cell number. When the user click on register button, the information should be shown using <Text></Text> elements. However, if any input is missing, message should be shown about the missing element.

QUESTION

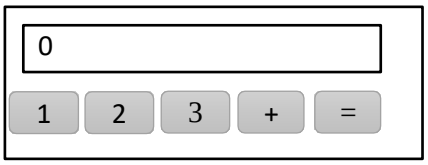
Suppose that you have a string defined in strings.js. The name of the string is country_name and value is “Pakistan”. Write a program that shows the value of string in your app function. (You need to import the string from strings.js)

QUESTION

Suppose you have two TextInputs, each containing a number, and a button to add the values of the two TextInputs. When the button is clicked, the values of the TextInputs are added and result should be shown in console.

QUESTION

The following layout has three number buttons, a plus and equal operator, and a TextInput initialized with a zero “0”.



The user should be able to enter a string of numbers like 12232213. The user need to enter a number, click on + operator, and then input another number. When user click on equal, the result of sum should display in TextInput (Hint: Check eval method of javascript).

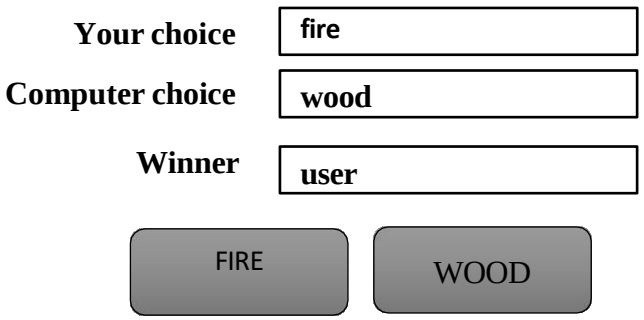
QUESTION

Suppose we have a predefined function that has following prototype:

`function GetComputerChoice()`.When this function is called in a button click event, it returns either “fire”, “wood”, or “water”. In the same button click event, a random number is generated from 1 to 3, such that if 1 is generated, this means, the user gets “fire”, if 2 is generated, the user gets “wood”, and if 3 is generated, the user gets “water”. You need to check against the button click event that which of the computer or user has WON. Show name of winner in alert. NOTE: Wood > Water; Water > Fire; Fire > Wood

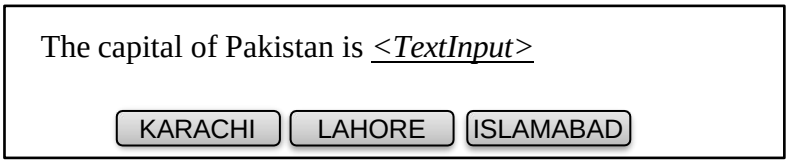
QUESTION

Suppose you want to build a game in which a user either can press **fire** or **wood**, and then a random choice is generated for computer. The player that gets fire is the winner. Write the code of the program. In case both user and computer get same value, it will be a draw.



QUESTION

You have a layout as given in the following.



You need to write a “single method” for all the three buttons. The prototype of method is:

function button_Click().

In this method, you need to get the text of the button clicked. If the text is matching with the string “ISLAMABAD”, the <TextInput> should be assigned value ISLAMABAD, otherwise it remains blank.

QUESTION

Suppose we have data in this format:

```
{ [
  { “name”: “ali”, “age”: “23” },
  { “name”: “shazia”, “age”: “22” }
] }
```

Write code to show the above array of objects in a <FlatList>

REACT NATIVE STYLES (CLO-3)

QUESTION

Suppose you have an <Text> field and two buttons. The first button is labeled as BLUE and the second button is labeled as GREEN. When the BLUE button is clicked, the color of text in <Text> should changed to BLUE, and when GREEN button is clicked, the color of text in <Text> should change to GREEN. Write also the code of defining the style classes of two colors.

QUESTION

Suppose you have a layout like the above. In the below example, the blue button is clicked, and its text size is increased and text color is changed to black.

In the above layout, the buttons are touchable opacity. The buttons are created by using array of color names, and the text in the buttons is shown in upper case. When a button is clicked, the color of the text below is changed and the name of color is shown as shown in the above example. Moreover, the button that is clicked has font weight changed to bold and font size increased to indicate which button is currently clicked.

Question:

Show a list of students, such that :

ID	Name	CGPA
1	Javed	3.0
2	Noman	2.7
3	Ali	3.7
4	Faisal	3.3
5	Shahid	4.0
6	Kamal	3.1
7	Zahid	2.3

The students whose CGPA are in the range between 2 and less than 3 should be shown in bold and red font.

The students whose CGPA are in the range between 3 and less than 3.7 should be shown in blue font without bold

The students whose CGPA are greater than and equal to 3.7 should be shown in italic, bold, and green font.

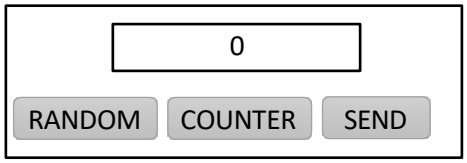
REACT NATIVE NAVIGATION (CLO-4)

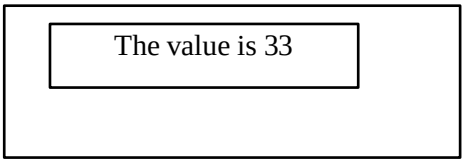
QUESTION 01

Write code that launches a screen Display from Home screen. Send two numbers from Home to Display, where they should be shown in <TextInputs>.

QUESTION 02

Suppose we have a layout like this





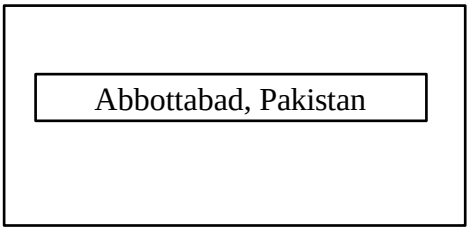
Write code for button RANDOM such that when user click button, a random number from one to hundred is shown in text box. Write code for button COUNTER such that when the user click the button, the value in the TextInput start incrementing. Write code for button SEND such that when user click on button, the value in TextInput is passed to a new screen (Display) and shown as indicated in the figure.

QUESTION 03

hen the user click on button in Home screen, the both strings in TextInputs should be passed separately to the Display screen where they are shown as concatenated string in display function of Display screen.

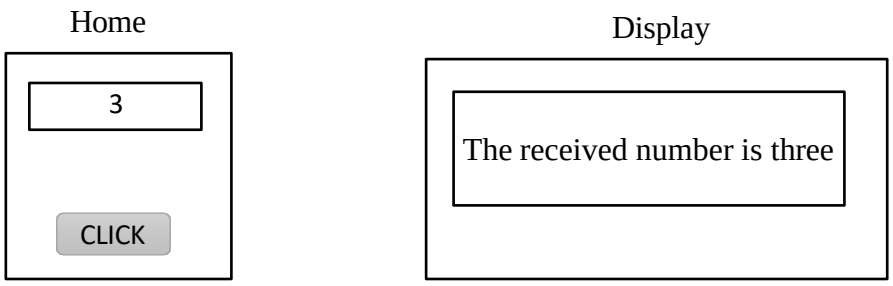
Home

Display



QUESTION 04

Pass a number from 1 to 3 from the Home screen to the Display screen. In the Display screen, check which of the number is received, and then write the number in words.
For example, you passed 3 from Home screen, and in Display screen, you will print “three” as shown below.


Home
3
CLICK
Display
The received number is three

ASYNCHRONOUS STORAGE (CLO-5)

QUESTION 01

Write a program to store the following object using AsyncStorage.
The name of key is @data, and the object is {‘name’:’Ali’, ‘Age’:’45}

```
import React, { useEffect } from 'react';
import { View, Button } from 'react-native';
import AsyncStorage from '@react-native-async-storage/async-
storage';
const App = () => {
  const storeData = async () => {
    try {
      const data = { name: 'Ali', age: '45' };
      await AsyncStorage.setItem('@data', JSON.stringify(data));
      console.log('Data stored successfully.');
    } catch (error) {
      console.error('Error storing data:', error);
    }
  };
  useEffect(() => {
    // storeData();
  }, []);
  return (
    <View>
      <Button title="Store Data" onPress={storeData} />
    </View>
  );
};
export default App;
```

REACT NATIVE PHP/MYSQL STORAGE (CLO-5)

QUESTION 02

Suppose you have a users table in mysql database. Write a react native function to retrieve all records from the users table using PHP. (You don't need to write the PHP part).

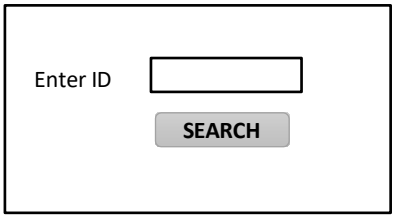
```
import React, { useEffect, useState } from 'react';
import { View, Text, FlatList } from 'react-native';

const App = () => {
  const [users, setUsers] = useState([]);

  useEffect(() => {
    const phpScriptUrl = 'your_php_script_url';

    fetch(phpScriptUrl)
      .then((response) => response.json())
      .then((data) => {
        setUsers(data);
      })
      .catch((error) => {
        console.error('Error fetching data:', error);
      });
  }, []);

  return (
    <View>
      <Text>User List:</Text>
      <FlatList
        data={users}
        keyExtractor={(user) => user.id.toString()}
        renderItem={({ item }) => (
          <View>
            <Text>{`Name: ${item.name}, Age: ${item.age}`}</Text>
          </View>
        )}
      />
    </View>
  );
};

export default App;
```

REACT NATIVE SQLITE DATABASE (CLO-5)

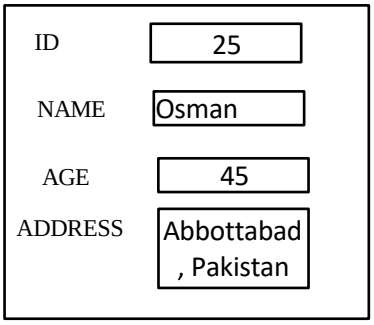
QUESTION 03

Write an application that asks for an ID from user in RecordSearch screen. When the user enters the ID, the record is shown against the ID in the RecordView screen. The record is fetched from SQLite Database.

Record Search Activity



View Record Activity



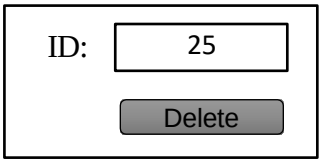

```
// RecordSearch.js
import React, { useState } from 'react';
import { View, TextInput, Button } from 'react-native';
import { useNavigation } from '@react-navigation/native';

const RecordSearch = () => {
  const navigation = useNavigation();
  const [searchId, setSearchId] = useState('');

  const handleSearch = () => {
    // Navigate to RecordView screen and pass the searchId as a parameter
    navigation.navigate('RecordView', { searchId });
  };

  return (
    <View>
      <TextInput
        placeholder="Enter ID"
        keyboardType="numeric"
        value={searchId}
        onChangeText={(text) => setSearchId(text)}
      />
      <Button title="Search" onPress={handleSearch} />
    </View>
  );
};

export default RecordSearch;

// RecordView.js
import React, { useEffect, useState } from 'react';
import { View, Text } from 'react-native';
import SQLite from 'react-native-sqlite-storage';
```

```
const RecordView = ({ route }) => {
  const { searchId } = route.params;
  const [record, setRecord] = useState(null);

  useEffect(() => {
    // Open SQLite database
    const db = SQLite.openDatabase({ name: 'mydatabase.db', createFromLocation:
1 });

    // Execute SQL query to fetch record based on the searchId
    db.transaction((tx) => {
      tx.executeSql(
        'SELECT * FROM your_table_name WHERE id = ?',
        [searchId],
        (tx, results) => {
          if (results.rows.length > 0) {
            // Set the fetched record to state
            setRecord(results.rows.item(0));
          } else {
            // No record found
            setRecord(null);
          }
        },
        (error) => console.error('Error executing SQL query:', error)
      );
    });
  }, [searchId]);

  return (
    <View>
      {record ? (
        <View>
          <Text>{`ID: ${record.id}`}</Text>
          <Text>{`Name: ${record.name}`}</Text>
          {/* Add other fields as needed */}
        </View>
      ) : (
        <Text>No record found for ID: {searchId}</Text>
      )}
    </View>
  );
};

export default RecordView;
```

REACT NATIVE FIRESTORE DATABASE OPERATIONS (CLO-5)

QUESTION 04

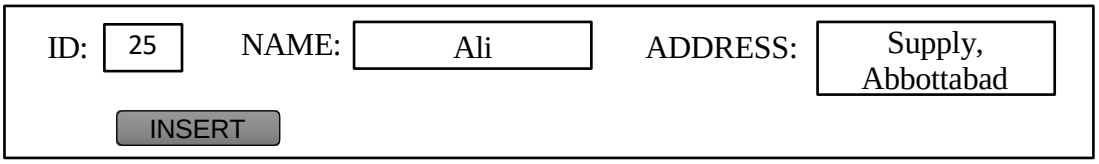
We have the following layout with a delete button.



Write a method that deletes the document from firestore database whose id is 25.

QUESTION 05

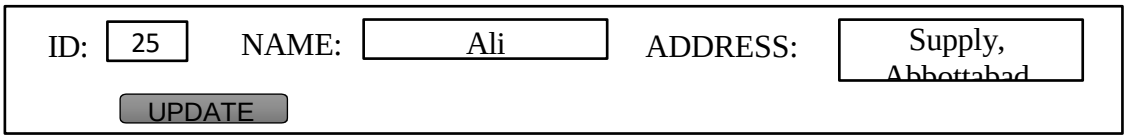
We have a following layout:



Write a method that inserts value in a firestore database collection “persons”

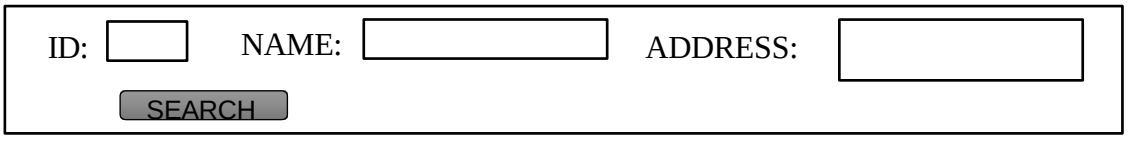
QUESTION 06

Write a method that update value in database against ID = 25 using firestore



QUESTION

Suppose we have the following search form:



We have a following layout:

Based on the search fields in the above form, create a compound query to search record in a firestore collection “persons”

Question: 08

1. You need to insert the following document in a collection name “students” in firestore database

Name: Ali Khan

Address:

{province: ‘punjab’, city: ‘lahore’}

2. Update the city of student from Lahore to Rawalpindi,

Question: 09

You have a cities collection in firestore database. You need to select cities using compound query such that state of city is ABC, country is PQR, and population is greater than 1000.

You need to fetch record from 100th row and select the next 50 records.

```
const firestore = yourFirestoreInstance;
try {
  const snapshot = await firestore.collection('cities')
    .where('state', '==', 'ABC')
    .where('country', '==', 'PQR')
    .where('population', '>', 1000)
    .orderBy('population')
    .limit(150)
    .get();
  snapshot.docs.slice(100, 150).forEach((doc) => {
    console.log(doc.data());
  });
```

```
} catch (error) {
  console.error('Error getting documents: ', error);
}
```

REACT NATIVE GLOBAL STORAGE (CLO-5)

QUESTION 10

Write the steps of how we can enable global storage in our application using Redux Toolkit. What files will be created and what will be the purpose of each file. Also define the content of each file (without writing code). Also give one example code dispatch method and useSelector method, how they are called.

QUESTION 11

Suppose you have used Context API in your code to maintain global storage. Give an example, how you will retrieve the values stored in context variable in some screen, e.g., you want to retrieve values of name, age, city. Show the code.

OBJECTIVE QUESTIONS (NOT INCLUDED IN EXAM)

INTRODUCTION

1. underlayColor prop is used in **(a) Touchable Highlight**, (b) Touchable Opacity
2. _____app has to be re-written for each mobile platform. (a) Hybrid, (b) web, **(c) native**
3. _**Hybrid**_____apps are a combination between native and web.
4. In react native the **Hot Reload** feature allows developers to see changes in the app right after writing code.

5.

JAVASCRIPT

6. To define a constructor in javascript, we use code: **constructor() { }**

7. To initialize an object of a class named Car in javascript, we use code: **myvar = new Car()**

8. In javascript, to

9. _____component changes color when pressed, and changes back in when released. (a) Touchable Opacity, **(b) Touchable Highlight.**

10. Flutter uses _**Dart**_____programming language instead of Javascript.

11. _____framework allows you to deliver native Android, iOS, and Windows apps with a single shared .NET code base. (a) C++, (b) Java, (c) Kotlin, **(d) Xamarin**, (e) iOS

12. _____app development skills are harder to find. (a) Hybrid, (b) web, **(c) native**

13. In javascript _**arrow**_____function allow us to write shorter function syntax.

14. The super() method in javascript is used to call constructor of_____**(a) parent** class, (b) child class.

15. _**Swift**__language in mobile development is currently used to write apps for Apple OS.

16. The _**map**_____method creates a new array populated with the results of calling a provided function on every element in the calling array.

17. In_____functions the *this* keyword represented the object that called the function, which could be the window, the document, a button or whatever. **(a) regular**, (b) arrow

18. _____is an open-source mobile app framework designed by Facebook. (a) Xamarin, (b) ObjectiveC, **(c) React-native**, (d) Flutter

19. "props" is short for _**properties**_____

20. ____apps for mobile do not need to be installed in the device. (a) Hybrid, **(b) web**, (c) native

21. _____is a core component of react native that allows the user to enter text. (a) OnChangeText, (b) Text, **(c) TextInput**, (d) View

22. **<></> fragments** are used to wrap adjacent JSX elements in enclosing tag without nesting an extra, unnecessary wrapping element like View.

23. _____component fades out when pressed, and fades back in when released. (a) Touchable Highlight, **(b) Touchable Opacity**

1. activeOpacity prop is used in (a) Touchable Highlight, **(b) Touchable Opacity**

2. The_____of an item is the default size of that item along the main axis. **(a) flexBasis**, (b) flexGrow, (c) flexShrink

3. _____apps are good for performance-intensive applications. (a) Hybrid, (b) web, **(c) native**