BATCH AND ROLL NO: R08 42435
EXPERIMENT NO.: 04
TITLE: Design a mobile application to create registration application which having spinner (subject), radio button (gender), qualification (check box), first insert the value and then show the data in show activity.
DATE OF PERFORMANCE:
DATE OF SUBMISSION:

Title: Design a mobile application to create registration application which having spinner (subject), radio button (gender), qualification (check box), first insert the value and then show the data in show activity.

Requirements:
 1 Android studio
 2. WordPress Themes and plugins.

Theory:

Introduction

In the realm of mobile application development, creating a robust and user-friendly registration system is a fundamental aspect of building interactive and personalized applications. This lab focuses on the design and implementation of a registration application for a mobile platform. The registration form includes essential input elements such as a Spinner for selecting a subject, Radio Buttons for choosing gender, and Checkboxes for indicating qualifications.

Objective of the Lab: The primary objective of this lab is to guide you through the process of designing and implementing a mobile registration application with dynamic and interactive user interfaces. Specifically, you will learn how to incorporate a Spinner for subject selection, Radio Buttons for gender selection, and Checkboxes for indicating qualifications. The lab also emphasizes the importance of data persistence, as you will insert registration data and display it in a separate "Show" activity.

Components of the Registration Form:

1. **Spinner (Subject):**
    o A Spinner is a dropdown menu that allows users to select a subject from a predefined list.
    o The subject selection provides a dynamic and user-friendly way to capture user preferences.

2. **Radio Buttons (Gender):**
   o Radio Buttons are used to present a set of mutually exclusive options.
   o In this registration form, Radio Buttons are employed to allow users to specify their gender.
   o
3. **Checkboxes (Qualification):**
   o Checkboxes enable users to select multiple options from a list of qualifications.
   o The Checkbox group captures user qualifications effectively.

Data Persistence:

- The lab extends beyond form design to focus on data persistence. Upon registration, user data is stored locally, and a separate "Show" activity will be implemented to display the collected registration information.

Lab Prerequisites:

- Basic understanding of mobile application development concepts.
- Familiarity with the chosen development environment (e.g., Android Studio).
- Prior knowledge of programming languages such as Java (for Android).

Steps:

Step 1: Set Up Your Development Environment

- Ensure that you have Android Studio installed and configured on your machine.

Step 2: Create a New Project

- Open Android Studio and create a new project.
- Choose an appropriate project template, such as "Empty Activity" or "Basic Activity."

Step 3: Design the Registration Form Layout

- Open the XML layout file associated with your main activity (e.g., activity_main.xml).
- Add a Spinner for subjects, Radio Buttons for gender, and Checkboxes for qualifications. Define appropriate IDs for each element.

Step 4: Implement the Java Code

- Open the Java or Kotlin file associated with your main activity (e.g., MainActivity.java).

- Initialize the Spinner, Radio Buttons, and Checkboxes in your code by referencing their IDs.
- Populate the Spinner with subject options dynamically or through a predefined list.

Step 5: Handle User Input

- Implement logic to handle user selections from the Spinner, Radio Buttons, and Checkboxes.
- Capture the selected values and store them in variables or data structures.

Step 6: Create a Data Model

- If not already done, create a data model (e.g., a Java or Kotlin class) to represent the registration information, including subject, gender, and qualifications.

Step 7: Store Data Locally

- Implement a mechanism to store the registration data locally. You can use SharedPreferences, a local database (SQLite), or any other preferred storage method.

Step 8: Implement a "Show" Activity

- Create a new activity for displaying the registration data (e.g., ShowActivity).
- Retrieve the stored registration data and display it in the "Show" activity.

Step 9: Test Your Application

- Run your application on an emulator or a physical device.
- Test the registration form by entering data, selecting options, and submitting the form.
- Verify that the data is stored locally and can be successfully displayed in the "Show" activity.

XML Code:

activity_main.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/background"
    android:fillViewport="true">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:layout_marginTop="40dp"
        android:padding="20dp">

        <androidx.cardview.widget.CardView
            style="@style/CustomCardView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="vertical"
                android:padding="24dp">

                <TextView
                    style="@style/HeaderText"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_gravity="center"
                    android:text="Student Registration"
                    android:textAlignment="center" />

                <com.google.android.material.textfield.TextInputLayout
                    style="@style/CustomTextInputLayout"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content">

                    <com.google.android.material.textfield.TextInputEditText
                        android:id="@+id/nameInput"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:hint="Full Name" />
                </com.google.android.material.textfield.TextInputLayout>

                <TextView
                    style="@style/LabelText"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:text="Select Subject" />
```

```xml
<com.google.android.material.textfield.TextInputLayout
    style="@style/CustomTextInputLayout"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:boxBackgroundMode="outline">

    <Spinner
        android:id="@+id/subjectSpinner"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="16dp" />
</com.google.android.material.textfield.TextInputLayout>

<TextView
    style="@style/LabelText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Gender" />

<RadioGroup
    android:id="@+id/genderRadioGroup"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="16dp"
    android:orientation="horizontal">

    <com.google.android.material.radiobutton.MaterialRadioButton
        android:id="@+id/maleRadio"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="16dp"
        android:text="Male"
        android:textColor="@color/text_primary" />

    <com.google.android.material.radiobutton.MaterialRadioButton
        android:id="@+id/femaleRadio"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Female"
        android:textColor="@color/text_primary" />
</RadioGroup>

<TextView
    style="@style/LabelText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Qualifications" />

<com.google.android.material.checkbox.MaterialCheckBox
    android:id="@+id/graduateCheck"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Graduate"
    android:textColor="@color/text_primary" />
```

```xml
            <com.google.android.material.checkbox.MaterialCheckBox
                android:id="@+id/postGraduateCheck"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Post Graduate"
                android:textColor="@color/text_primary" />

            <com.google.android.material.checkbox.MaterialCheckBox
                android:id="@+id/phdCheck"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginBottom="24dp"
                android:text="PhD"
                android:textColor="@color/text_primary" />

            <com.google.android.material.button.MaterialButton
                android:id="@+id/submitButton"
                style="@style/CustomButton"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Submit Registration" />

        </LinearLayout>
    </androidx.cardview.widget.CardView>
  </LinearLayout>
</ScrollView>
```

activity_show.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/background"
    android:fillViewport="true">

    <androidx.cardview.widget.CardView
        style="@style/CustomCardView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="16dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:layout_marginTop="90dp"
            android:padding="20dp">
```

```xml
<TextView
    style="@style/HeaderText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="Registration Details"
    android:textAlignment="center" />

<com.google.android.material.card.MaterialCardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="16dp"
    app:cardCornerRadius="8dp"
    app:cardElevation="2dp"
    app:strokeColor="@color/primary_variant"
    app:strokeWidth="1dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="16dp">

        <TextView
            style="@style/LabelText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Name" />

        <TextView
            android:id="@+id/nameText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="16dp"
            android:textColor="@color/text_primary"
            android:textSize="18sp" />

        <TextView
            style="@style/LabelText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Subject" />

        <TextView
            android:id="@+id/subjectText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="16dp"
            android:textColor="@color/text_primary"
            android:textSize="18sp" />

        <TextView
            style="@style/LabelText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Gender" />
```

```xml
        <TextView
            android:id="@+id/genderText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="16dp"
            android:textColor="@color/text_primary"
            android:textSize="18sp" />

        <TextView
            style="@style/LabelText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Qualifications" />

        <TextView
            android:id="@+id/qualificationsText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textColor="@color/text_primary"
            android:textSize="18sp" />
    </LinearLayout>
</com.google.android.material.card.MaterialCardView>

<com.google.android.material.button.MaterialButton
    android:id="@+id/backButton"
    style="@style/CustomButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Back to Registration" />
    </LinearLayout>
  </androidx.cardview.widget.CardView>
</ScrollView>
```

JAVA Code:

MainActivity.java:

```java
package com.example.expt04_42435;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.Toast;
```

```java
import androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    private EditText nameInput;
    private Spinner subjectSpinner;
    private RadioGroup genderRadioGroup;
    private CheckBox graduateCheck, postGraduateCheck, phdCheck;
    private Button submitButton;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Initialize views
        nameInput = findViewById(R.id.nameInput);
        subjectSpinner = findViewById(R.id.subjectSpinner);
        genderRadioGroup = findViewById(R.id.genderRadioGroup);
        graduateCheck = findViewById(R.id.graduateCheck);
        postGraduateCheck = findViewById(R.id.postGraduateCheck);
        phdCheck = findViewById(R.id.phdCheck);
        submitButton = findViewById(R.id.submitButton);

        // Set up spinner
        String[] subjects = {"Computer Science", "Mathematics", "Physics", "Chemistry", "Biology"};
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
            android.R.layout.simple_spinner_dropdown_item, subjects);
        subjectSpinner.setAdapter(adapter);

        submitButton.setOnClickListener(v -> {
            if (validateForm()) {
                saveData();
                startShowActivity();
            }
        });
    }

    private boolean validateForm() {
        if (nameInput.getText().toString().trim().isEmpty()) {
            Toast.makeText(this, "Please enter your name", Toast.LENGTH_SHORT).show();
            return false;
        }

        if (genderRadioGroup.getCheckedRadioButtonId() == -1) {
            Toast.makeText(this, "Please select your gender", Toast.LENGTH_SHORT).show();
            return false;
        }

        return true;
    }
```

```java
private void saveData() {
    SharedPreferences prefs = getSharedPreferences("RegistrationData", MODE_PRIVATE);
    SharedPreferences.Editor editor = prefs.edit();

    // Save name
    editor.putString("name", nameInput.getText().toString().trim());

    // Save subject
    editor.putString("subject", subjectSpinner.getSelectedItem().toString());

    // Save gender
    String gender = genderRadioGroup.getCheckedRadioButtonId() == R.id.maleRadio ? "Male" :
"Female";
    editor.putString("gender", gender);

    // Save qualifications
    ArrayList<String> qualifications = new ArrayList<>();
    if (graduateCheck.isChecked()) qualifications.add("Graduate");
    if (postGraduateCheck.isChecked()) qualifications.add("Post Graduate");
    if (phdCheck.isChecked()) qualifications.add("PhD");
    editor.putString("qualifications", String.join(", ", qualifications));

    editor.apply();
}

private void startShowActivity() {
    Intent intent = new Intent(this, ShowActivity.class);
    startActivity(intent);
}
}
```

ShowActivity.java:

```java
package com.example.expt04_42435;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class ShowActivity extends AppCompatActivity {
    private TextView nameText, subjectText, genderText, qualificationsText;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_show);

        // Initialize views
        nameText = findViewById(R.id.nameText);
        subjectText = findViewById(R.id.subjectText);
        genderText = findViewById(R.id.genderText);
        qualificationsText = findViewById(R.id.qualificationsText);
```
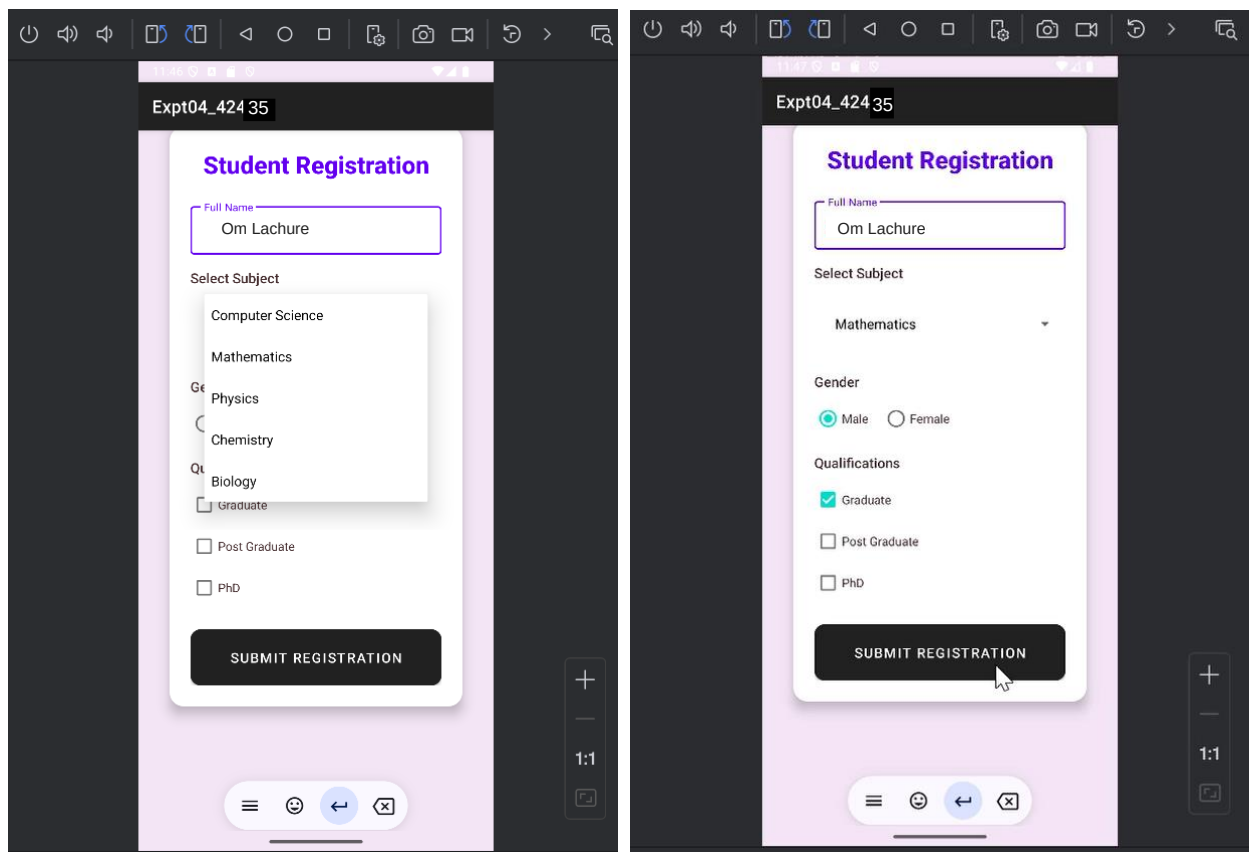
```
        // Load and display data
        loadData();
    }

    private void loadData() {
        SharedPreferences prefs = getSharedPreferences("RegistrationData", MODE_PRIVATE);

        nameText.setText(prefs.getString("name", ""));
        subjectText.setText(prefs.getString("subject", ""));
        genderText.setText(prefs.getString("gender", ""));
        qualificationsText.setText(prefs.getString("qualifications", "None"));
    }
}
```

Output:

1)

2)

Conclusion:

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………