

Practical Exam

Q=1 . Create a database named "subjects".

Create a table in it named "subject_info".

Table structure will be: subject_info (sub_id, sub_title, sub_desc).

You can insert any subjects of M.Sc(IT)/M.Sc(ICT) like Android,
Advanced .NET, JWD etc.

Note : Description can be anything relevant to the subject.

Minimum 5 entries should be added to the database.

2. Create an activity for inserting subjects and save the entries in
the above mentioned table.

3. Create a Recycler View and display all the subjects in it.
Use custom adapter.

4. Clicking on the subject should redirect to an activity where the
subject name and description of the subject is shown.

DatabaseHalper.java

```
package com.example.exam_practical;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

import java.util.ArrayList;
import java.util.List;

public class DatabaseHandler extends SQLiteOpenHelper
{
    private static final String DATABASE_NAME = "subjects";
    private static final int VERSION = 1;
    private static final String TABLE_NAME = "subject_info";
    private static final String sub_id = "sub_id";
    private static final String sub_title = "sub_title";
    private static final String sub_desc = "sub_desc";

    public DatabaseHandler( Context context)
    {
```

```
        super(context, DATABASE_NAME, null, VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase DB)
    {
        String CREATE_SUBJECTINFO_TABLE = "CREATE TABLE IF NOT EXISTS " +
        TABLE_NAME + "(" +
            sub_id + " INTEGER PRIMARY KEY AUTOINCREMENT," +
            sub_title + " TEXT ," +
            sub_desc + " TEXT ) ";

        DB.execSQL(CREATE_SUBJECTINFO_TABLE);

    }

    @Override
    public void onUpgrade(SQLiteDatabase DB, int i, int i1)
    {
        DB.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
        onCreate(DB);

    }

    void AddSubject(SubjectInfo si)
    {
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues cv = new ContentValues();

        cv.put(sub_title, si.getSub_title());
        cv.put(sub_desc, si.getSub_desc());
        DB.insert(TABLE_NAME, null, cv);
        DB.close();

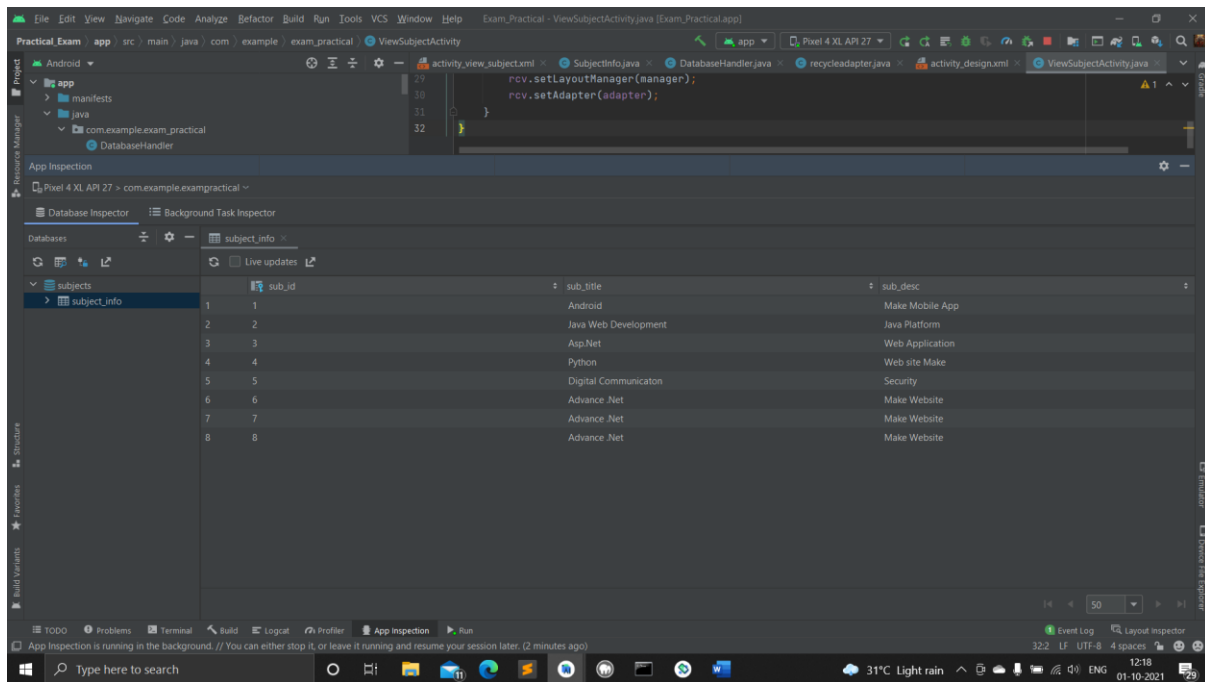
    }

    public List<SubjectInfo> getSubject()
    {
        List<SubjectInfo> sublist = new ArrayList<SubjectInfo>();
        String selectQuery = "SELECT * FROM " + TABLE_NAME;
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cr = DB.rawQuery(selectQuery,null);

        if(cr.moveToFirst())
        {
            do {
                SubjectInfo si = new SubjectInfo();
                si.setSub_id(Integer.parseInt(cr.getString(0)));
                si.setSub_title(cr.getString(1));
                si.setSub_desc(cr.getString(2));

                sublist.add(si);
            }
            while (cr.moveToNext());
        }
        return sublist;
    }
}
```


Output :



SubjectInfo.java

```
package com.example.exam_practical;

public class SubjectInfo
{
    public int sub_id;
    public String sub_title;
    public String sub_desc;

    public SubjectInfo()
    {

    }

    public SubjectInfo(int sub_id, String sub_title, String sub_desc)
    {
        this.sub_id = sub_id;
        this.sub_title = sub_title;
        this.sub_desc = sub_desc;
    }

    public SubjectInfo(String sub_title, String sub_desc)
    {
        this.sub_title = sub_title;
        this.sub_desc = sub_desc;
    }

    public int getSub_id()
    {
        return sub_id;
    }

    public void setSub_id(int sub_id)
    {
        this.sub_id = sub_id;
    }

    public String getSub_title()
    {
        return sub_title;
    }

    public void setSub_title(String sub_title)
    {
        this.sub_title = sub_title;
    }

    public String getSub_desc()
    {
        return sub_desc;
    }

    public void setSub_desc(String sub_desc)
    {
        this.sub_desc = sub_desc;
    }
}
```

```
package com.example.exam_practical;

public class SubjectInfo
{
    public int sub_id;
    public String sub_title;
    public String sub_desc;

    public SubjectInfo()
    {

    }

    public SubjectInfo(int sub_id, String sub_title, String sub_desc)
    {
        this.sub_id = sub_id;
        this.sub_title = sub_title;
        this.sub_desc = sub_desc;
    }

    public SubjectInfo(String sub_title, String sub_desc)
    {
        this.sub_title = sub_title;
        this.sub_desc = sub_desc;
    }

    public int getSub_id()
    {
        return sub_id;
    }

    public void setSub_id(int sub_id)
    {
        this.sub_id = sub_id;
    }

    public String getSub_title()
    {
        return sub_title;
    }

    public void setSub_title(String sub_title)
    {
        this.sub_title = sub_title;
    }

    public String getSub_desc()
    {
        return sub_desc;
    }

    public void setSub_desc(String sub_desc)
    {
        this.sub_desc = sub_desc;
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:orientation="vertical">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_gravity="center"
            android:orientation="vertical">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_marginBottom="30dp"
                android:text="Subject Form"
                android:textColor="@color/blue"
                android:textSize="25dp" />

        </LinearLayout>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_gravity="center"
            android:orientation="horizontal">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginLeft="20dp"
                android:text="sub_title"
                android:textColor="@color/vred"
                android:textSize="20dp"
                android:id="@+id/tvsub_title"/>

            <EditText
                android:id="@+id/sub_title"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:textColor="@color/black" />

        </LinearLayout>

    </LinearLayout>

</LinearLayout>
```

```
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:orientation="horizontal">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:text="sub_desc"
        android:textColor="@color/vred"
        android:textSize="20dp"
        android:id="@+id/tvsub_desc"/>

    <EditText
        android:id="@+id/sub_desc"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textColor="@color/black" />

</LinearLayout>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:orientation="horizontal">

    <Button
        android:id="@+id/btn2"
        android:layout_width="394dp"
        android:layout_height="37dp"
        android:background="@color/blue"
        android:text="Add Subject"
        android:textColor="@color/white"
        android:layout_margin="10dp"/>

</LinearLayout>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:orientation="horizontal">

    <Button
        android:id="@+id/btn3"
        android:layout_width="394dp"
        android:layout_height="37dp"
        android:background="@color/blue"
        android:text="View Subject"
        android:textColor="@color/white"
        android:layout_margin="10dp"/>

</LinearLayout>
```



```
</LinearLayout>
</LinearLayout>
```

MainActivity.java

```
package com.example.exam_practical;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity
{
    EditText sub_title,sub_desc;
    TextView tvsub_title,tvsub_desc;
    Button btn2,btn3;
    DatabaseHandler DB = new DatabaseHandler(this);

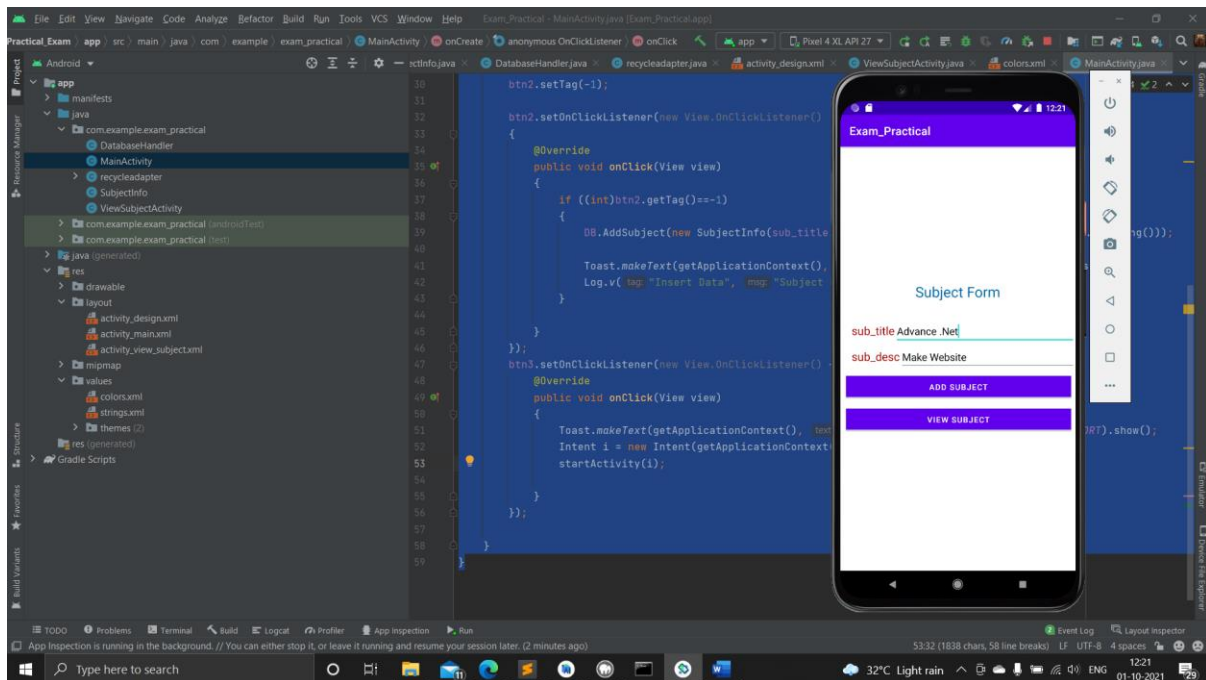
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        sub_title = findViewById(R.id.sub_title);
        sub_desc = findViewById(R.id.sub_desc);
        btn2= findViewById(R.id.btn2);
        btn3= findViewById(R.id.btn3);
        btn2.setTag(-1);

        btn2.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View view)
            {
                if ((int)btn2.getTag()==-1)
                {
                    DB.AddSubject(new
SubjectInfo(sub_title.getText().toString(),
sub_desc.getText().toString()));

                    Toast.makeText(getApplicationContext(), "Subject Add",
Toast.LENGTH_SHORT).show();
                    Log.v("Insert Data", "Subject Data Inserted");
                }
            }
        });
        btn3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view)
            {

```

Output :



```
package com.example.exam_practical;

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.recyclerview.widget.RecyclerView;

import java.util.List;

public class recycleadapter extends
RecyclerView.Adapter<recycleadapter.MyViewHolder>
{
    Context context;
```

```
int resource;
List<SubjectInfo> si;
public recycleadapter(Context context, int resource, List<SubjectInfo>
si) {

    this.context = context;
    this.resource = resource;
    this.si = si;

}

@NonNull
@Override
public MyViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int
viewType)
{
    View view =
LayoutInflater.from(parent.getContext()).inflate(resource,parent,false);

    return new MyViewHolder(view);

}

@Override
public void onBindViewHolder(@NonNull MyViewHolder holder, int i)
{
    holder.txtsubtitle.setText(si.get(i).getSub_title());
    holder.txtsubdec.setText(si.get(i).getSub_desc());

}

@Override
public int getItemCount()
{
    return si.size();
}

public class MyViewHolder extends RecyclerView.ViewHolder
{
    TextView txtsubtitle , txtsubdec ;

    public MyViewHolder(@NonNull View itemView)
    {
        super(itemView);
        txtsubtitle = itemView.findViewById(R.id.txtsubtitle);
        txtsubdec = itemView.findViewById(R.id.txtsubdec);

    }
}
```


activity_view_subject.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ViewSubjectActivity"
    android:orientation="vertical">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/rcv"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>

</LinearLayout>
```

ViewSubjectActivity.java

```
package com.example.exam_practical;

import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;

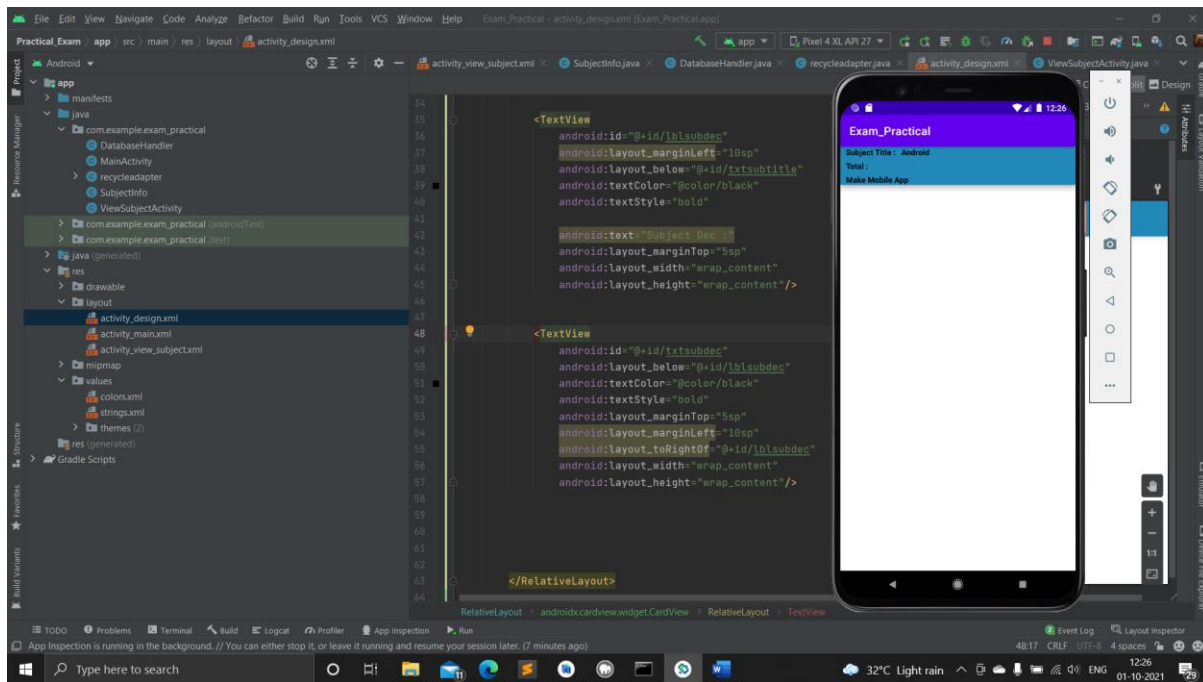
import android.os.Bundle;

import java.util.ArrayList;
import java.util.List;

public class ViewSubjectActivity extends AppCompatActivity
{
    RecyclerView rcv;
    List<SubjectInfo> si;
    recycleadapter adapter;
    DatabaseHandler DB = new DatabaseHandler(this);

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_view_subject);
        rcv = findViewById(R.id.rcv);
        si = new ArrayList<SubjectInfo>();
        si.addAll(DB.getSubject());
        adapter = new recycleadapter(this,R.layout.activity_design,si);
        LinearLayoutManager manager = new
        LinearLayoutManager(this,LinearLayoutManager.VERTICAL,false);
        rcv.setLayoutManager(manager);
        rcv.setAdapter(adapter);
    }
}
```

Output :



activity_design.xml

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

    <androidx.cardview.widget.CardView
        app:cardElevation="10sp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <RelativeLayout
            android:background="@color/skyblue"
            android:layout_width="match_parent"
            android:layout_height="wrap_content">

            <TextView
                android:id="@+id/lblsubtitle"
                android:text="Subject Title :"
                android:layout_marginLeft="10sp"
                android:textColor="@color/black"
                android:textStyle="bold"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"/>

            <TextView
                android:id="@+id/txtsubtitle"
                android:layout_toRightOf="@+id/lblsubtitle"
```

```
        android:textColor="@color/black"
        android:textStyle="bold"
        android:layout_marginLeft="10sp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

        <TextView
            android:id="@+id/lblsubdec"
            android:layout_marginLeft="10sp"
            android:layout_below="@+id/txtsubtitle"
            android:textColor="@color/black"
            android:textStyle="bold"

            android:text="Subject Dec : "
            android:layout_marginTop="5sp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"/>

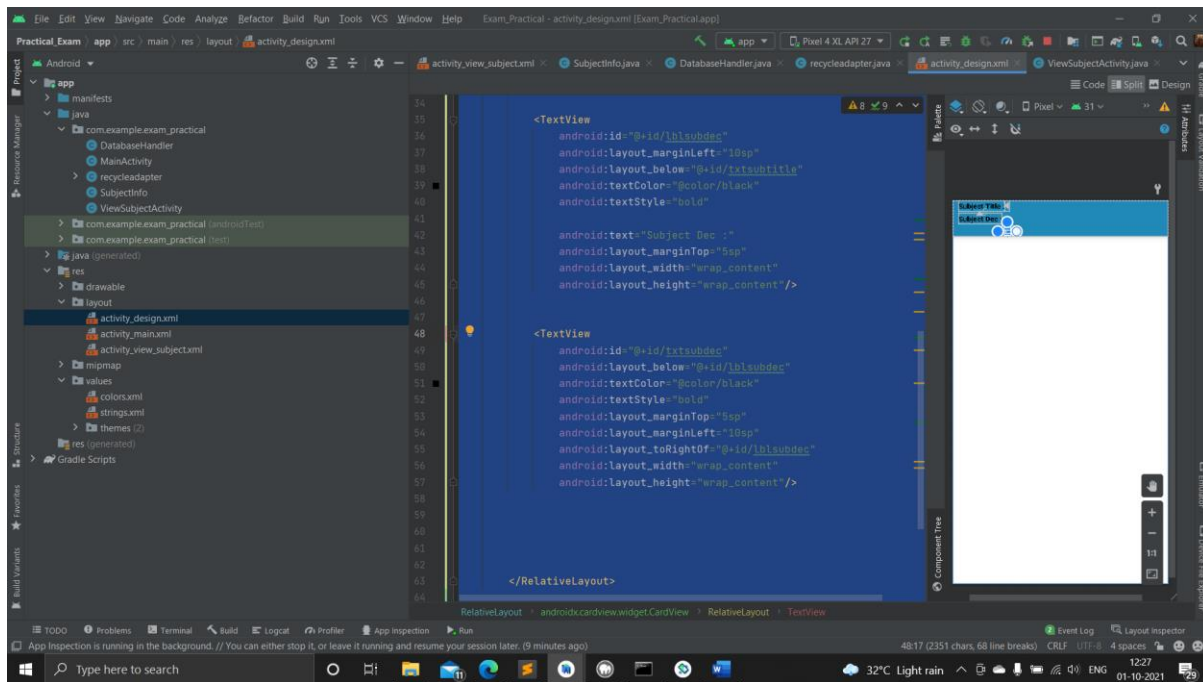
        <TextView
            android:id="@+id/txtsubdec"
            android:layout_below="@+id/lblsubdec"
            android:textColor="@color/black"
            android:textStyle="bold"
            android:layout_marginTop="5sp"
            android:layout_marginLeft="10sp"
            android:layout_toRightOf="@+id/lblsubdec"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"/>

    </RelativeLayout>

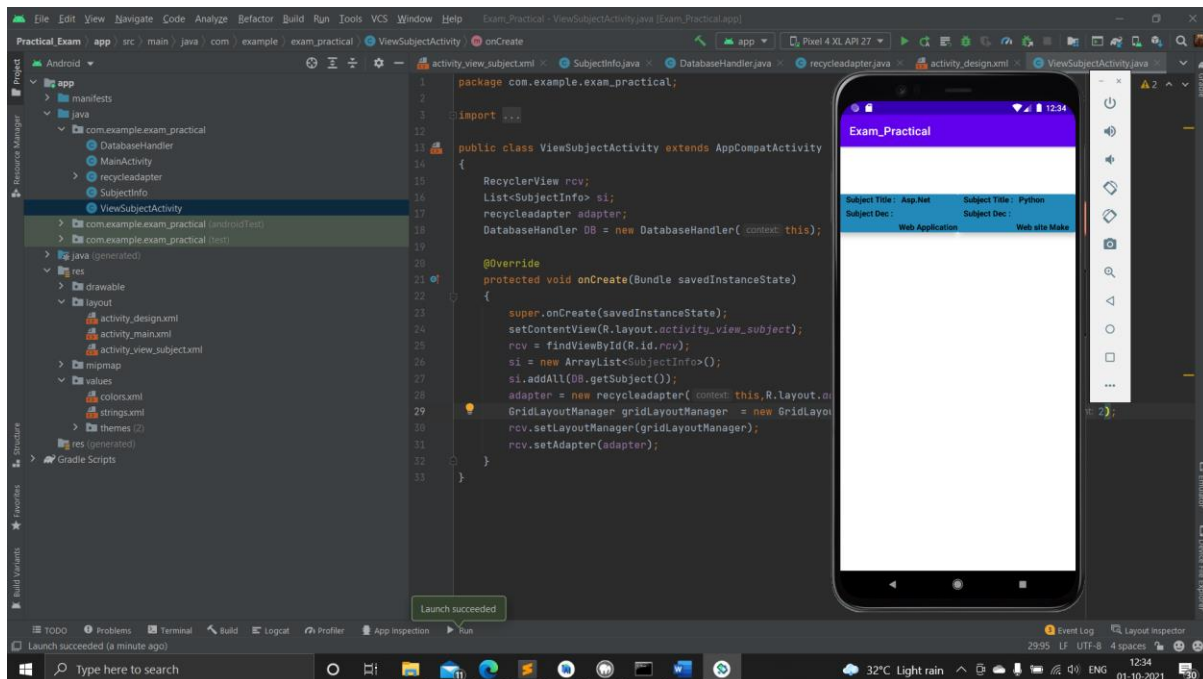
</androidx.cardview.widget.CardView>

</RelativeLayout>
```

Output :



Output View Subject :



The screenshot shows the Android Studio IDE with the following components:

- Project Structure (Left):** Shows the hierarchy of the 'Exam_Practical' app, including 'src/main/java/com/example/exam_practical' and 'res'.
- Main Editor:** Displays the 'ViewSubjectActivity.java' file. The code includes package declarations, imports, and the implementation of a RecyclerView and RecyclerView.Adapter. A toast message is shown in the bottom right corner: "Launch succeeded".
- UI Preview (Right):** Shows a mobile device screen displaying the app's UI. The screen has a purple header with the title "Exam_Practical". Below it is a white card titled "Subject Form" containing two text input fields: "sub_title Networking" and "sub_desc file". At the bottom of the card is a purple button labeled "ADD SUBJECT".
- Bottom Bar:** Contains tabs for "TODO", "Problems", "Terminal", "Build", "Logcat", "Profiler", "App Inspection", and "Run". The "Run" tab is active, showing a "Launch succeeded 2 minutes ago" message.

The screenshot shows the Android Studio IDE with the following components:

- Top Toolbar:** File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, Help.
- Main Editor:** Displays the Java code for `ViewSubjectActivity.java`. The code includes:


```

      28 s1.addAll(sub.getSubject());
      29 adapter = new RecyclerViewAdapter<Context: this, R.layout.activity_design, si);
      30 RecyclerView layoutManager = new RecyclerView(getApplicationContext(), spanCount: 2);
      31 rcv.setLayoutManager(layoutManager);
      rcv.setAdapter(adapter);
      
```
- Bottom Toolbar:** Includes buttons for TODO, Problems, Terminal, Build, Logcat, Profiler, App Inspection, and Run.
- Status Bar:** Shows the device name 'Pixel 4 XL API 27' and the app is running on a virtual device.