**Mobile App Development**

**Lab Evolution**

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FACULTY GUIDE

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# App design



# Layouts: -

## Main Activity

<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout 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">  
  
 <EditText  
 android:id="@+id/imagenameET"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter name of image"  
 android:layout\_marginTop="40dp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <ImageView  
 android:id="@+id/image"  
 android:layout\_width="match\_parent"  
 android:layout\_height="400dp"  
 android:onClick="chooseImage"  
 android:src="@drawable/ic\_baseline\_emoji\_emotions\_24"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/imagenameET" />  
  
 <Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:text="Save Image"  
 android:id="@+id/saveBtn"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/image"  
 android:onClick="storeImage"/>  
  
 <Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:text="Move to Show Activity"  
 android:onClick="moveToShowActivity"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 android:id="@+id/showActivityBtn"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/saveBtn" />  
</androidx.constraintlayout.widget.ConstraintLayout>

## Show Activity

<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout 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=".showActivity">  
  
 <Button  
 android:id="@+id/BTN"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Show Image"  
 android:onClick="getData"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <androidx.recyclerview.widget.RecyclerView  
 android:layout\_width="match\_parent"  
 android:id="@+id/image\_RV"  
 android:layout\_height="wrap\_content"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/BTN" />  
  
  
</androidx.constraintlayout.widget.ConstraintLayout>

## Single Row Activity

<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout  
 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">  
  
 <TextView  
 android:id="@+id/sr\_imageDetailsTV"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:textSize="20dp"  
  
 app:layout\_constraintEnd\_toEndOf="parent"  
 android:text="Image Details"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <ImageView  
 android:id="@+id/imageIV"  
 android:layout\_width="match\_parent"  
 android:layout\_height="400dp"  
 android:src="@drawable/ic\_baseline\_emoji\_emotions\_24"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/sr\_imageDetailsTV" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

# Java Files

## Main Activity.java

package com.example.labexam;  
  
import androidx.annotation.Nullable;  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.graphics.Bitmap;  
import android.net.Uri;  
import android.os.Bundle;  
import android.provider.MediaStore;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
 private ImageView imageObject;  
 private EditText imageDetailET;  
 private static final int *PICK\_IMAGE\_REQUEST* = 100;  
 private Uri imageFilePath;  
 private Bitmap imageToStore;  
 databaseHandler objectdatabaseHandler;  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 try {  
 imageDetailET = findViewById(R.id.*imagenameET*);  
 imageObject = findViewById(R.id.*image*);  
 objectdatabaseHandler = new databaseHandler(this);  
  
 } catch (Exception e) {  
 }  
 }  
  
 public void chooseImage(View objectView) {  
 try {  
 Intent objectIntent = new Intent();  
 objectIntent.setType("image/\*");  
  
 objectIntent.setAction(Intent.*ACTION\_GET\_CONTENT*);  
 startActivityForResult(objectIntent, *PICK\_IMAGE\_REQUEST*);  
 } catch (Exception e) {  
 Toast.*makeText*(this, e.getMessage(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
  
 @Override  
 protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent data) {  
 try {  
 super.onActivityResult(requestCode, resultCode, data);  
 if (requestCode == *PICK\_IMAGE\_REQUEST* && resultCode == *RESULT\_OK* && data != null && data.getData() != null) {  
 imageFilePath = data.getData();  
 imageToStore = MediaStore.Images.Media.*getBitmap*(getContentResolver(), imageFilePath);  
  
 imageObject.setImageBitmap(imageToStore);  
  
 }  
 } catch (Exception e) {  
 Toast.*makeText*(this, e.getMessage(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
  
  
 public void storeImage(View view) {  
 try {  
 if(!imageDetailET.getText().toString().isEmpty() && imageObject.getDrawable()!=null && imageToStore!=null){  
 objectdatabaseHandler.storeImage(new model(imageDetailET.getText().toString(),imageToStore));  
 }  
 else{  
 Toast.*makeText*(this, "Select Image and Name ", Toast.*LENGTH\_SHORT*).show();  
 }  
  
 }catch (Exception e){  
 Toast.*makeText*(this, e.getMessage().toString(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 public void moveToShowActivity(View view)  
 {  
 startActivity(new Intent(this, showActivity.class));  
 }  
  
}

## Show Activity.java

package com.example.labexam;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Toast;  
  
public class showActivity extends AppCompatActivity {  
 RecyclerView objectRecyclerView;  
 databaseHandler objectdatabaseHandler;  
 RVAdapter objectRvAdapter;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_show*);  
 try {  
 objectRecyclerView = findViewById(R.id.*image\_RV*);  
 objectdatabaseHandler= new databaseHandler(this);  
 }  
 catch (Exception e) {  
 Toast.*makeText*(this, e.getMessage(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 public void getData(View view){  
 try {  
 objectRvAdapter = new RVAdapter(objectdatabaseHandler.getAllImageData());  
 objectRecyclerView.setHasFixedSize(true);  
  
 objectRecyclerView.setLayoutManager(new LinearLayoutManager(this));  
 objectRecyclerView.setAdapter(objectRvAdapter);  
 }  
 catch (Exception e)  
 {  
 Toast.*makeText*(this, e.getMessage().toString(),Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
}

## Model.java

package com.example.labexam;  
  
import android.graphics.Bitmap;  
  
public class model {  
 private String imageName;  
 private Bitmap image;  
  
 public String getImageName() {  
 return imageName;  
 }  
  
 public void setImageName(String imageName) {  
 this.imageName = imageName;  
 }  
  
 public Bitmap getImage() {  
 return image;  
 }  
  
 public void setImage(Bitmap image) {  
 this.image = image;  
 }  
  
 public model(String imageName, Bitmap image) {  
 this.imageName = imageName;  
 this.image = image;  
 }  
}

## Recyclerview Adapter.java

package com.example.labexam;  
import android.graphics.ColorSpace;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import java.util.ArrayList;  
  
  
public class RVAdapter extends RecyclerView.Adapter<RVAdapter.RVViewHolderClass> {  
  
 ArrayList<model> objectmodelList;  
 public RVAdapter(ArrayList<model> objectmodelList)  
 {  
 this.objectmodelList = objectmodelList;  
 }  
 @NonNull  
 @Override  
 public RVViewHolderClass onCreateViewHolder(@NonNull ViewGroup viewGroup, int viewType) {  
 return new RVViewHolderClass(LayoutInflater.*from*(viewGroup.getContext())  
 .inflate(R.layout.*single\_row*,viewGroup,false));  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull RVViewHolderClass holder, int i) {  
 model objectmodel = objectmodelList.get(i);  
 holder.imageNameTV.setText(objectmodel.getImageName());  
 holder.objectImageView.setImageBitmap(objectmodel.getImage());  
 }  
  
 @Override  
 public int getItemCount() {  
 return objectmodelList.size();  
 }  
  
 public static class RVViewHolderClass extends RecyclerView.ViewHolder  
 {  
 TextView imageNameTV;  
 ImageView objectImageView;  
  
 public RVViewHolderClass(@NonNull View itemView) {  
 super(itemView);  
 imageNameTV = itemView.findViewById(R.id.*sr\_imageDetailsTV*);  
  
 objectImageView = itemView.findViewById(R.id.*imageIV*);  
 }  
 }  
}

## Database Handler.java

package com.example.labexam;  
  
  
import android.content.ContentValues;  
import android.content.Context;  
import android.database.Cursor;  
import android.database.sqlite.SQLiteDatabase;  
import android.database.sqlite.SQLiteOpenHelper;  
import android.graphics.Bitmap;  
import android.graphics.BitmapFactory;  
import android.widget.Toast;  
  
import androidx.annotation.Nullable;  
  
import java.io.ByteArrayInputStream;  
import java.io.ByteArrayOutputStream;  
import java.util.ArrayList;  
  
public class databaseHandler extends SQLiteOpenHelper {  
 Context context;  
 private static String *DATABASE\_NAME* = "mydb.db";  
  
 private static int *DATABASE\_VERSION* = 1;  
 private static String *createTableQuery* = "create table imageInfo (imageName TEXT" + ",image BLOB)";  
 private ByteArrayOutputStream objectByteOutputStream;  
 private byte[] imageInBytes;  
 String nameOfImage;  
  
  
 public databaseHandler(Context context) {  
 super(context, *DATABASE\_NAME*, null, *DATABASE\_VERSION*);  
 this.context = context;  
 }  
  
 @Override  
 public void onCreate(SQLiteDatabase db) {  
 try {  
 db.execSQL(*createTableQuery*);  
 Toast.*makeText*(context, "Table Created Successfully", Toast.*LENGTH\_SHORT*).show();  
  
 } catch (Exception e) {  
 Toast.*makeText*(context, e.getMessage().toString(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
  
 @Override  
 public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {  
  
 }  
  
 public void storeImage(model objectmodel) {  
 try {  
 SQLiteDatabase objectSqLiteDatabase = this.getWritableDatabase();  
 Bitmap imageToStoreBitmap = objectmodel.getImage();  
 objectByteOutputStream = new ByteArrayOutputStream();  
 imageToStoreBitmap.compress(Bitmap.CompressFormat.*JPEG*, 100, objectByteOutputStream);  
  
 imageInBytes = objectByteOutputStream.toByteArray();  
 ContentValues objectContentValues = new ContentValues();  
 objectContentValues.put("imageName", objectmodel.getImageName());  
 objectContentValues.put("image", imageInBytes);  
 long checkIfQueryRuns = objectSqLiteDatabase.insert("imageInfo", null, objectContentValues);  
 if (checkIfQueryRuns != -1) {  
 Toast.*makeText*(context, "DATA Added", Toast.*LENGTH\_SHORT*).show();  
 objectSqLiteDatabase.close();  
 } else {  
 Toast.*makeText*(context, "Failed to add data", Toast.*LENGTH\_SHORT*).show();  
 }  
 } catch (Exception e) {  
 Toast.*makeText*(context, e.getMessage().toString(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
  
 public ArrayList<model> getAllImageData()  
 {  
 try  
 {  
 SQLiteDatabase objectSQLiteDatabase = this.getReadableDatabase();  
 ArrayList<model> objectmodelList = new ArrayList<>();  
  
 Cursor objectCursor = objectSQLiteDatabase.rawQuery("select \* from imageInfo",null);  
 if (objectCursor.getCount() != 0)  
 {  
 while (objectCursor.moveToNext())  
 nameOfImage = objectCursor.getString(0);  
  
  
 byte [] imageBytes = objectCursor.getBlob(1);  
  
 Bitmap objectBitmap = BitmapFactory.*decodeByteArray*(imageBytes, 1, imageBytes.length);  
  
  
// // objectmodelList.add(new ModelClas(nameOfImage, objectBitmap));  
 objectmodelList.add(new model(nameOfImage,objectBitmap));  
 return objectmodelList;  
 }  
 else  
 {  
 Toast.*makeText*(context, "No Value exists",Toast.*LENGTH\_SHORT*).show();  
 return null;  
 }  
 }  
 catch (Exception e)  
 {  
 Toast.*makeText*(context, e.getMessage(),Toast.*LENGTH\_SHORT*).show();  
 return null;  
 }  
  
 }  
}