1. Application that uses gui compnets font and colur

`ActivityMain.Xml`

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="30dp"
        android:gravity="center"
        android:text="Hello World!"
        android:textSize="25sp"
        android:textStyle="bold" />
    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:gravity="center"
        android:text="Change font size"
        android:textSize="25sp" />
    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:gravity="center"
        android:text="Change color"
        android:textSize="25sp" />
</LinearLayout>
```

`Main Activity.java`

```java
package com.example.a1;
import android.graphics.Color;
//import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity
{
    int ch=1;
    float font=30;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final TextView t= (TextView) findViewById(R.id.textView);
```

```java
        Button b1= (Button) findViewById(R.id.button1);
        b1.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
                t.setTextSize(font);
                font = font + 5;
                if (font == 50)
                    font = 30;
            }
        });
        Button b2= (Button) findViewById(R.id.button2);
        b2.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
                switch (ch)
                {
                    case 1:
                        t.setTextColor(Color.RED);
                        break;
                    case 2:
                        t.setTextColor(Color.GREEN);
                        break;
                    case 3:
                        t.setTextColor(Color.BLUE);
                        break;
                    case 4:
                        t.setTextColor(Color.CYAN);
                        break;
                    case 5:
                        t.setTextColor(Color.YELLOW);
                        break;
                    case 6:
                        t.setTextColor(Color.MAGENTA);
                        break;
                }
                ch++;
                if (ch == 7)
                    ch = 1;
            }
        });
    }
}
```

2. Basic grapgical primitives and shapes

java

```java
package com.example.basicapp;
import com.example.basicapp.R;

import android.app.Activity;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.os.Bundle;
import android.widget.ImageView;

public class MainActivity extends Activity {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R    .layout.activity_main);

        // Creating a Bitmap
        Bitmap bg = Bitmap.createBitmap(720, 1280,
Bitmap.Config.ARGB_8888);

        // Creating the Canvas Object
        Canvas canvas = new Canvas(bg);

        // Creating the Paint Object and set its color & TextSize
        Paint paint = new Paint();
        paint.setColor(Color.BLUE);
        paint.setTextSize(50);

        // To draw a Rectangle
        canvas.drawText("Rectangle", 420, 150, paint);
        canvas.drawRect(400, 200, 650, 700, paint);

        // To draw a Circle
        canvas.drawText("Circle", 120, 150, paint);
        canvas.drawCircle(200, 350, 150, paint);

        // To draw a Square
        canvas.drawText("Square", 120, 800, paint);
        canvas.drawRect(50, 850, 350, 1150, paint);

        // To draw a Line
        canvas.drawText("Line", 480, 800, paint);
        canvas.drawLine(520, 850, 520, 1150, paint);

        // Setting the Bitmap as background for the ImageView
        ImageView imageView = findViewById(R.id.imageView);
        imageView.setImageBitmap(bg);
    }
}
```

xml

```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">

    <ImageView
        android:id="@+id/imageView"
```

```xml
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>

</RelativeLayout>
```

3. Application with database

```java
package com.example.basicapp;
import com.example.basicapp.R;

import android.app.Activity;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.SimpleCursorAdapter;
import android.widget.Toast;


public class MainActivity extends Activity {

    EditText t1, t2;
    Button insertButton, deleteButton, viewButton, viewAllButton;
    SQLiteDatabase db;
    ListView listView;

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

        t1 = findViewById(R.id.editText);
        t2 = findViewById(R.id.editText2);
        insertButton = findViewById(R.id.insertButton);
        deleteButton = findViewById(R.id.deleteButton);
        viewButton = findViewById(R.id.viewButton);
        viewAllButton = findViewById(R.id.viewAllButton);
        listView = findViewById(R.id.listView);

        db = openOrCreateDatabase("EmployeeDB", MODE_PRIVATE, null);
        createTable();

        insertButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                insertRecord();
            }
        });

        deleteButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                deleteRecord();
```

```java
            }
        });

        viewButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                viewRecord();
            }
        });

        viewAllButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                viewAllRecords();
            }
        });
    }

    private void createTable() {
        db.execSQL("CREATE TABLE IF NOT EXISTS employee(name
VARCHAR,password VARCHAR);");
    }

    private void insertRecord() {
        String name = t1.getText().toString().trim();
        String password = t2.getText().toString().trim();

        if (!name.isEmpty() && !password.isEmpty()) {
            ContentValues values = new ContentValues();
            values.put("name", name);
            values.put("password", password);
            db.insert("employee", null, values);

            // Show inserted data in a toast
            Toast.makeText(getApplicationContext(), "Name: " + name + ",
Password: " + password, Toast.LENGTH_SHORT).show();
        } else {
            Toast.makeText(getApplicationContext(), "Please enter name and
password", Toast.LENGTH_SHORT).show();
        }
    }

    private void deleteRecord() {
        String name = t1.getText().toString().trim();

        if (!name.isEmpty()) {
            int rowsAffected = db.delete("employee", "name=?", new
String[]{name});
            if (rowsAffected > 0) {
                Toast.makeText(getApplicationContext(), "Record deleted
successfully", Toast.LENGTH_SHORT).show();
            } else {
                Toast.makeText(getApplicationContext(), "No record found
with name: " + name, Toast.LENGTH_SHORT).show();
            }
        } else {
            Toast.makeText(getApplicationContext(), "Please enter a name to
delete", Toast.LENGTH_SHORT).show();
        }
    }
```

```java
    private void viewRecord() {
        String name = t1.getText().toString().trim();

        if (!name.isEmpty()) {
            Cursor cursor = db.rawQuery("SELECT * FROM employee WHERE
name=?", new String[]{name});
            if (cursor != null && cursor.moveToFirst()) {
                String password =
cursor.getString(cursor.getColumnIndex("password"));
                Toast.makeText(getApplicationContext(), "Name: " + name +
", Password: " + password, Toast.LENGTH_SHORT).show();
                cursor.close();
            } else {
                Toast.makeText(getApplicationContext(), "No record found
with name: " + name, Toast.LENGTH_SHORT).show();
            }
        } else {
            Toast.makeText(getApplicationContext(), "Please enter a name to
view", Toast.LENGTH_SHORT).show();
        }
    }

    private void viewAllRecords() {
        Cursor cursor = db.rawQuery("SELECT * FROM employee", null);

        if (cursor != null) {
            try {
                if (cursor.moveToFirst()) {
                    do {
                        String name =
cursor.getString(cursor.getColumnIndex("name"));
                        String password =
cursor.getString(cursor.getColumnIndex("password"));
                        // Log the retrieved data
                        Log.d("MainActivity", "Name: " + name + ",
Password: " + password);
                    } while (cursor.moveToNext());
                } else {
                    // No records found
                    Log.d("MainActivity", "No records found");
                }
            } finally {
                cursor.close();
            }
        } else {
            // Cursor is null
            Log.d("MainActivity", "Cursor is null");
        }
    }


}
```

xml

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

```xml
        android:layout_height="match_parent"
        android:padding="16dp">

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Name"
        android:layout_marginBottom="16dp"/>

    <EditText
        android:id="@+id/editText2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Password"
        android:inputType="textPassword"
        android:layout_below="@id/editText"
        android:layout_marginBottom="16dp"/>

    <Button
        android:id="@+id/insertButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Insert Record"
        android:layout_below="@id/editText2"
        android:layout_marginRight="8dp"
        android:layout_alignParentEnd="true"/>

    <Button
        android:id="@+id/deleteButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Delete Record"
        android:layout_below="@id/insertButton"
        android:layout_marginTop="16dp"
        android:layout_marginRight="8dp"
        android:layout_alignParentEnd="true"/>

    <Button
        android:id="@+id/viewButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="View Record"
        android:layout_below="@id/deleteButton"
        android:layout_marginTop="16dp"
        android:layout_marginRight="8dp"
        android:layout_alignParentEnd="true"/>

    <Button
        android:id="@+id/viewAllButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="View All Records"
        android:layout_below="@id/viewButton"
        android:layout_marginTop="16dp"
        android:layout_marginRight="8dp"
        android:layout_alignParentEnd="true"/>

    <!-- Add ListView here -->
    <ListView
        android:id="@+id/listView"
```

```xml
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/viewAllButton"
        android:layout_marginTop="16dp" />

</RelativeLayout>
```

4. Notification manager

```java
package com.example.basicapp;

import android.app.Notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Context;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

public class MainActivity extends AppCompatActivity {

    private Button notifyButton;
    private EditText messageEditText;

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

        notifyButton = findViewById(R.id.button);
        messageEditText = findViewById(R.id.editText);

        notifyButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                sendNotification();
            }
        });
    }

    private void sendNotification() {
        String message = messageEditText.getText().toString();

        // Create a notification channel for Android Oreo and above
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            NotificationChannel channel = new
NotificationChannel("default", "Channel Name",
NotificationManager.IMPORTANCE_DEFAULT);
            NotificationManager notificationManager =
```

```java
getSystemService(NotificationManager.class);
            notificationManager.createNotificationChannel(channel);
        }

        // Create an intent to launch when notification is clicked
        Intent intent = new Intent(this, MainActivity.class);
        PendingIntent pendingIntent = PendingIntent.getActivity(this, 0,
intent, PendingIntent.FLAG_UPDATE_CURRENT);

        // Build the notification
        NotificationCompat.Builder builder = new
NotificationCompat.Builder(this, "default")
                .setSmallIcon(R.mipmap.ic_launcher)
                .setContentTitle("New Message")
                .setContentText(message)
                .setContentIntent(pendingIntent)
                .setAutoCancel(true);

        // Get the notification manager and notify
        NotificationManager notificationManager = (NotificationManager)
getSystemService(Context.NOTIFICATION_SERVICE);
        notificationManager.notify(0, builder.build());
    }
}
```

xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="10dp"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Message"
        android:textSize="30sp" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:singleLine="true"
        android:textSize="30sp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="20dp"
        android:text="Notify"
        android:textSize="30sp" />
</LinearLayout>
```