Experiment Name: MenuBar Application with Shared Preference
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Aim:
To create a mobile application that has a Menu List to open another app, take selfie, do system control or exit the application. Also must have 3 textboxes whose data is stored and loaded using shared preferences.

Description of App:
Initially the user enters Name, Email and Phone number in EditText fields. When he presses 'Store', it gets saved using Shared Preference and when he presses 'Load ' previously stored information gets loaded on screen.
The Menu Bar has 4 items: When 'MyApp' is pressed get redirected to Fragment App. When Selfie is pressed opens camera front facing mode. When Status bar is pressed enters or exits full screen mode. When Brightness is pressed increases or decreases device brightness. When ringtone is pressed, user can choose preferred ringtone from list. When theme is pressed alternates between Light and Dark theme.

Device Specifications:

App runs on the minSDK version of 16 and Android version 11 using Pixel 3A API emulator and samsung device. Only default libraries were used.

Technical Concepts Learnt:
I have used Linear layout vertical orientation, Edit Text, Text View, Buttons, Shared Preferences, onClick Listener, Menu Items, Intent for activity, implicit and explicit intents, Changing System settings, WindowMAnager and RingTone Manager

SOURCE CODE:
MainActivity.java:
```java
package com.example.menuapp;

import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.content.ContentResolver;
import android.content.Context;
import android.content.Intent;
import android.content.SharedPreferences;
import android.graphics.Color;
```

```java
import android.graphics.drawable.ColorDrawable;
import android.media.RingtoneManager;
import android.net.Uri;
import android.os.Bundle;
import android.provider.MediaStore;
import android.provider.Settings;
import android.util.Log;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.LinearLayout;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText etName, etEmail, etNumber;
    Button btnStore, btnLoad;
    TextView tvOut;

    SharedPreferences sp;
    LinearLayout linearlayout;

    //Variable to store brightness value
    private int brightness = 200;

    //fullscreen
    static int vari = 0;

    //Content resolver used as a handle to the system's settings
    private ContentResolver cResolver;
    //Window object, that will store a reference to the current window
    private Window window;


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

        //Get the content resolver
        cResolver = getContentResolver();

//Get the current window
        window = getWindow();

        try
```

```java
        {
            // To handle the auto
            Settings.System.putInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS_MODE,
Settings.System.SCREEN_BRIGHTNESS_MODE_MANUAL);
            //Get the current system brightness
            brightness = Settings.System.getInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS);
        }
        catch (Settings.SettingNotFoundException e)
        {
            //Throw an error case it couldn't be retrieved
            Log.e("Error", "Cannot access system brightness");
            e.printStackTrace();
        }

        etName = (EditText) findViewById(R.id.etName);
        etEmail = (EditText) findViewById(R.id.etEmail);
        etNumber = (EditText) findViewById(R.id.etNumber);
        btnStore = (Button) findViewById(R.id.btnStore);
        btnLoad = (Button) findViewById(R.id.btnLoad);
        tvOut = (TextView) findViewById(R.id.tvOut);

        sp = getSharedPreferences("details", Context.MODE_PRIVATE);

        tvOut.setVisibility(View.GONE);


        btnStore.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String name = etName.getText().toString();
                String email = etEmail.getText().toString();
                String number = etNumber.getText().toString();

                SharedPreferences.Editor editor = sp.edit();
                editor.putString("nameKey", name);
                editor.putString("emailKey", email);
                editor.putString("numberKey", number);
                editor.commit();
                Toast.makeText(MainActivity.this, "Stored",
Toast.LENGTH_LONG).show();


            }
        });

        btnLoad.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String name1 = sp.getString("nameKey","NaN");
```

```java
            String email1 = sp.getString("emailKey","NaN");
            String number1 = sp.getString("numberKey","NaN");

            tvOut.setText("Your details are: \nName: " + name1 + "\nEmail: "
+ email1 + "\nNumber: "+number1);
            tvOut.setVisibility(View.VISIBLE);
            Toast.makeText(MainActivity.this,"Loaded data",
Toast.LENGTH_LONG).show();


        }
    });

}

@Override
public boolean onCreateOptionsMenu(Menu menu)
{
    getMenuInflater().inflate(R.menu.options_menu, menu);
    return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    switch (item.getItemId()){
        case R.id.mFragment:
        {
            Toast.makeText(getApplicationContext(),"mFragment
Selected",Toast.LENGTH_LONG).show();
            Intent myIntent = new Intent(Intent.ACTION_VIEW);
            startActivity(myIntent);
            return true;
        }
        case R.id.mSelfie:
        {
            Toast.makeText(getApplicationContext(),"mSelfie
Selected",Toast.LENGTH_LONG).show();
            Intent cameraIntent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
            startActivity(cameraIntent);
            return true;
        }
        case R.id.mStatus:
        {
            Toast.makeText(getApplicationContext(),"mStatus
Selected",Toast.LENGTH_LONG).show();
//              ActionBar actionBar = getSupportActionBar();
//              if(actionBar.isShowing())
//                  actionBar.hide();
//              else
//                  actionBar.show();
//
            if(vari == 0)
```

```java
                    {

getWindow().clearFlags(WindowManager.LayoutParams.FLAG_FORCE_NOT_FULLSCREEN);

getWindow().addFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN);
                        vari = 1;
                    }else
                    {

getWindow().clearFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN);

getWindow().addFlags(WindowManager.LayoutParams.FLAG_FORCE_NOT_FULLSCREEN);
                        vari = 0;
                    }
                    return true;
                }
            case R.id.mBrightness:
                {
                    Toast.makeText(getApplicationContext(),"mBrightness
Selected",Toast.LENGTH_LONG).show();
                    //Set the system brightness using the brightness variable value
                    try
                    {
                        // To handle the auto
                        Settings.System.putInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS_MODE,
Settings.System.SCREEN_BRIGHTNESS_MODE_MANUAL);
                        //Get the current system brightness
                        brightness = Settings.System.getInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS);
                    }
                    catch (Settings.SettingNotFoundException e)
                    {
                        //Throw an error case it couldn't be retrieved
                        Log.e("Error", "Cannot access system brightness");
                        e.printStackTrace();
                    }
                    if(brightness<200)
                    {
                        brightness = 200;
                        Settings.System.putInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS, brightness);
                        //Get the current window attributes
                        WindowManager.LayoutParams layoutpars =
window.getAttributes();
                        //Set the brightness of this window
                        layoutpars.screenBrightness = brightness / (float) 255;
                        //Apply attribute changes to this window
                        window.setAttributes(layoutpars);
                    }
                    else
```

```java
            {
                brightness = 100;
                Settings.System.putInt(cResolver,
Settings.System.SCREEN_BRIGHTNESS, brightness);
                //Get the current window attributes
                WindowManager.LayoutParams layoutpars =
window.getAttributes();
                //Set the brightness of this window
                layoutpars.screenBrightness = brightness / (float) 255;
                //Apply attribute changes to this window
                window.setAttributes(layoutpars);
            }

            return true;
        }
        case R.id.mRing:
        {
            Toast.makeText(getApplicationContext(),"mRing
Selected",Toast.LENGTH_LONG).show();
            final Uri currentTone=

RingtoneManager.getActualDefaultRingtoneUri(MainActivity.this,
                        RingtoneManager.TYPE_ALARM);
            Intent intent = new
Intent(RingtoneManager.ACTION_RINGTONE_PICKER);
            intent.putExtra(RingtoneManager.EXTRA_RINGTONE_TYPE,
RingtoneManager.TYPE_RINGTONE);
            intent.putExtra(RingtoneManager.EXTRA_RINGTONE_TITLE, "Select
Tone");
            intent.putExtra(RingtoneManager.EXTRA_RINGTONE_EXISTING_URI,
currentTone);
            intent.putExtra(RingtoneManager.EXTRA_RINGTONE_SHOW_SILENT,
false);
            intent.putExtra(RingtoneManager.EXTRA_RINGTONE_SHOW_DEFAULT,
true);
            startActivityForResult(intent, 999);
            return true;
        }
        case R.id.mTheme:
        {
            Toast.makeText(getApplicationContext(),"mTheme
Selected",Toast.LENGTH_LONG).show();
            linearlayout = findViewById(R.id.LinearLayout);

if(((ColorDrawable)linearlayout.getBackground()).getColor()!=Color.BLACK)
                linearlayout.setBackgroundColor(Color.BLACK);
            else
                linearlayout.setBackgroundColor(Color.WHITE);
            return true;
        }
        case R.id.mExit:
```

```java
            {
                Toast.makeText(getApplicationContext(),"mExit
Selected",Toast.LENGTH_LONG).show();
                this.finishAffinity();
                return true;
            }
            default:
                return super.onOptionsItemSelected(item);
        }
    }

    @SuppressLint("SetTextI18n")
    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data)
{
        super.onActivityResult(requestCode, resultCode, data);
        if (requestCode == 999 && resultCode == RESULT_OK) {
            Uri uri =
data.getParcelableExtra(RingtoneManager.EXTRA_RINGTONE_PICKED_URI);
        }
    }
}
```

AndroidManifest.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    package="com.example.menuapp">
    <uses-permission
        android:name="android.permission.WRITE_SETTINGS"
        tools:ignore="ProtectedPermissions" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MenuApp">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Activity_main.xml:

```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"
    android:background="#FFFFFF"
    android:orientation="vertical"
    android:id="@+id/LinearLayout"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="30dp"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="30dp"
        android:layout_marginRight="30dp"
        android:gravity="center"
        android:text="DETAILS"
        android:textColor="#FF0000" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="10dp"
        android:orientation="horizontal">

        <TextView
            android:id="@+id/tvName"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Name:"
            android:textColor="#FF0000" />

        <EditText
            android:id="@+id/etName"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="10dp"
```

```xml
            android:layout_weight="5"
            android:ems="10"
            android:hint="Enter name here"
            android:inputType="text"
            android:textColor="#FF0057" />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="10dp"
        android:orientation="horizontal">

        <TextView
            android:id="@+id/tvEmail"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Email:"
            android:textColor="#FF0000" />

        <EditText
            android:id="@+id/etEmail"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="10dp"
            android:layout_weight="5"
            android:ems="10"
            android:hint="Enter email here"
            android:inputType="text"
            android:textColor="#FF0057" />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="10dp"
        android:orientation="horizontal">

        <TextView
            android:id="@+id/tvNumber"
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Mobile:"
        android:textColor="#FF0000" />

    <EditText
        android:id="@+id/etNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="10dp"
        android:layout_weight="5"
        android:ems="10"
        android:hint="Enter number here"
        android:inputType="number"
        android:textColor="#FF0057" />
</LinearLayout>

<Button
    android:id="@+id/btnStore"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="30dp"
    android:layout_marginLeft="30dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:text="Store"
    android:textColor="#FFFFFF"
    app:backgroundTint="#00BCD4" />

<Button
    android:id="@+id/btnLoad"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="30dp"
    android:layout_marginLeft="30dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:layout_marginBottom="20dp"
    android:text="Load"
    app:backgroundTint="#00BCD4" />

<TextView
    android:id="@+id/tvOut"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:gravity="center_horizontal"
    android:text="TextView"
```

```
                    android:textColor="#FF0000" />
</LinearLayout>
```

Options_menu.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android" >
    <item android:id="@+id/mFragment"
        android:title="My App" />

    <item android:id="@+id/mSelfie"
        android:title="Selfie" />

    <item android:id="@+id/mControl"
        android:title="Control">

        <menu>
            <item android:id="@+id/mStatus"
                android:title="Status Bar" />

            <item android:id="@+id/mBrightness"
                android:title="Brightness" />

            <item android:id="@+id/mRing"
                android:title="Ring" />

            <item android:id="@+id/mTheme"
                android:title="Theme" />

        </menu>
    </item>>

    <item android:id="@+id/mExit"
        android:title="Exit" />
</menu>
```

SCREENSHOTS:

MenuApp   ⋮

DETAILS

Name: Venkat

Email: venkat@gmail.com

Mobile: 9542415786

STORE

LOAD

MenuApp   ⋮

DETAILS

Name: Venkat

Email: venkat@gmail.com

Mobile: 9542415786

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

Stored

MenuApp

DETA

My App
Selfie
Control ▶
Exit

Name: **Venkat**
_____

Email: **venkat@gmail.com**
_____

Mobile: **9542415786**
_____

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

DETAILS

Name: Venkat

Email: venkat@gmail.com

Mobile: 9542415786

Open with

Google Assistant	Settings	Fragment_App	Maps
Backup	Calendar	Call & text on other devices	Call settings
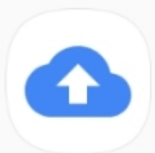
Just once | **Always**

11:51 🔔 📶 Vo) R 100%

Fragment_App

Department details:

Enter Name

Enter Email ID

SUBMIT

DETAILS

Name: **Venkat**

Email: **venkat@gmail.com**

Mobile: **9542415786**

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

mStatus Selected

MenuApp

DETAI

Control

Name: **Venkat**

Status Bar

Brightness

Email: **venkat@gmail.**

Ring

Theme

Mobile: **9542415786**

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

DETAILS

Name: **Venkat**

Email: **venkat@gmail.com**

Mobile: **9542415786**

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

mBrightness Selected

- 🔵 Morning Glory

- ⚪ Orange

- ⚪ Over the Horizon

- ⚪ Over the Horizon (Mellow Mix)

- ⚪ Pick It Up

- ⚪ Rose

- ⚪ Rubber Ball

- ⚪ Rush

- ⚪ Shimmer

- ⚪ Smooth Wave

- ⚪ Space Funk

  mRing Selected

- ⚪ Stairway

MenuApp ⋮

DETAILS

Name: **Venkat**

Email: venkat@gmail.com

Mobile: 9542415786

STORE

LOAD

Your details are:
Name: Venkat
Email: venkat@gmail.com
Number: 9542415786

mTheme Selected

OUTCOME:

App was coded and run successfully without any errors and bugs.