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Subject/Course:	Advanced Mobile Programming		
Topic	Programming Activities and Fragments		

Activity Life Cycle

5.a) To demonstrate the working of Activity and its Life Cycle.

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

activity_main.xml

```kotlin
package com.example.practical_3a

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.widget.Toast

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val toast = Toast.makeText(this, "onCreate() started!", Toast.LENGTH_LONG).show()
    }

    override fun onStart() {
        super.onStart()
        val toast = Toast.makeText(this, "onStart() started!", Toast.LENGTH_LONG).show()
    }

    override fun onResume() {
        super.onResume()
        val toast = Toast.makeText(this, "onResume() started!", Toast.LENGTH_LONG).show()
    }
```

```
    override fun onPause() {
        super.onPause()
        val toast = Toast.makeText(this, "onPause() started!", Toast.LENGTH_LONG).show()
    }

    override fun onStop() {
        super.onStop()
        val toast = Toast.makeText(this, "onStop() started!", Toast.LENGTH_LONG).show()
    }

    override fun onRestart() {
        super.onRestart()
        val toast = Toast.makeText(this, "onRestart() started!", Toast.LENGTH_LONG).show()
    }

    override fun onDestroy() {
        super.onDestroy()
        val toast = Toast.makeText(this, "onDestroy() started!", Toast.LENGTH_LONG).show()
    }
}
```
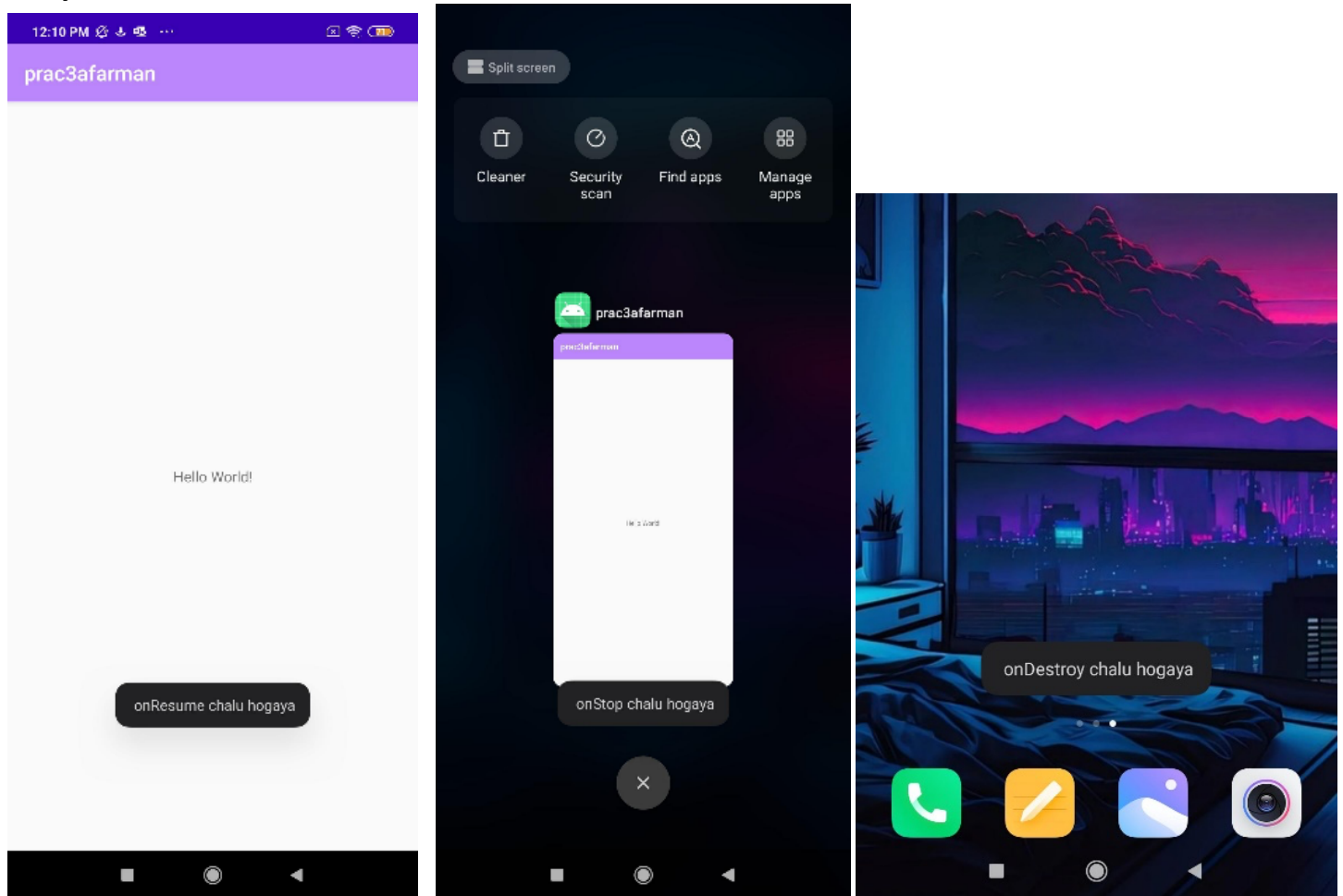
Output

5.b) To demonstrate the working of Fragments and its Life Cycle.

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <LinearLayout
        android:layout_width="409dp"
        android:layout_height="354dp"
        android:orientation="horizontal"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        tools:ignore="MissingConstraints">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:orientation="horizontal"
            app:layout_constraintBottom_toTopOf="@+id/framelayout"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent">

            <Button
                android:id="@+id/loginButton"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:onClick="onClickLogin"
                android:text="Login" />

            <Button
                android:id="@+id/signupButton"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:onClick="onClickSignup"
                android:text="SignUp" />

        </LinearLayout>
    </LinearLayout>

    <FrameLayout
        android:id="@+id/framelayout"
        android:layout_width="match_parent"
        android:layout_height="match_parent">
</FrameLayout>

</android.support.constraint.ConstraintLayout>
```

MainActivity.kt

```kotlin
package com.example.practical_3b
```

```kotlin
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.view.View

class MainActivity : AppCompatActivity() {
    private val fragMgr = supportFragmentManager
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }

    fun onClickLogin(view: View) {
        val fragTrans = fragMgr.beginTransaction()
        fragTrans.add(R.id.framelayout, LoginFragment())
        fragTrans.addToBackStack(null)
        fragTrans.commit()
    }

    fun onClickSignup(view: View) {
        val fragTrans = fragMgr.beginTransaction()
        fragTrans.add(R.id.framelayout, SignUpFragment())
        fragTrans.addToBackStack(null)
        fragTrans.commit()
    }
}
```

layout_login.xml

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

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:text="Login Fragment"
        android:background="#009576"
        android:textColor="@color/white"
        android:textStyle="italic" />

</android.support.constraint.ConstraintLayout>
```

layout_signup.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:gravity="center">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:text="SignUp Fragment"
        android:background="#009576"
        android:textColor="@color/white"
        android:textStyle="italic" />
```

```
</LinearLayout>
```

LoginFragment.kt

```kotlin
package com.example.practical_3b

import android.os.Bundle
import android.support.v4.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class LoginFragment: Fragment() {
    override fun onCreateView(
        inflater: LayoutInflater,
        container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        return inflater.inflate(R.layout.layout_login, container, false)
    }
}
```

SignupFragment.kt

```kotlin
package com.example.practical_3b

import android.os.Bundle
import android.support.v4.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class SignUpFragment: Fragment() {
    override fun onCreateView(
        inflater: LayoutInflater,
        container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        return inflater.inflate(R.layout.layout_signup, container, false)
    }
}
```

themes.xml

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.Practical_3B" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Primary brand color. -->
        <item name="colorPrimary">@color/purple_500</item>
        <item name="colorPrimaryDark">@color/purple_700</item>
        <item name="colorAccent">@color/teal_200</item>
        <!-- Customize your theme here. -->
    </style>

    <style name="Theme.Practical_3B.NoActionBar">
        <item name="windowActionBar">false</item>
        <item name="windowNoTitle">true</item>
    </style>

    <style name="Theme.Practical_3B.AppBarOverlay" parent="Theme.AppCompat.Light.DarkActionBar" />
    <style name="Theme.Practical_3B.PopupOverlay" parent="ThemeOverlay.AppCompat.Light" />
</resources>
```

night\themes.xml

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.Practical_3B" parent="Theme.AppCompat.Light.DarkActionBar">
```

```xml
        <!-- Primary brand color. -->
        <item name="colorPrimary">@color/purple_200</item>
        <item name="colorPrimaryDark">@color/purple_700</item>
        <item name="colorAccent">@color/teal_200</item>
        <!-- Customize your theme here. -->
    </style>

    <style name="Theme.Practical_3B.NoActionBar">
        <item name="windowActionBar">false</item>
        <item name="windowNoTitle">true</item>
    </style>

    <style name="Theme.Practical_3B.AppBarOverlay" parent="Theme.AppCompat.Light.DarkActionBar" />
    <style name="Theme.Practical_3B.PopupOverlay" parent="ThemeOverlay.AppCompat.Light" />
</resources>
```

Output