Program No:	**7**
Roll No :	**1545**
Title of Program :	**Check box, switch and toast**
Objective :	**Design applications in Android using Check Box and Switch.**

Checkbox

A **Checkbox** in Android is a two-state (true/false) button that allows users to select or deselect an option. It's commonly used for selecting multiple options from a set. In Android, the component is represented by the `CheckBox` class and inherits from `CompoundButton`.

- **Usage**: Use when you want users to pick one or more options independently.
- **Key Properties**:
    - `checked` (boolean): Whether the box is checked.
- **Event Handling**: You can listen for changes using an `OnCheckedChangeListener` in code.

Switch

A **Switch** is a user interface element that toggles between two states (on/off). It visually represents a physical switch and offers a modern alternative to the traditional checkbox for certain binary choices.

- **Usage**: Ideal for settings that are turned on/off, like enabling Wi-Fi or notifications.
- **Key Properties**:
    - `checked` (boolean): Whether the switch is on.
    - Offers a sliding visual interface.

- **Event Handling**: Use `setOnCheckedChangeListener` to respond when the switch's state changes.

Toast

A **Toast** is a small non-intrusive popup message that appears on the screen for a short duration and then disappears. It's used to give feedback to the user, such as confirming an action (e.g., "Saved successfully").

- **Usage**: Good for brief notifications that don't require user interaction and should not interrupt the user's workflow.
- **Key Properties**:
    - Duration: `Toast.LENGTH_SHORT`, `Toast.LENGTH_LONG`
    - Not interactive; disappears automatically.

Source Code:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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:id="@+id/main"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity"
   android:padding="16dp">

   <!-- Header -->
   <TextView
       android:id="@+id/header"
       android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:text="Select the books"
       android:textSize="18sp"
       android:textStyle="bold"
```

```
    android:layout_centerHorizontal="true"
    android:layout_marginTop="20dp" />



<!-- Book CheckBoxes -->
<CheckBox
    android:id="@+id/book1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Android Basics"
    android:layout_below="@id/header"
    android:layout_marginTop="20dp" />

<CheckBox
    android:id="@+id/book2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Java for Beginners"
    android:layout_below="@id/book1"
    android:layout_marginTop="10dp" />

<CheckBox
    android:id="@+id/book3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="DBMS Essentials"
    android:layout_below="@id/book2"
    android:layout_marginTop="10dp" />

<CheckBox
    android:id="@+id/book4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Operating System"
    android:layout_below="@id/book3"
    android:layout_marginTop="10dp" />

<CheckBox
    android:id="@+id/book5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Networking with Linux"
    android:layout_below="@id/book4"
    android:layout_marginTop="10dp" />

<!-- Switch -->
<Switch
    android:id="@+id/switcher"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

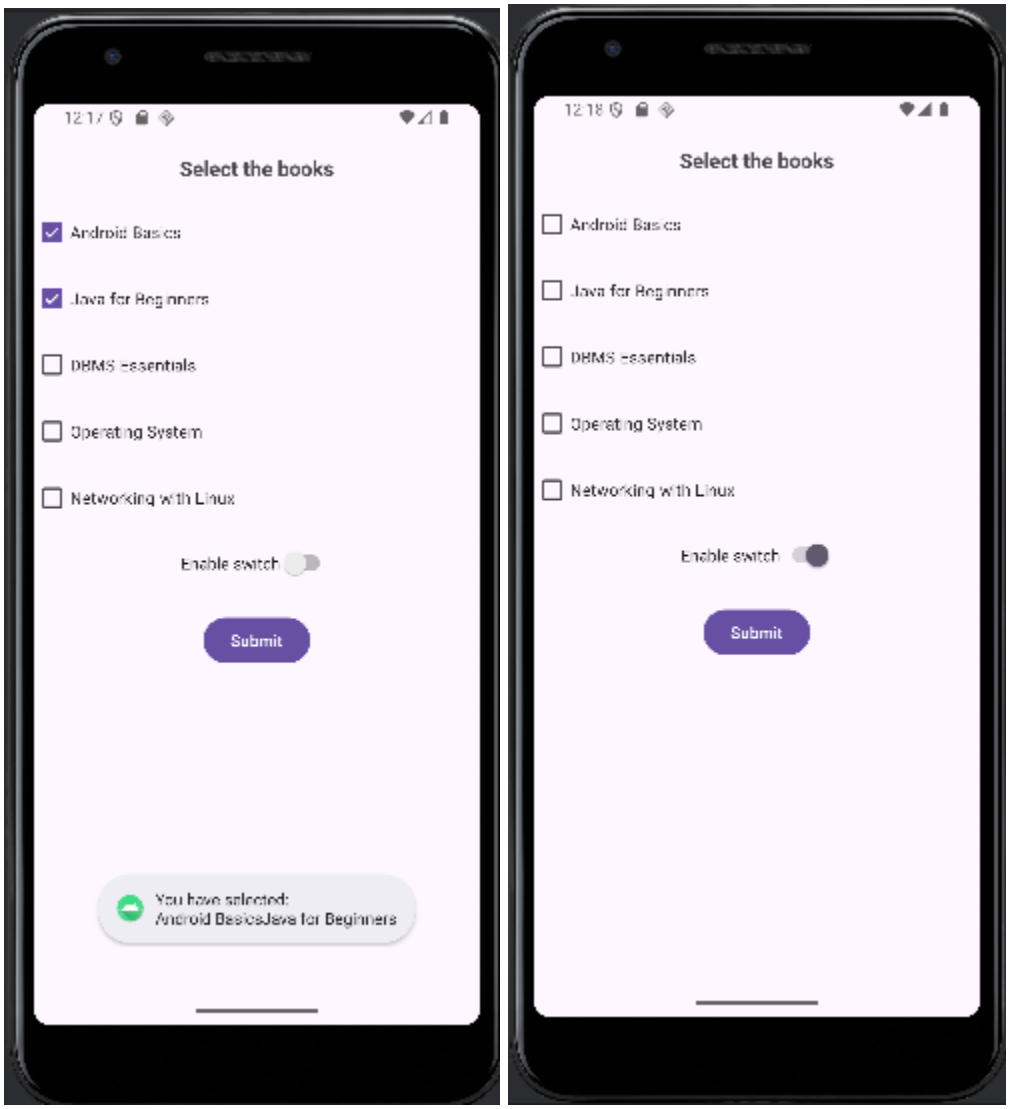
```
        android:text="Enable switch"
        android:layout_below="@id/book5"
        android:layout_marginTop="20dp"
        android:layout_centerHorizontal="true"
        tools:ignore="UseSwitchCompatOrMaterialXml" />

    <!-- Submit Button -->
    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit"
        android:layout_below="@id/switcher"
        android:layout_marginTop="30dp"
        android:layout_centerHorizontal="true" />

</RelativeLayout>
```

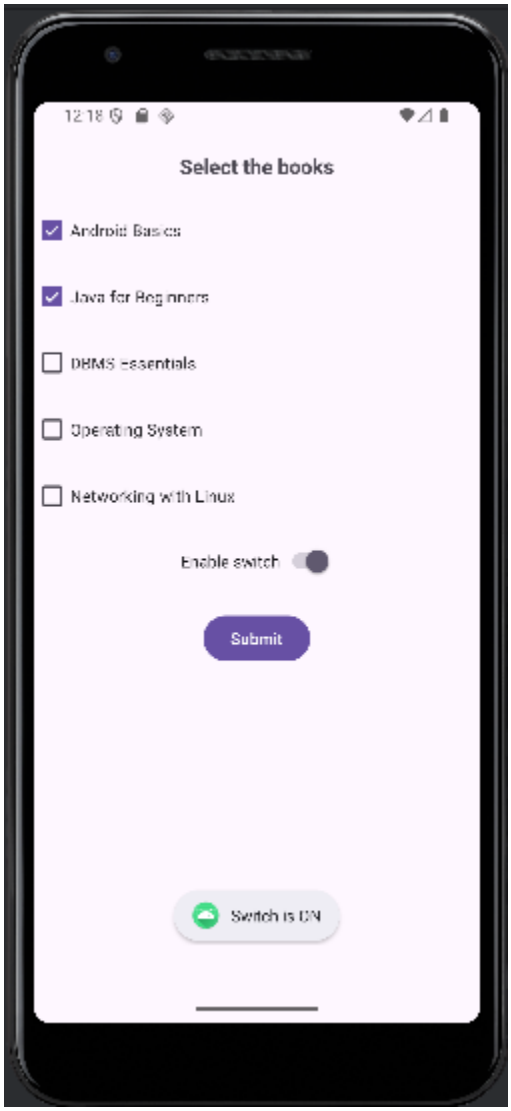
MainActivity.java

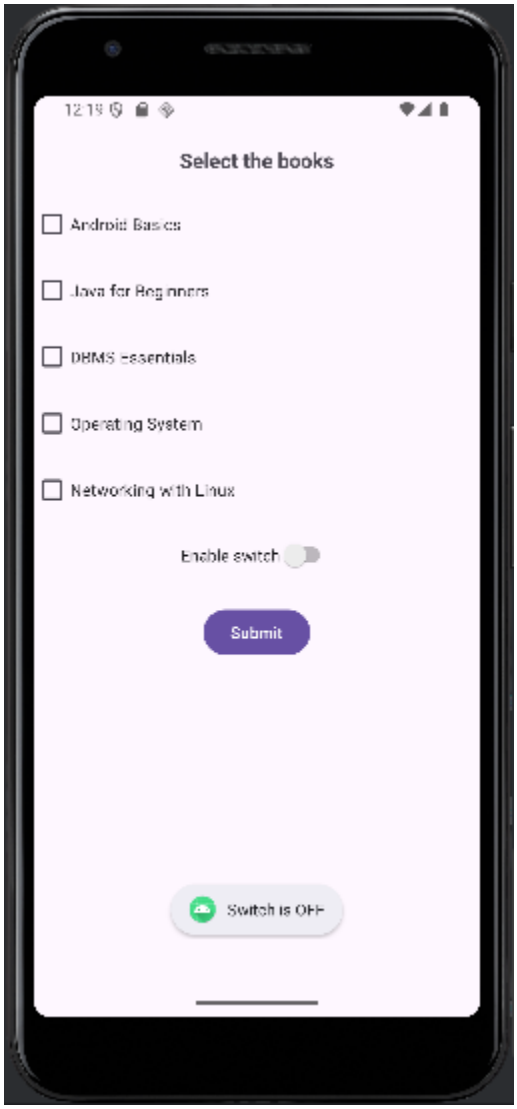
```
package com.example.checkboxswitch;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.CompoundButton;
import android.widget.Switch;
import android.widget.Toast;

import androidx.activity.EdgeToEdge;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {
    CheckBox c1, c2, c3, c4, c5;
    Switch switcher;
    Button btn;
    Toast toast;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
```

```
insets) -> {
            Insets systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
            return insets;
        });

        c1 = findViewById(R.id.book1);
        c2 = findViewById(R.id.book2);
        c3 = findViewById(R.id.book3);
        c4 = findViewById(R.id.book4);
        c5 = findViewById(R.id.book5);

        switcher = findViewById(R.id.switcher);

        btn = findViewById(R.id.submitButton);

        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String msg = "";

                if (c1.isChecked()) msg += c1.getText().toString();
                if (c2.isChecked()) msg += c2.getText().toString();
                if (c3.isChecked()) msg += c3.getText().toString();
                if (c4.isChecked()) msg += c4.getText().toString();
                if (c5.isChecked()) msg += c5.getText().toString();

                Toast.makeText(getApplicationContext(), "You have selected: \n" +
msg, Toast.LENGTH_SHORT).show();
            }
        });

        switcher.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(@NonNull CompoundButton buttonView,
boolean isChecked) {
                if (switcher.isChecked()) {
                    Toast.makeText(getApplicationContext(), "Switch is ON",
Toast.LENGTH_SHORT).show();
                } else {
                    Toast.makeText(getApplicationContext(), "Switch is OFF",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }

}
```

Output:


Select the books
Android Basics
Java for Beginners
DBMS Essentials
Operating System
Networking with Linux
Enable switch
Submit
You have selected:
Android BasicsJava for Beginners
Select the books
Android Basics
Java for Beginners
DBMS Essentials
Operating System
Networking with Linux
Enable switch
Submit


12:18
Select the books
Android Basics
Java for Beginners
DBMS Essentials
Operating System
Networking With Linux
Enable switch
Submit
Switch is ON


12:19
Select the books
Android Basics
Java for Beginners
DBMS Essentials
Operating System
Networking With Linux
Enable switch
Submit
Switch is OFF