

1.

AndroidManifest.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.android">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.Android">
        <activity android:name=".MainActivity"
            tools:ignore="MissingClass"
            android:exported="true">
            <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 version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_alignParentLeft="true"
    android:background="@color/black">
    <HorizontalScrollView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" >
        <RelativeLayout
            android:id="@+id/RelativeLayout1"
            android:layout_width="match_parent"
            android:layout_gravity="center"
            android:layout_height="match_parent"
            android:orientation="vertical" >
            <TableLayout
                android:id="@+id/table_main"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_centerHorizontal="true" >
```

```

        </TableLayout>
    </RelativeLayout>
</HorizontalScrollView>
</ScrollView>

```

MainActivity.java

```

package com.example.android;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.Gravity;
import android.widget.TableLayout;
import android.widget.TableRow;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    private String[]

    fname={"Mohit","Karan","Aniket","Rishi","Jeet","Avesh","Gaurav","Abhishek","Pratik","Mrunal"};
    private String[]

    mname={"Devendra","Chandrashekhar","Vijay","Manohar","Sanjay","Ansarsab","Arun","Ashok","Kunal","Uttam"};
    private String[]

    lname={"Vaidya","Kadne","Chavan","Motiray","Rane","Momin","Telange","Goykar","Tiverekar","Kandizod"};
    private String[]

    enroll={"18009334","18009341","18009344","18009345","18009349","18009343","18009321","18009339","18009347","18009353"};
    private String[] course={"CO","CO","CO","CO","CO","CO","CO","CO","CO","CO","CO"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        init();
    }
    public void init() {
        TableLayout stk = (TableLayout) findViewById(R.id.table_main);
        TableRow tbrow0 = new TableRow(this);
        TextView tv0 = new TextView(this);
        tv0.setText("First Name");
        tv0.setTextColor(Color.RED);
        tv0.setGravity(Gravity.CENTER);
        tbrow0.addView(tv0);
        TextView tv1 = new TextView(this);
        tv1.setText("Middle Name");
    }
}

```

```

tv1.setTextColor(Color.RED);
tv1.setGravity(Gravity.CENTER);
tbrow0.addView(tv1);
TextView tv2 = new TextView(this);
tv2.setText("Last Name");
tv2.setTextColor(Color.RED);
tv2.setGravity(Gravity.CENTER);
tbrow0.addView(tv2);
TextView tv3 = new TextView(this);
tv3.setText("Enrollment No.");
tv3.setTextColor(Color.RED);
tv3.setGravity(Gravity.CENTER);
tbrow0.addView(tv3);
TextView tv4 = new TextView(this);
tv4.setText("Course");
tv4.setTextColor(Color.RED);
tv4.setGravity(Gravity.CENTER);
tbrow0.addView(tv4);
stk.addView(tbrow0);
for (int i = 0; i < 10; i++) {
    TableRow tbrow = new TableRow(this);
    TextView t1v = new TextView(this);
    t1v.setText(fname[i]);
    t1v.setTextColor(Color.WHITE);
    tbrow.addView(t1v);
    TextView t2v = new TextView(this);
    t2v.setText(mname[i]);
    t2v.setTextColor(Color.WHITE);
    tbrow.addView(t2v);
    TextView t3v = new TextView(this);
    t3v.setText(lname[i]);
    t3v.setTextColor(Color.WHITE);
    tbrow.addView(t3v);
    TextView t4v = new TextView(this);
    t4v.setText(enroll[i]);
    t4v.setTextColor(Color.WHITE);
    t4v.setGravity(Gravity.CENTER);
    tbrow.addView(t4v);
    TextView t5v = new TextView(this);
    t5v.setText(course[i]);
    t5v.setTextColor(Color.WHITE);
    t5v.setGravity(Gravity.CENTER);
    tbrow.addView(t5v);
    stk.addView(tbrow);
}
}
}

```

Output:



The screenshot shows an Android application interface. At the top, there is a purple status bar with the time '10:02', a settings gear icon, a document icon, and signal/battery indicators. Below the status bar is a black header bar with the following text in red: 'First Name', 'Middle Name', 'Last Name', 'Enrollment No.', and 'Course'. The main content area is black and displays a list of 10 student records in white text. Each record consists of five columns: First Name, Middle Name, Last Name, Enrollment No., and Course. The records are as follows:

First Name	Middle Name	Last Name	Enrollment No.	Course
Mohit	Devendra	Vaidya	18009334	CO
Karan	Chandrashekhar	Kadne	18009341	CO
Aniket	Vijay	Chavan	18009344	CO
Rishi	Manohar	Motiray	18009345	CO
Jeet	Sanjay	Rane	18009349	CO
Avesh	Ansarsab	Momin	18009343	CO
Gaurav	Arun	Telange	18009321	CO
Abhishek	Ashok	Goykar	18009339	CO
Pratik	Kunal	Tiverekar	18009347	CO
Mrunal	Uttam	Kandizod	18009353	CO

At the bottom of the screen, there is a white navigation bar with three icons: a triangle (back), a circle (home), and a square (recent apps).

2.

AndroidManifest.xml:

```
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<manifest xmlns:android="http://schemas.android.com/apk/res/android"
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    package="com.example.android">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
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        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Android">
        <activity android:name=".MainActivity"
            tools:ignore="MissingClass"
            android:exported="true">
            <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 version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="66dp"
        android:text="Data Types in Object Oriented Programming"
        android:textColor="#FF0000"
        android:textSize="25dp"
        android:textStyle="bold"
    />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="top|left|fill_vertical"
        android:layout_marginTop="80dp"
```

```

        android:text="Primitive"
        android:textColor="@color/purple_700"
        android:textStyle="bold"
        android:textSize="20dp"
    />
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="110dp"
    android:foregroundGravity="fill_horizontal|top"
    android:orientation="vertical">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="1) Integer"
    />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="2) Float"
    />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="3) Characters"
    />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="4) Boolean"
    />
</LinearLayout>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="right|fill_vertical"
    android:layout_marginTop="80dp"
    android:text="Non-Primitive"
    android:textColor="@color/purple_700"
    android:textStyle="bold"
    android:textSize="20dp" />
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="right"
    android:layout_marginTop="110dp"
    android:layout_marginRight="20dp"

```

```

        android:orientation="vertical">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="1) Class"
        />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="2) Array"
        />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="3) Interface"
        />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="4) Object"
        />
    </LinearLayout>
</FrameLayout>

```

MainActivity.java:

```

package com.example.android;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}

```

Output:

