Bab 13

Praktikum Pemrograman Aplikasi Sederhana Android Studio : Kalkulator

Mata Kuliah Praktikum Mobile Programming

Dosen : Bambang Sugiarto, S.T, M.T

Program Studi S1 Teknik Informatika
Fakultas Teknik
Universitas Sangga Buana YPKP Bandung

Dirangkum dari berbagai sumber referensi
(hanya untuk penggunaan internal/tidak untuk dipublikasikan)

Tujuan Praktikum

- Mahasiswa mengetahui cara pemrograman aplikasi sederhana pada Android Studio.
- Mahasiswa mampu untuk membuat pemrograman aplikasi kalkulator dengan mengimplementasikan beberapa activity dan widget-widget lainnya.

Contoh Tampilan Aplikasi Mobile Kalkulator Sederhana

Langkah-Langkah Pembuatan Kalkulator Sederhana

- *Langkah 1*
  - ➢ Membuat project baru
  - ➢ Isikan application name dengan "CrunchifyCalculator" dan company domain.

- *Langkah 2*
  - ➢ Pilih minimum SDK
  - ➢ Pilihlah SDK yang dapat mengcover hampir 94% perangkat dan semua fitur.
  - ➢ Pada kasus ini kita dapat memilih API 15 (IceCreamSandwich)

☑ Phone and Tablet

Minimum SDK | API 15: Android 4.0.3 (IceCreamSandwich) |

Lower API levels target more devices, but have fewer features available.

By targeting API 15 and later, your app will run on approximately **100.0%** of the devices
that are active on the Google Play Store.

Help me choose

- *Langkah 3*
  - ➢ Membuat/memilih Activty
  - ➢ Dapat dipilih Empty Activity.
  - ➢ Beri nama Activity tersebut beserta nama layoutnya atau biarkan seperti defaultnya.

Creates a new empty activity

Activity Name: MainActivity

☑ Generate Layout File

Layout Name: activity_main
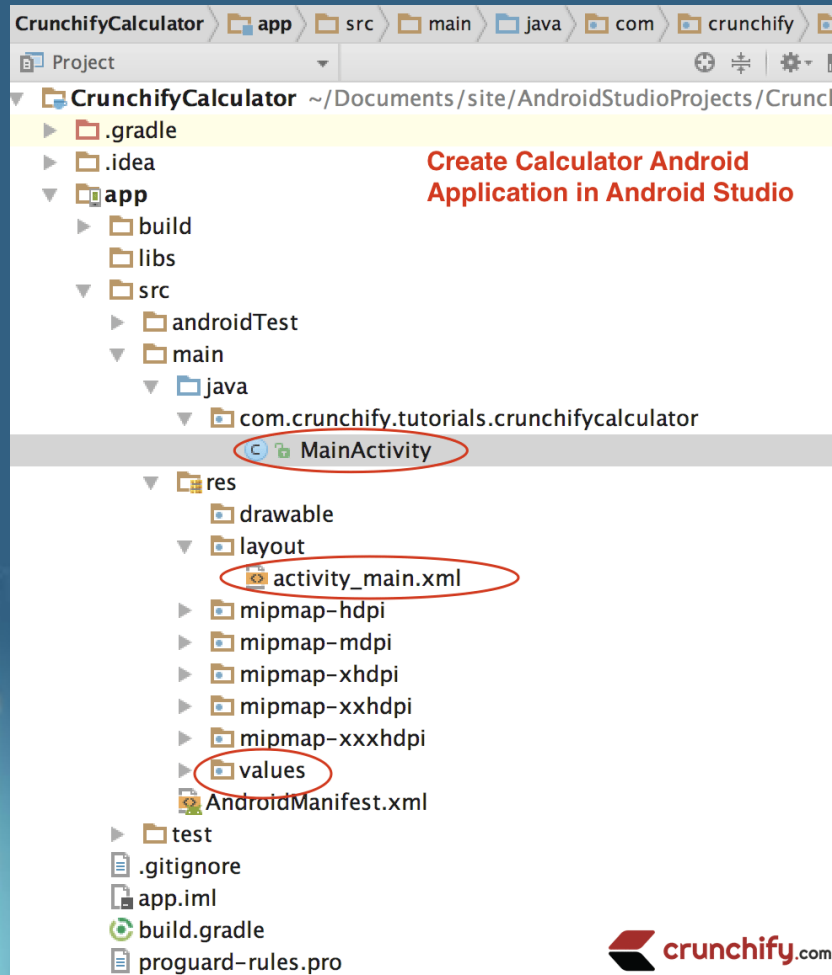
☑ Backwards Compatibility (AppCompat)

- *Langkah 4*
  - ➢ Setelah muncul activity dan file-file dalam struktur project Android, kita dapat melakukan koding pada MainActivity.java

➤ Buka MainActivity.java dan tambahkan kode java berikut :

```java
package com.crunchify.tutorials.crunchifycalculator;

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

Button button0, button1, button2, button3, button4,
button5, button6, button7, button8, button9, buttonAdd,
buttonSub, buttonDivision, buttonMul, button10, buttonC,
buttonEqual;

EditText crunchifyEditText;
float mValueOne, mValueTwo;
```

```java
        boolean crunchifyAddition, mSubtract,
crunchifyMultiplication, crunchifyDivision;

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

            button0 = (Button) findViewById(R.id.button0);
            button1 = (Button) findViewById(R.id.button1);
            button2 = (Button) findViewById(R.id.button2);
            button3 = (Button) findViewById(R.id.button3);
            button4 = (Button) findViewById(R.id.button4);
            button5 = (Button) findViewById(R.id.button5);
            button6 = (Button) findViewById(R.id.button6);
            button7 = (Button) findViewById(R.id.button7);
            button8 = (Button) findViewById(R.id.button8);
            button9 = (Button) findViewById(R.id.button9);
            button10 = (Button) findViewById(R.id.button10);
            buttonAdd = (Button) findViewById(R.id.buttonadd);
```

```java
buttonSub = (Button) findViewById(R.id.buttonsub);
buttonMul = (Button) findViewById(R.id.buttonmul);
buttonDivision = (Button) findViewById(R.id.buttondiv);
buttonC = (Button) findViewById(R.id.buttonC);
buttonEqual = (Button) findViewById(R.id.buttoneql);
crunchifyEditText = (EditText) findViewById(R.id.edt1);

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "1");

    }
});


button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "2");

    }
});
```

```java
button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "3");

    }
});


button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "4");

    }
});


button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "5");

    }
});
```

```java
button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "6");
    }
});

button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "7");
    }
});

button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "8");
    }
});
```

```java
button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "9");

    }
});


button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText()
                        + "0");

    }
});

buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        if (crunchifyEditText == null) {
            crunchifyEditText.setText("");
```

```java
                        } else {
                            mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
                            crunchifyAddition = true;
                            crunchifyEditText.setText(null);
                        }
                    }
                });

        buttonSub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
                mSubtract = true;
                crunchifyEditText.setText(null);
            }
        });

        buttonMul.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```java
                    lueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
                crunchifyMultiplication = true;
                crunchifyEditText.setText(null);
            }
        });


        buttonDivision.setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View v) {
                mValueOne =
Float.parseFloat(crunchifyEditText.getText() + "");
                crunchifyDivision = true;
                crunchifyEditText.setText(null);
            }
        });

        buttonEqual.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueTwo =
Float.parseFloat(crunchifyEditText.getText() + "");
```

```java
if (crunchifyAddition == true) {
    crunchifyEditText.setText(mValueOne + mValueTwo + "");
    crunchifyAddition = false;
}


if (mSubtract == true) {
    crunchifyEditText.setText(mValueOne - mValueTwo + "");
    mSubtract = false;
}


if (crunchifyMultiplication == true) {
    crunchifyEditText.setText(mValueOne * mValueTwo + "");
    crunchifyMultiplication = false;
}


if (crunchifyDivision == true) {
    crunchifyEditText.setText(mValueOne / mValueTwo + "");
    crunchifyDivision = false;
}
    }
});
```

```java
buttonC.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText("");
    }
});

button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText
                        () + ".");
    }
});
    }
}
```

- *Langkah 5*
  - ➤ Edit juga activity_main.xml untuk membuat UI tampilan kalkulator dengan kode berikut :

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/relative1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/edt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
```

```xml
<Button
    android:id="@+id/button1"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/button4"
    android:layout_alignRight="@+id/button4"
    android:layout_below="@+id/edt1"
    android:layout_marginTop="94dp"
    android:text="1" />

<Button
    android:id="@+id/button2"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button1"
    android:layout_toLeftOf="@+id/button3"
    android:layout_toStartOf="@+id/button3"
    android:text="2" />
```

```xml
<Button
    android:id="@+id/button3"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button2"
    android:layout_centerHorizontal="true"
    android:text="3" />

<Button
    android:id="@+id/button4"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button1"
    android:layout_toLeftOf="@+id/button2"
    android:text="4" />
```

```xml
<Button
    android:id="@+id/button5"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/button4"
    android:layout_alignLeft="@+id/button2"
    android:layout_alignStart="@+id/button2"
    android:text="5" />

<Button
    android:id="@+id/button6"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button3"
    android:layout_alignStart="@+id/button3"
    android:layout_below="@+id/button3"
    android:text="6" />
```

```xml
<Button
    android:id="@+id/button7"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button4"
    android:layout_toLeftOf="@+id/button2"
    android:text="7" />

<Button
    android:id="@+id/button8"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button5"
    android:layout_alignStart="@+id/button5"
    android:layout_below="@+id/button5"
    android:text="8" />
```

```xml
<Button
    android:id="@+id/button9"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button6"
    android:layout_alignStart="@+id/button6"
    android:layout_below="@+id/button6"
    android:text="9" />

<Button
    android:id="@+id/buttonadd"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/edt1"
    android:layout_alignRight="@+id/edt1"
    android:layout_alignTop="@+id/button3"
    android:layout_marginLeft="46dp"
    android:layout_marginStart="46dp"
    android:layout_toRightOf="@+id/button3"
    android:text="+" />
```

```xml
<Button
    android:id="@+id/buttonsub"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonadd"
    android:layout_alignLeft="@+id/buttonadd"
    android:layout_alignRight="@+id/buttonadd"
    android:layout_alignStart="@+id/buttonadd"
    android:layout_below="@+id/buttonadd"
    android:text="-" />

<Button
    android:id="@+id/buttonmul"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/buttonsub"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignStart="@+id/buttonsub"
    android:layout_below="@+id/buttonsub"
    android:text="*" />
```

```xml
<Button
    android:id="@+id/button10"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button7"
    android:layout_toLeftOf="@+id/button2"
    android:text="." />

<Button
    android:id="@+id/button0"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button8"
    android:layout_alignStart="@+id/button8"
    android:layout_below="@+id/button8"
    android:text="0" />
```

```xml
<Button
    android:id="@+id/buttonC"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button9"
    android:layout_alignStart="@+id/button9"
    android:layout_below="@+id/button9"
    android:text="C" />

<Button
    android:id="@+id/buttondiv"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonmul"
    android:layout_alignLeft="@+id/buttonmul"
    android:layout_alignRight="@+id/buttonmul"
    android:layout_alignStart="@+id/buttonmul"
    android:layout_below="@+id/buttonmul"
    android:text="/" />
```
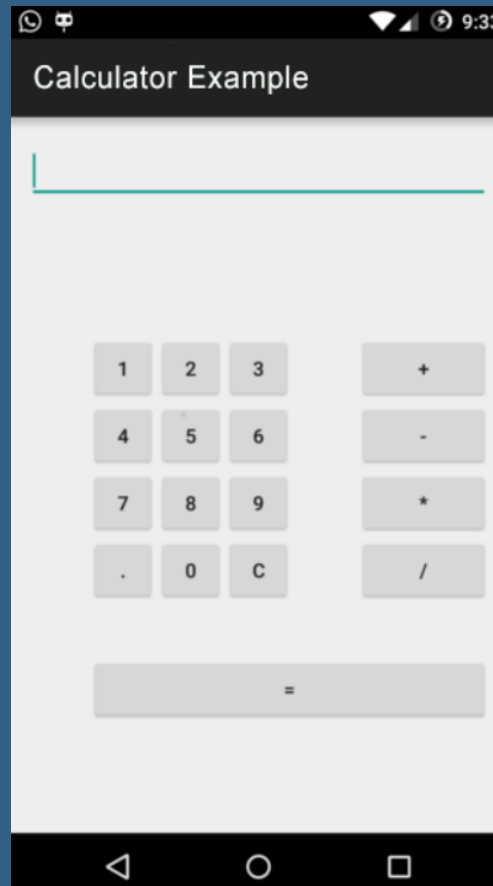
```xml
<Button
    android:id="@+id/buttoneql"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttondiv"
    android:layout_alignLeft="@+id/button10"
    android:layout_alignRight="@+id/buttondiv"
    android:layout_alignStart="@+id/button10"
    android:layout_below="@+id/button0"
    android:layout_marginTop="37dp"
    android:text="=" />

</RelativeLayout>
```

- *Langkah 6 :*
  - ➢ Jalankan program kalkulator yang telah dibuat dan lihatlah hasilnya seperti tampilan berikut :

- ➢ Cobalah untuk memasukan angka sesuai dengan keinginan kita dan lakukan beberapa hasil hitung (+, -, /, dan *).
- ➢ Dan klik tanda "=" dan lihatlah hasilnya.

Reference

- Crunchify.com, **How to Create Simple Calculator Android App Using Android Studio**, https://crunchify.com/how-to-create-simple-calculator-android-app-using-android-studio/.

- Bodoy Studio, **9 Langkah Mudah Membuat Aplikasi Kalkulator Sederhana di Android**, https://badoystudio.com/membuat-aplikasi-kalkulator-sederhana-di-android/