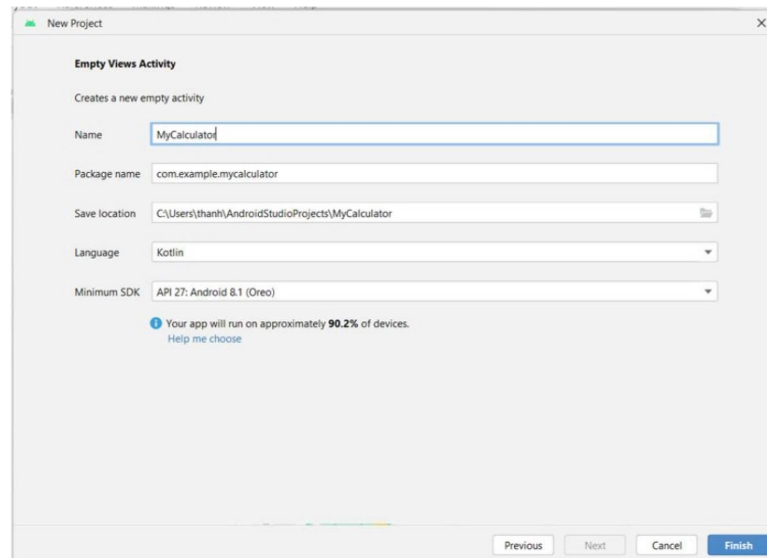
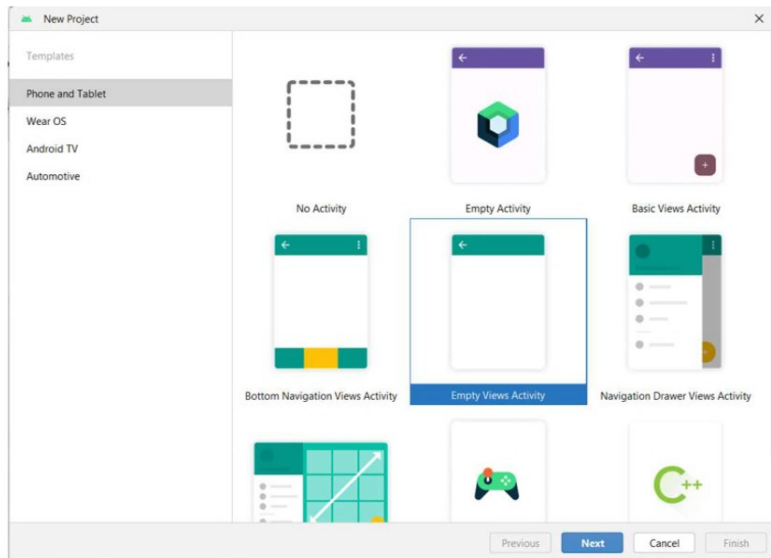


## BÀI THỰC HÀNH 1: ỨNG DỤNG MÁY TÍNH CẦM TAY

### 1. Tạo dự án mới:

- Mở Android Studio và click vào **File** → **New** → **New project**.
- Đặt tên project theo cú pháp sau “**StudentID\_Calculator**” và click **Next**
- Chọn **Minimum SDK** như hình và click **Next**.
- Chọn **Empty Activity** và click **Next**.
- Cuối cùng, click **Finish**
- Đổi project khởi tạo



### 2. Thiết kế giao diện cho ứng dụng:

- Click vào **app** → **res** → **layout** → **activity\_main.xml**
- Chọn vào thẻ **Text** để soạn code
- Xóa đoạn code có sẵn và viết lại như sau (hoặc tự trình bày giao diện theo ý mình)

Code for **Activity\_main.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:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tvInput"
        android:layout_width="match_parent"
        android:layout_height="250dp"
        android:background="#efefef"
        android:ems="10"
        android:gravity="end|center_vertical|bottom"
        android:maxLength="12"
        android:padding="10dp"
        android:textSize="48sp" />

    <LinearLayout
        android:id="@+id/llOne"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="2dp">
```

```

        android:layout_weight="1"
        android:orientation="horizontal">

```

```

        <Button
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:id="@+id/btnSeven"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="7" />

```

```

        <Button
            android:id="@+id/btnEight"
            android:layout_width="0dp"
            android:layout_marginEnd="5dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="8" />

```

```

        <Button
            android:id="@+id/btnNine"
            android:layout_width="0dp"
            android:layout_marginEnd="5dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="9" />

```

```

        <Button
            android:id="@+id/btnDivide"
            android:layout_width="0dp"
            android:layout_marginEnd="5dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onOperator"
            android:textSize="32sp"
            android:text="/" />

```

```

    </LinearLayout>

```

```

    <LinearLayout
        android:id="@+id/llTwo"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:orientation="horizontal">

```

```

        <Button
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:id="@+id/btnFour"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="4" />

```

```

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnFive"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"

```

```

        android:textSize="32sp"
        android:text="5" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnSix"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="6" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnMultiply"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onOperator"
            android:textSize="32sp"
            android:text="*" />

    </LinearLayout>

    <LinearLayout
        android:id="@+id/llThree"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:orientation="horizontal">

        <Button
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:id="@+id/btnOne"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="1" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnTwo"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="2" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnThree"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="3" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnSubtract"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onOperator"
            android:textSize="32sp"

```



```

        android:text="-" />
    </LinearLayout>

    <LinearLayout
        android:id="@+id/llFour"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:orientation="horizontal">

        <Button
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:id="@+id/btnDecimal"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onDecimalPoint"
            android:textSize="32sp"
            android:text="." />

        <Button
            android:id="@+id/btnZero"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginEnd="5dp"
            android:layout_weight="1"
            android:onClick="onDigit"
            android:textSize="32sp"
            android:text="0" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnClear"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onClear"
            android:textSize="24sp"
            android:text="CLR" />

        <Button
            android:layout_marginEnd="5dp"
            android:id="@+id/btnAdd"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:onClick="onOperator"
            android:textSize="32sp"
            android:text="+" />

    </LinearLayout>

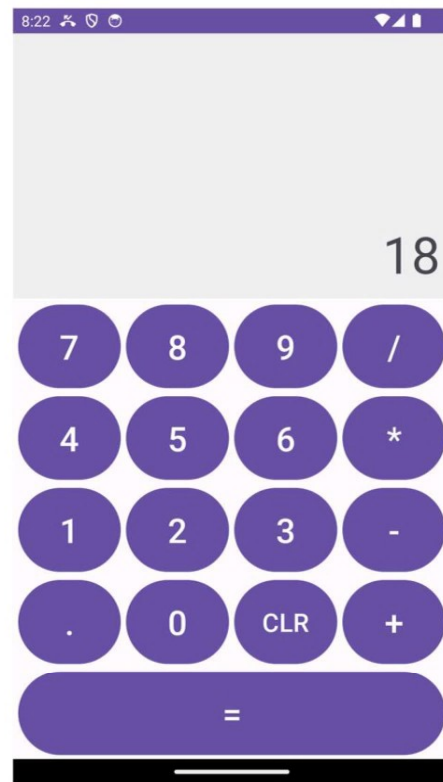
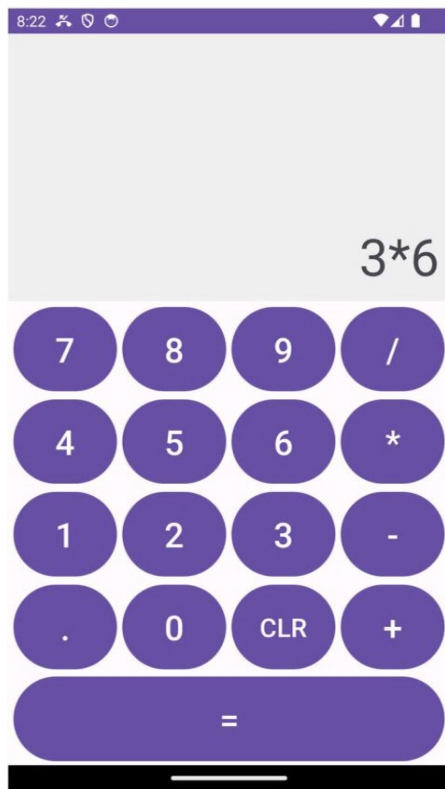
    <LinearLayout
        android:id="@+id/llFive"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:orientation="horizontal">

        <Button
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:id="@+id/btnEqual"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:onClick="onEqual"
            android:textSize="32sp"
            android:text="=" />
    </LinearLayout>

```

```
</LinearLayout>
```

Giao diện sẽ có kết quả như sau (**Activity\_main.xml**):



Viết code cho ứng dụng:

Click vào: **java** → **com** → **example** → **mycalculator** → **MainActivity.kt**

Các em tự viết code các module để có thể xử lý các chức năng như giao diện: nhập số và thực hiện phép tính cơ bản (cộng, trừ, nhân, chia)

```
class MainActivity : AppCompatActivity() {

    var lastNumeric: Boolean = false
    var lastDot: Boolean = false

    private var tvInput: TextView?=null

    override fun onCreate(savedInstanceState: Bundle?) {
    }

    fun onDigit(view: View) {
    }

    fun onClear(view: View) {
    }
}
```

```
fun onDecimalPoint(view: View) {  
    }  
  
fun onOperator(view: View) {  
    }  
  
fun onEqual(view: View) {  
    }  
  
private fun removeZeroAfterDot(result: String): String {  
    }  
  
private fun isOperatorAdded(value: String): Boolean {  
    }  
}
```