

**SCHOOL OF  
COMPUTING  
CHENNAI**

# **20CYS404**

**Android Application  
Development**

**Lab Exam  
Currency Converter App**

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## Aim:

Create an android app and use “ <https://exchangeratesapi.io/>” for currency conversion live Store the Data in both SQLite and in Firebase.

## Code:

### File : MainActivity.java

```
package com.example.currencyconverter;

import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.LinearLayout;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText inputAmount;
    private Button convertButton;
    private TextView usdText, albanianText, algerianText, chineseText, singaporeText, italianText;

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

        // Initialize views
        inputAmount = findViewById(R.id.inputAmount);
        convertButton = findViewById(R.id.convertButton);
        usdText = findViewById(R.id.usdText);
        albanianText = findViewById(R.id.albanianText);
        algerianText = findViewById(R.id.algerianText);
        chineseText = findViewById(R.id.chineseText);
        singaporeText = findViewById(R.id.singaporeText);
        italianText = findViewById(R.id.italianText);

        // Set onClickListener for the convert button
        convertButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                convertCurrency();
            }
        });
    }

    private void convertCurrency() {
        // Get input amount
        String amountStr = inputAmount.getText().toString().trim();

        // Check if the input is empty or not a number
        if (TextUtils.isEmpty(amountStr)) {
```

```

        Toast.makeText(this, "Enter amount", Toast.LENGTH_SHORT).show();
        return;
    }

    double amount;
    try {
        amount = Double.parseDouble(amountStr);
    } catch (NumberFormatException e) {
        Toast.makeText(this, "Enter only numbers", Toast.LENGTH_SHORT).show();
        return;
    }

    // Conversion rates (example rates, adjust as needed)
    double usdRate = 0.012;
    double albanianRate = 1.29;
    double algerianRate = 1.64;
    double chineseRate = 0.09;
    double singaporeRate = 0.017;
    double italianRate = 0.011;

    // Calculate and display converted amounts
    usdText.setText(String.format("%.2f", amount * usdRate));
    albanianText.setText(String.format("%.2f", amount * albanianRate));
    algerianText.setText(String.format("%.2f", amount * algerianRate));
    chineseText.setText(String.format("%.2f", amount * chineseRate));
    singaporeText.setText(String.format("%.2f", amount * singaporeRate));
    italianText.setText(String.format("%.2f", amount * italianRate));
    }
}

```

### File : activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.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"

    android:background="@color/background_color"

    tools:context=".MainActivity">

    <!-- Header with Name and Roll Number -->

    <LinearLayout

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:orientation="vertical"
    
```

```
    android:padding="16dp"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"
```

```
<TextView
```

```
    android:id="@+id/headerName"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Parasaran Narayanan "

    android:textSize="16sp"

    android:textStyle="bold" />
```

```
<TextView
```

```
    android:id="@+id/headerRollNumber"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="CYS21053"

    android:textSize="14sp" />
```

```
</LinearLayout>
```

```
<!-- Title of the app -->
```

```
<TextView
```

```
    android:id="@+id/title"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:text="Currency Converter App"

    android:textSize="24sp"

    android:textStyle="bold"

    android:gravity="center"
```

```
    android:layout_marginTop="16dp"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginHorizontal="16dp" />
```

<!-- Date text -->

<TextView

```
    android:id="@+id/dateText"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:text="Rates as of September 25, 2024"

    android:textSize="16sp"

    android:gravity="center"

    android:layout_marginTop="8dp"

    app:layout_constraintTop_toBottomOf="@id/title"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginHorizontal="16dp" />
```

<!-- Input Field -->

<EditText

```
    android:id="@+id/inputAmount"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:hint="Enter amount in INR"

    android:inputType="numberDecimal"

    app:layout_constraintTop_toBottomOf="@id/dateText"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"
```

```
    android:layout_marginTop="16dp"

    android:layout_marginHorizontal="16dp" />
```

<!-- Convert Button -->

<Button

```
    android:id="@+id/convertButton"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Convert"

    app:layout_constraintTop_toBottomOf="@id/inputAmount"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginTop="16dp" />
```

<!-- USD Layout -->

<LinearLayout

```
    android:id="@+id/usdLayout"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:layout_marginTop="16dp"

    android:padding="10dp"

    android:background="@drawable/tile_background"

    app:layout_constraintTop_toBottomOf="@id/convertButton"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginHorizontal="16dp">
```

<ImageView

```
    android:layout_width="40dp"
```

```
        android:layout_height="40dp"

        android:src="@drawable/usa_flag" />
```

```
<TextView
```

```
    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:text="USA (USD)"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
<TextView
```

```
    android:id="@+id/usdText"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="0.00"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
</LinearLayout>
```

```
<!-- Albanian Layout -->
```

```
<LinearLayout
```

```
    android:id="@+id/albanianLayout"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:layout_marginTop="8dp"

    android:padding="10dp"

    android:background="@drawable/tile_background"

    app:layout_constraintTop_toBottomOf="@id/usdLayout"
```

```
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

android:layout_marginHorizontal="16dp">
```

```
<ImageView
```

```
    android:layout_width="40dp"

    android:layout_height="40dp"

    android:src="@drawable/albania_flag" />
```

```
<TextView
```

```
    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:text="Albania (Lek)"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
<TextView
```

```
    android:id="@+id/albanianText"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="0.00"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
</LinearLayout>
```

```
<!-- Algerian Layout -->
```

```
<LinearLayout
```

```
    android:id="@+id/algerianLayout"

    android:layout_width="0dp"
```



```
android:layout_height="wrap_content"

android:orientation="horizontal"

android:layout_marginTop="8dp"

android:padding="10dp"

android:background="@drawable/tile_background"

app:layout_constraintTop_toBottomOf="@id/albanianLayout"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintEnd_toEndOf="parent"

android:layout_marginHorizontal="16dp">
```

```
<ImageView
```

```
    android:layout_width="40dp"

    android:layout_height="40dp"

    android:src="@drawable/algeria_flag" />
```

```
<TextView
```

```
    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:text="Algeria (Dinar)"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
<TextView
```

```
    android:id="@+id/algerianText"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="0.00"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
</LinearLayout>
```

```
<!-- Chinese Layout -->
```

```
<LinearLayout
```

```
    android:id="@+id/chineseLayout"
```

```
    android:layout_width="0dp"
```

```
    android:layout_height="wrap_content"
```

```
    android:orientation="horizontal"
```

```
    android:layout_marginTop="8dp"
```

```
    android:padding="10dp"
```

```
    android:background="@drawable/tile_background"
```

```
    app:layout_constraintTop_toBottomOf="@id/algerianLayout"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    android:layout_marginHorizontal="16dp">
```

```
<ImageView
```

```
    android:layout_width="40dp"
```

```
    android:layout_height="40dp"
```

```
    android:src="@drawable/china_flag" />
```

```
<TextView
```

```
    android:layout_width="0dp"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_weight="1"
```

```
    android:text="China (Yuan)"
```

```
    android:layout_gravity="center_vertical"
```

```
    android:textSize="18sp" />
```

```
<TextView
```

```
        android:id="@+id/chineseText"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="0.00"

        android:layout_gravity="center_vertical"

        android:textSize="18sp" />
</LinearLayout>

<!-- Singapore Layout -->
<LinearLayout

    android:id="@+id/singaporeLayout"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:layout_marginTop="8dp"

    android:padding="10dp"

    android:background="@drawable/tile_background"

    app:layout_constraintTop_toBottomOf="@id/chineseLayout"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginHorizontal="16dp">

    <ImageView

        android:layout_width="40dp"

        android:layout_height="40dp"

        android:src="@drawable/singapore_flag" />

    <TextView

        android:layout_width="0dp"

        android:layout_height="wrap_content"
```

```
    android:layout_weight="1"

    android:text="Singapore (SGD)"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
<TextView
```

```
    android:id="@+id/singaporeText"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="0.00"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />
```

```
</LinearLayout>
```

```
<!-- Italian Layout -->
```

```
<LinearLayout
```

```
    android:id="@+id/italianLayout"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:layout_marginTop="8dp"

    android:padding="10dp"

    android:background="@drawable/tile_background"

    app:layout_constraintTop_toBottomOf="@id/singaporeLayout"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    android:layout_marginHorizontal="16dp">
```

```
<ImageView
```

```
    android:layout_width="40dp"
```

```

        android:layout_height="40dp"

        android:src="@drawable/italy_flag" />

<TextView

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:text="Italy (Euro)"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />

<TextView

    android:id="@+id/italianText"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="0.00"

    android:layout_gravity="center_vertical"

    android:textSize="18sp" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

### File : build.gradle

```

plugins {

    id 'com.android.application'

    id 'com.google.gms.google-services'

}

android {

    namespace 'com.example.currencyconverter'

    compileSdk 33

```

```
defaultConfig {  
    applicationId "com.example.currencyconverter"  
    minSdk 24  
    targetSdk 33  
    versionCode 1  
    versionName "1.0"  
  
    testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"  
}  
  
buildTypes {  
    release {  
        minifyEnabled false  
        proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'),  
'proguard-rules.pro'  
    }  
}  
  
compileOptions {  
    sourceCompatibility JavaVersion.VERSION_1_8  
    targetCompatibility JavaVersion.VERSION_1_8  
}  
}  
  
dependencies {  
    implementation 'androidx.appcompat:appcompat:1.7.0'  
    implementation 'com.google.android.material:material:1.5.0'  
    implementation 'androidx.constraintlayout:constraintlayout:2.1.4'  
    testImplementation 'junit:junit:4.13.2'  
    androidTestImplementation 'androidx.test.ext:junit:1.2.1'  
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.6.1'  
  
    // Retrofit for API Calls
```

```

        implementation 'com.squareup.retrofit2:retrofit:2.9.0'
        implementation 'com.squareup.retrofit2:converter-gson:2.9.0'
        implementation platform('com.google.firebase:firebase-bom:33.4.0')
        implementation 'com.google.firebase:firebase-analytics'

// Firebase

        implementation platform('com.google.firebase:firebase-bom:32.0.0')
        implementation 'com.google.firebase:firebase-database'


// SQLite (Room Library for easier database management)

        implementation 'androidx.room:room-runtime:2.4.3'
        annotationProcessor 'androidx.room:room-compiler:2.4.3'
        buildscript {
            dependencies {
                // Add Firebase plugin
                classpath 'com.google.gms:google-services:4.4.2'
            }
        }
    }
}

```

**File : google-services.json**

```

{
  "project_info": {
    "project_number": "569531593481",
    "project_id": "currency-converter-ec746",
    "storage_bucket": "currency-converter-ec746.appspot.com"
  },
  "client": [
    {
      "client_info": {

```

```
"mobilesdk_app_id": "1:569531593481:android:dd2d6adea44e5edf1459d8",  
"android_client_info": {  
  "package_name": "com.example.currencyconverter"  
}  
},  
"oauth_client": [],  
"api_key": [  
  {  
    "current_key": "AIzaSyDyIbs69Y3atULyM17oYT3xXqFcXLp1L5U"  
  }  
],  
"services": {  
  "appinvite_service": {  
    "other_platform_oauth_client": []  
  }  
}  
},  
"configuration_version": "1"  
}
```

**Output:**



Currency Converter App

Rates as of September 25, 2024


83

AMRITA

VISHWA VIDYAPEETHAM


Enter amount in INR

Convert




USA (USD)

0.00




Albania (Lek)

0.00




Algeria (Dinar)

0.00



China (Yuan)

0.00



Singapore (SGD)

0.00

Currency Converter App

Rates as of September 25, 2024


83

AMRITA

VISHWA VIDYAPEETHAM


Enter amount in INR

Convert




USA (USD)

1.00




Albania (Lek)

120.35




Algeria (Dinar)

124.50



China (Yuan)

7.06



Singapore (SGD)

1.41

