

# Currency Converter

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# 1.Activites

Application consists of one activities:

- a) MainActivity
  - main application activity
  - retrieves data from user
  - calculates data
  - displays results to the user

## 2. Additional classes

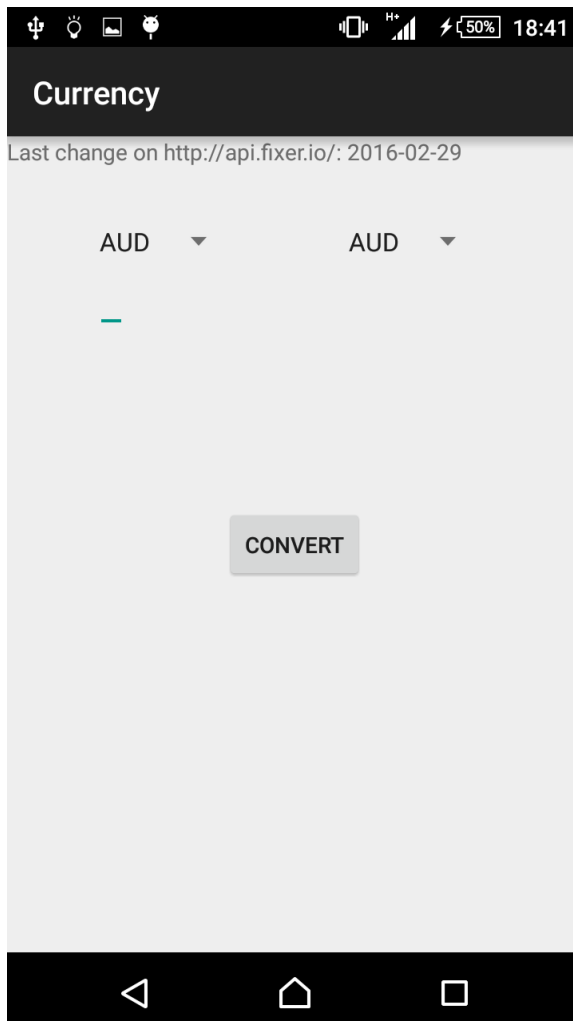
### Applications classes

- AsyncHTTP.java – AsyncTask to make internet connection
- Database.java – contains methods which management database
- HttpToString.java – saving data from URL to String type
- InvokeOnData.java – interface
- Praser.java – parsing JSON data
- Storage.java – storage data before saving to database

**Updater classes** – this classes making auto update data from server starting from 8:00am every each 12 hours:

- AlarmUtils.java
- BootBrodcastRecevier.java
- UpdateBroodcastReceiver.java
- UpdateService.java

### 3.XML Layout



activity\_main.xml – its consist of the:

- RelativeLayout,
- Two TextView's – one to show last date update on server and one to show converted value of currency,
- EditText – to type value that you want to convert,
- Two Spinner's – one (left) to choose what currency you want to exchange and one(right) to choose to what currency you want exchange
- Button – starting converting

```

<?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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity" >

```

```

    <TextView
        android:id="@+id/tvDate"
        android:text="Loading..."
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
    />

```

```

    <Spinner
        android:id="@+id/SpinnerLeft"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:entries="@array/currency"
        android:layout_marginTop="54dp"
        android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_marginLeft="50dp"
        android:layout_marginStart="50dp">
    </Spinner>

```

```

    <Spinner
        android:id="@+id/SpinnerRight"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:entries="@array/currency"
        android:layout_marginLeft="156dp"
        android:layout_marginStart="156dp"
        android:layout_alignTop="@+id/SpinnerLeft"
        android:layout_alignLeft="@+id/SpinnerLeft"
        android:layout_alignStart="@+id/SpinnerLeft">
    </Spinner>

```

```

1 <EditText
2     android:id="@+id/EditTextL"
3     android:layout_width="wrap_content"
4     android:layout_height="wrap_content"
5     android:inputType="numberDecimal"
6     android:digits="0123456789. $"
7     android:layout_below="@+id/SpinnerLeft"
8     android:layout_marginLeft="55dp"
9     android:layout_marginStart="55dp"
10    android:maxLength="6"
11 />
12 <TextView
13     android:id="@+id/textViewR"
14     android:layout_width="wrap_content"
15     android:layout_height="wrap_content"
16     android:inputType="numberDecimal"
17     android:digits="0123456789. $"
18     android:layout_below="@+id/SpinnerRight"
19     android:layout_marginLeft="210dp"
20     android:layout_marginStart="210dp"
21     android:maxLength="18"
22 />
23 <Button
24     android:layout_width="wrap_content"
25     android:layout_height="wrap_content"
26     android:text="Convert"
27     android:id="@+id/button"
28     android:layout_centerVertical="true"
29     android:layout_centerHorizontal="true" />
30 </RelativeLayout>

```

## 4. Manifest.xml

```
<?xml version="1.0" encoding="utf-8" ?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mateusz.currency">

    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
    <uses-permission android:name="android.permission.RECEIVE_BOOT_COMPLETED" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <receiver android:name=".updater.BootBroadcastReceiver" android:enabled="false">
            <intent-filter>
                <action android:name="android.intent.action.BOOT_COMPLETED" />
            </intent-filter>
        </receiver>
        <receiver android:name=".updater.UpdateBroadcastReceiver" />
        <service android:name=".updater.UpdateService" android:exported="false" />
    </application>

</manifest>
```

## 5. Data downloading & storage

Currency exchange rates comes from <http://api.fixer.io/latest>. Data on this URL was in JSON format. Application download data from this URL to String type ([HttpToString.java](#)), next step is parsing data ([Praser.java](#)) and then save it in Storage class ([Storage.java](#)).

Saving to database proceed in [MainActivity.java](#) every running application and in updater classes (auto update every 12h starting from 8:00 am)

## 6. Calculations

To get result of currency exchange, application calculating value by:

$$\mathbf{EValD} / \mathbf{LValD} * \mathbf{RValD}$$

Where:

**EValD** – value which we put in edittext

**LValD**- left spinner currency rate

**RValD**- right spinner currency rate