


Gyalpozhing College of Information Technology
Royal University of Bhutan


# ITW202 MOBILE APPLICATION

## Assignment 02

Section: **IT 'B'**

Name:Tshering Dorji
Enrollment Number: 12190092

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**Module Tutor**: Sonam Wangmo

# 1. Introduction

Currencies are the very important corner that is permanently needed as most of the time we want to satisfy our desires by acquiring commodities and every commodity we want to acquire has its own price. The currency is different for each country due to the economic situation of the state. Each currency has its own currency difference and may rise or fall according to the economic situation of this country.
A conversion rate is the ratio between two currencies, most commonly used in foreign exchange markets, which designates how much of one currency is needed to exchange for the equivalent value of another currency. Conversion rates fluctuate regularly for all currencies. Conversion is the knowledge of the real value of one currency to be converted into another country's currency.
It is difficult to acquire large values of different currencies and it is time consuming to search for it online. Therefore, an application is needed that can easily and accurately get the value after converting different currency to another.

## 1.1 Purpose

### Aim

* To build a well-designed, user friendly and a highly effective android application that can display the different conversion rate of different currencies and to accurately calculate the values of different currency to a desired currency.

### Objectives

* To develop a convenient platform that can find the accurate values of a currency after converting it to another currency.
* To save time.
* To keep people up to date with the different conversion rate of different currencies.

## 1.2 Scope

### System Scope

* To calculate one currency into another in order to check its corresponding value.
* Display the conversion rate of different currencies across the globe.

### User Scope

* People of Bhutan.

# 2. Requirements

## 2.1 Functional Requirements

### Currency Converter:
A user can input the value of a currency and can convert it to it's corresponding value of another currency.

### Conversion Rate
A user can view the conversion rate of different currencies.

## 2.2 Non-Functional Requirements

### Performance Requirement
A user need not have to be connected to internet to use this app. However there will be regular updates in order to keep up with changing conversion rate.

### Software Quality Attributes
The application is easy to use as it has the interface of any other common converter app. Flags of the country will displayed to easily identify the currencies. The application is also uploaded in the Google play store so it will also be available.

## 2.3 Software Requirements

### Developer Requirement
**∗XML 1.0**
XML stands for extensible Markup Language that enables users to define a representation of data or data structure where values are assigned in each field in the structure.

**∗Android studio 4.1.2**
Android Studio is the official Integrated Development Environment (IDE) or a graphical user interface tool for Android app development.

**∗Android Software Development Kit**
The Android SDK (software development kit) is a set of development tools used to develop applications for Android platform. It includes tools such as libraries, Debugger, An emulator, relevant documentation for the Android application program interfaces (APIs), Sample source code, Tutorials for the Android OS. Usually, this tool comes with android studio.

**∗Java Java Development Kit 12**
Java Development Kit contains the software and tools that you need to compile, debug, and run applets and applications that are written using the Java programming language

**∗Firebase**

The Firebase Real Time Database is a cloud-hosted database. Data is stored as JSON and synchronized in real time to every connected client. Firebase uses a non-relational DBMS called NOSQL that does not require a fixed schema, avoids joins, and is easy to scale.

### User Requirement

**∗Android version 5.0(Lollipop) and on wards**

## 3. Hardware Requirements

### Developer Requirement

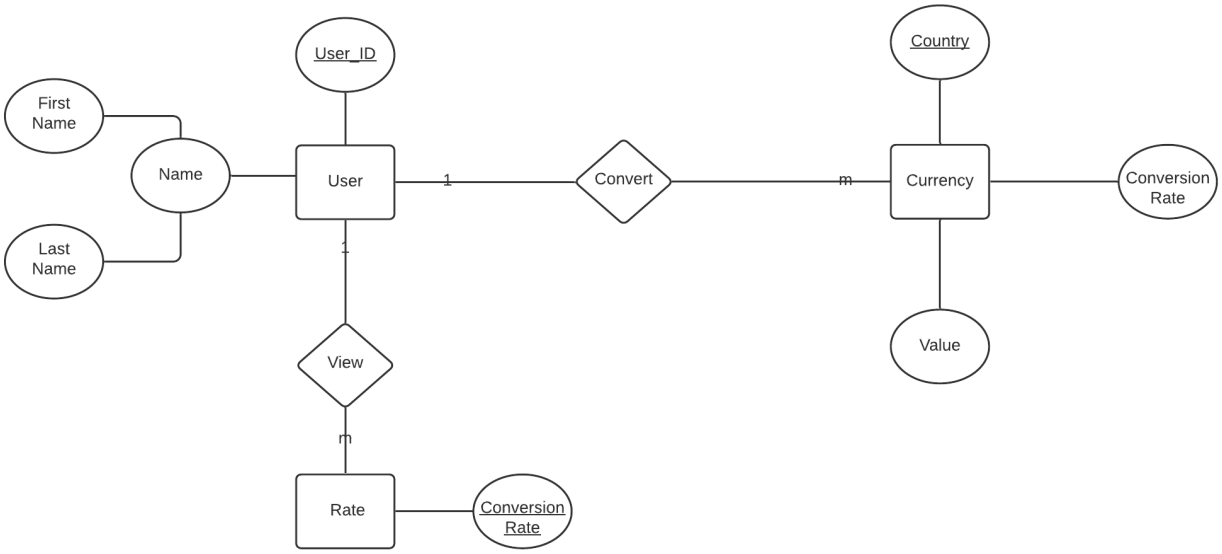
∗ Microsoft Windows 7/8/10 (32-bit or 64-bit)
∗ 3 GB RAM minimum, 8 GB RAM recommended (plus 1 GB for the Android Emulator)
∗ 2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE plus 1.5 GB for Android SDK and emulator system image)

### User Requirement

∗ An android smartphone

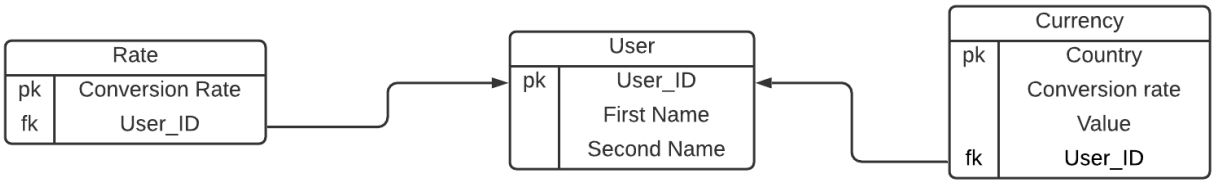
# 4. System Designs

## 4.1 Entity Relationship Diagram



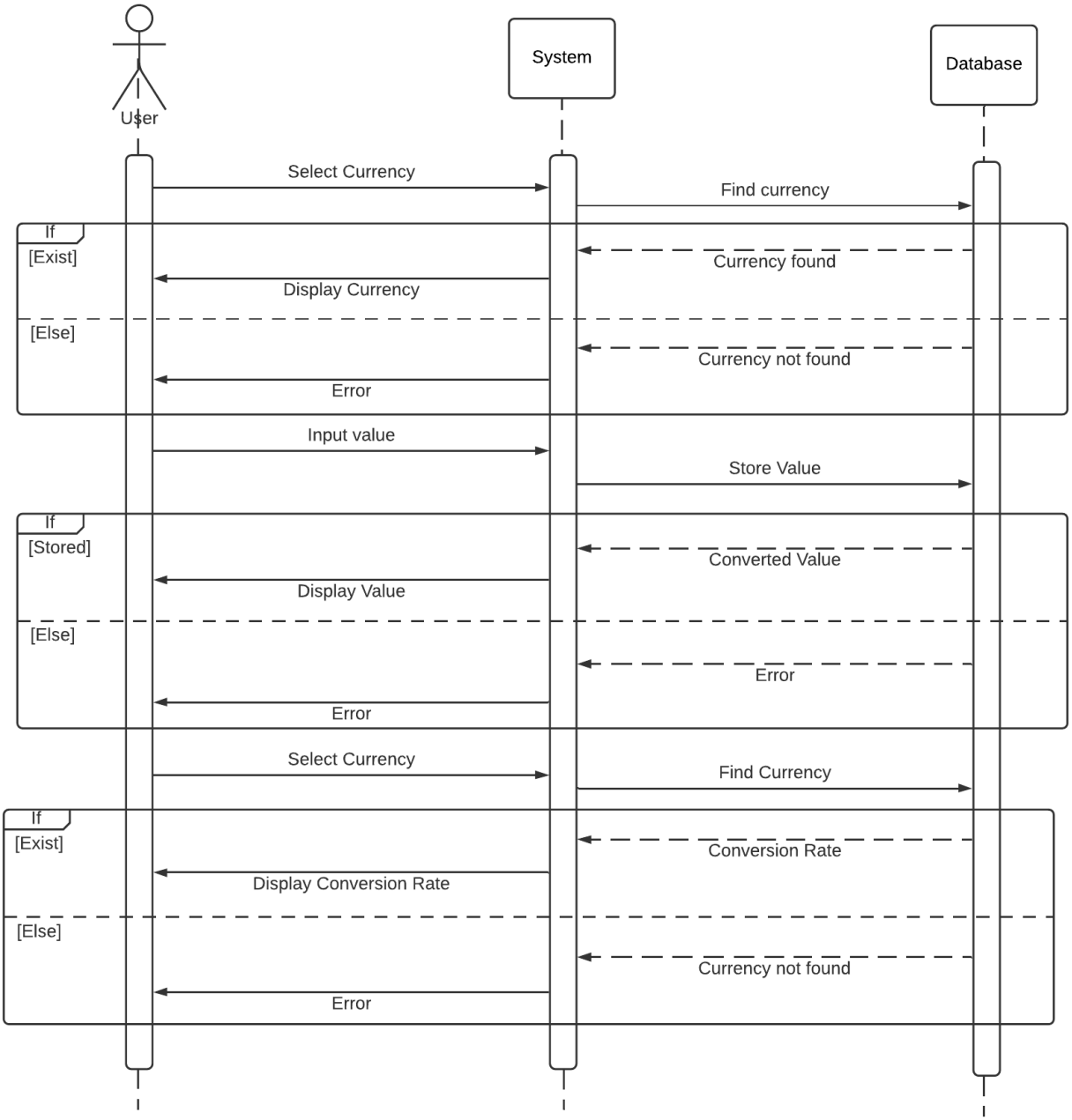

A user will have attributes of Name and primary key of UserID. The currency attribute will have attributes of conversion rate, value and a primary key of country.The rate attribute will have primary key of conversion rate. A user can convert a currency with a cardinality ratio of 1:m, meaning one user can convert more than one currency. A user can view the conversion rate of the currency with the cardinality ratio of 1:m, meaning one user can view more than 1 conversion rate.

## 4.2 Relational Schema



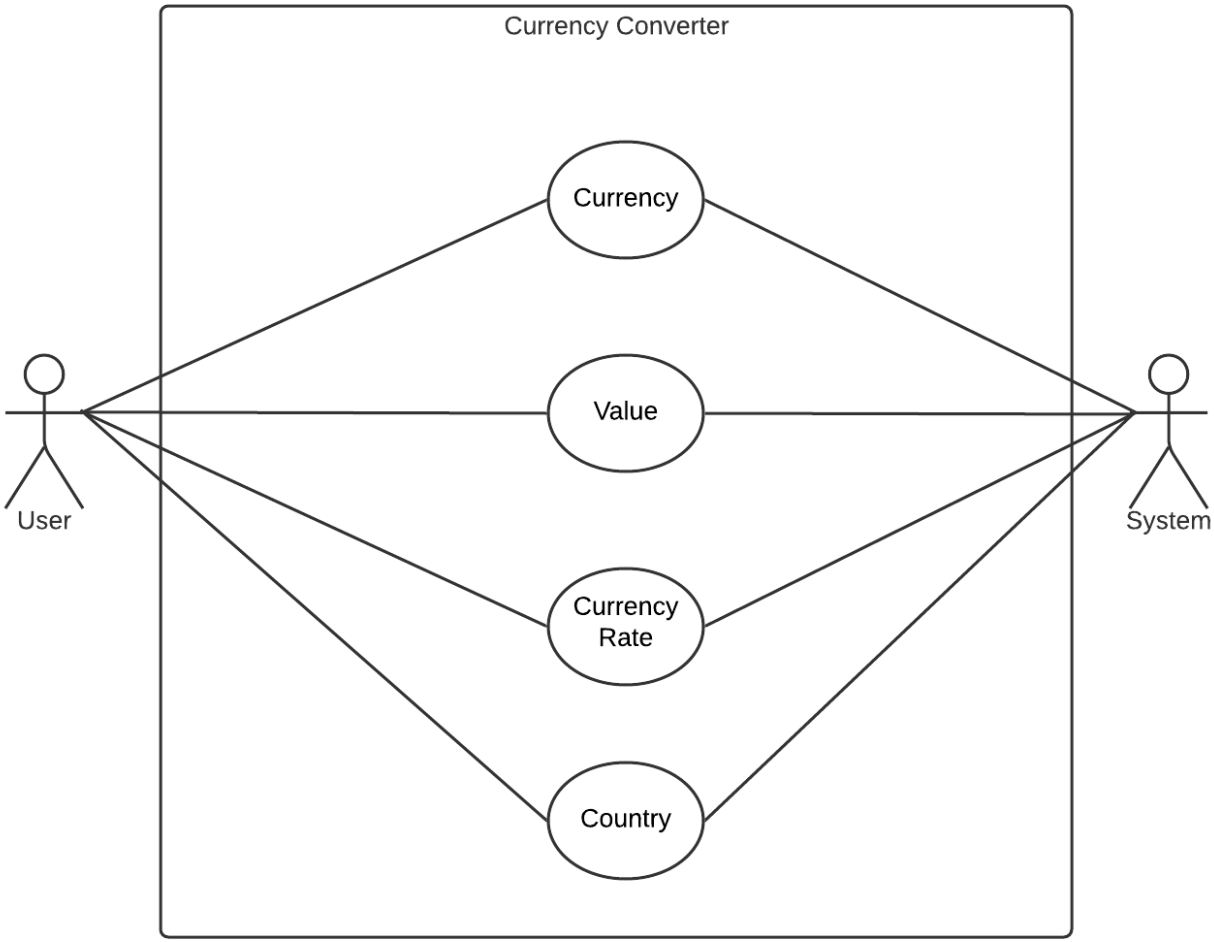

The three entities are displayed with their respective attributes in the table. Since the cardinality ratio between a user and currency is 1:m, the primary key of user will be taken as foriegn key to the Currency table. Similarly since the cardinality ratio between user and Rate is 1:m, the primary key of User is taken as foreign key in Rate table.

## 4.3 Sequence Diagram




A user can select the currency he or she wants and if the currency is available in the database, the specified currency will be displayed. if the currency is not in the database, an error message will be displayed instead. If a User inputs a value to be converted, the system will display the converted value. If due to some technical difficulties, the values are not converted, an Error message will be displayed. A user can check the conversion rate by selecting the currency. If the currency specified is available in the database, the conversion rate will be displayed. If else an Error message will be displayed.

## 4.4 Use Case Diagram




A user can select the currency he or she requires and the system will make sure the specified currency is available or not. The user will then input the value and the system will convert the value to the specified currency. The user can check the currency rate of the specified currency and the to help identify the currency easily, the country flag will be displayed.