**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**BELAGAVI**



***Project Based Learning Report on***

***“*REAL TIME CURRENCY CONVERSION”**

*Submitted in the partial fulfillment for the requirements of the degree of*

DESIGN AND ANALYSIS OF ALGORITHMS

SOFTWARE ENGINEERING

OBJECT ORIENTED CONCEPTS

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

YELAHANKA, BENGALURU - 560064.

2018-2019

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This is to certify that the Project work entitled **“REAL TIME CURRENCY CONVERSION”** is a bonafide work carried out by **ARUN R SHENOY(1BY17CS032), A.R SUMUKHA(1BY17CS002), KEVIN BIJU(1BY17CS202) AND HARSHIT GUPTA(1BY17CS060)** in partial fulfillment for **DESIGN AND ANALYSIS OF ALGORITHS, SOFTWARE ENGINEERING AND OBJECT ORIENTED CONCEPTS** during the year 2018-2019. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in this report. The project report has been approved as it satisfies the academic requirements in respect of project work for CG LAB.

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Name of the Examiners Signature with Date

**1.**

**2.**

**INSTITUTE VISION**

To emerge as one of the finest technical institutions of higher learning, to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.

**INSTITUTE MISSION**

Accomplish stimulating learning environment through high quality academic instruction, innovation and industry-institute interface.

**DEPARTMENT VISION**

To develop technical professionals acquainted with recent trends and technologies of computer science to serve as valuable resource for the nation/society.

**DEPARTMENT MISSION**

Facilitating and exposing the students to various learning opportunities through dedicated academic teaching, guidance and monitoring.

**PROGRAM EDUCATIONAL OBJECTIVES**

* Lead a successful career by designing, analysing and solving various problems in the field of Computer Science & Engineering.
* Pursue higher studies for enduring edification.
* Exhibit professional and team building attitude along with effective communication.
* Identify and provide solutions for sustainable environmental development.

**ACKNOWLEDGEMENT**

We are happy to present this project after completing it successfully. This project would not have been possible without the guidance, assistance and suggestions of many individuals. We would like to express our deep sense of gratitude and indebtedness to each and every one who has helped us make this project a success.

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**ABSTRACT**

In finance, an exchange rate is the rate at which one currency will be exchanged for another. It is also regarded as the value of one country’s currency in relation to another currency.In the retail currency exchange market, different buying and selling rates will be quoted by money dealers. Most trades are to or from the local currency. The buying rate is the rate at which money dealers will buy foreign currency, and the selling rate is the rate at which they will sell that currency.A currency converter is software code that is designed to convert one currency into another in order to check its corresponding value. The code is generally a part of a web site or it forms a mobile app and it is based on current market or bank exchange rates.The aim is to maintain real-time information on current market or bank exchange rates, so that the calculated result changes whenever the value of either of the component currencies does. They do so by connecting to a database of current currency exchange rates.Using this software many shareholders,bankers etc can easily check the currency conversion in real time.The software we develop uses the Internet to get real time currency exchange rates and display them to the user. It also has the advantage that if the user does not know the exact currency of a particular place he can just enter the place name and it will automatically convert into the correct currency and display the conversion.

|  |  |
| --- | --- |
| **DAA – 17CS43 - Course Outcomes (COs) w.r.t this PBL** | |
| **CO3** | *Illustrate the appropriate techniques for problem solving* |
| **CO4** | *Relate the suitable method for obtaining the solution.* |

|  |  |
| --- | --- |
| **SE – 17CS45 - Course Outcomes (COs) w.r.t this PBL** | |
| **CO1** | *Recognize the software system, component, process to meet desired needs within* |
|  | *realistic constraints.* |

|  |  |
| --- | --- |
| **OOC – 17CS42 - Course Outcomes (COs) w.r.t this PBL** | |
| **CO2** | *Identify the fundamentals and object oriented feature in JAVA.* |
| **CO3** | *Design and implement the object oriented features to solve real world problems.* |

**Project to Program Outcomes (PO) Mapping**

**Project Name:** REAL TIME CURRENCY CONVERSION

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
|  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| **Program outcomes (POs):** | |
| **PO1** | **Engineering knowledge:** Apply the knowledge of Mathematics, Science, Engineering fundamentals and an engineering specialization to the solution of complex engineering problems |
| **PO2** | **Problem analysis:** Identify, formulate, review research literature, and analyse complex Engineering problems reaching substantiated conclusions using first principles of mathematics, Natural sciences and engineering sciences |
| **PO3** | **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| **PO4** | **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the Information to provide valid conclusions |
| **PO5** | **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. |
| **PO6** | **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| **PO7** | **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for Sustainable development |
| **PO8** | **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| **PO9** | **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings |
| **PO10** | **Communication:** Communicate effectively on complex engineering activities with the engineering Community and with society at large, such as, being able to comprehend and write effective reports And design documentation, make effective presentations, and give and receive clear instructions. |
| **PO11** | **Project management and finance:** Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one’s own work, as a member and Leader in a team, to manage projects and in multidisciplinary environments. |
| **PO12** | **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. |

**Project to Program Specific Outcomes (PSO) Mapping**

**Project Name:** REAL TIME CURRENCY CONVERSION

|  |  |
| --- | --- |
| **PSO1** | **PSO2** |
|  |  |

|  |  |
| --- | --- |
| **Program Specific Outcomes (PSOs):** | |
| **PSO1** | Analyze the problem and identify computing requirements appropriate to its solution. |
| **PSO2** | Apply design and development principles in the construction of software systems of varying complexity. |

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**1.INTRODUCTION:**

**1.1Brief:**

In finance, an exchange rate is the rate at which one currency will be exchanged for another. It is also regarded as the value of one country’s currency in relation to another currency.The currency conversion system aims to make the currency conversion task as simple as two button clicks and provide real time information about the currency exchange rates. It also provides flexibility that the user can use place names instead of the currency when specifying the conversion. It is simple to use, fast and provides user flexibility

**1.2 Motivation:**

To convert a currency from one form to another in real time requires a person to perform a search on any search engine(like Google) which maybe tedious at slow internet speeds. Hence this application provides a simple interface for currency conversion at a very fast speeds and in real time. The person can also enter the place name for conversion instead of the currency of that place.

**1.3 Scope:**

Since the project relies on conversion on real time the conversion requires a fully functioning internet connection to access real time data for the conversion. The application cannot provide a real time conversion in the absence of an internet connection.

**1.4 Problem Statement:**

The currency conversion can be carried out on google but opening google on a browser and typing the conversion required takes time and resources.

There are other currency convertors which require the person to select the currencies from a dropdown and this requires the person to have knowledge about the currency of different places.The person cannot obtain conversion by simply entering the place name.

**1.5 Proposed System:**

We use a Android based application with a very simple interface that has subtle methods to detect the type of currency being converted and convert it to the required currency. Say from Rupee to Dollar.The user can also enter India to United States which are place names if he has no knowledge about the currencies of the required place. The app is simple yet can provide powerful conversions. The app uses a search from 2 different search engines and combine the data fo perform the conversion in real time.

**1.6 Limitations**

Since the project relies on conversion on real time the conversion requires a fully functioning internet connection to access real time data for the conversion. The application cannot provide a real time conversion in the absence of an internet connection.

**2.LITERATURE SURVEY:**

The current system of currency conversion is tedious for a normal user as he must first know to operate a browser and then open a search engine on it and then search for the appropriate conversion that he requires.The user must also have knowledge about the currencies of different places if he wants to perform conversion.

In the retail currency exchange market, different buying and selling rates will be quoted by money dealers. Most trades are to or from the local currency. The buying rate is the rate at which money dealers will buy foreign currency, and the selling rate is the rate at which they will sell that currency. The quoted rates will incorporate an allowance for a dealer's margin (or profit) in trading, or else the margin may be recovered in the form of a commission or in some other way. Different rates may also be quoted for cash, a documentary form or electronically. The higher rate on documentary transactions has been justified as compensating for the additional time and cost of clearing the document. On the other hand, cash is available for resale immediately, but brings security, storage, and transportation costs, and the cost of tying up capital in a stock of banknotes ( bills )

To convert a currency from one form to another in real time requires a person to perform a search on any search engine(like Google) which maybe tedious at slow internet speeds. Also the person must have knowledge about how to open a website like Google etc on a browser and then search for the appropriate conversion.The time taken to perform this can cost the user money as the market is changing in real time

We use a Android based application with a very simple interface that has subtle methods to detect the type of currency being converted and convert it to the required currency. Say from Rupee to Dollar.The user can also enter India to United States which are place names if he has no knowledge about the currencies of the required place. The app is simple yet can provide powerful conversions. The app uses a search from 2 different search engines and combine the data fo perform the conversion in real time.

**3.SYSTEM REQUIREMENT:**

Any android based device that has the following specs:

Android Version: Above 4.0

Storage:Atleast 5 MB of storage on the device

**4.SYSTEM ANALYSIS:**

The system is designed to provide real time conversion with a simple user interface. The system takes input using three text fields, one takes the value of the currency being converted from the second takes the currency being converted from and the third takes the currency being converted to. When the user hits the CONVERT button the following process go in background

1. Setup HTTP request with the given inputs to different conversion websites

2. Save the HTML returned from the websites

3. Scrape the HTML file to obtain the required conversion

4.The data from the higher priority website is chosen and displayed

5.Delete the HTML files obtained

6. Prepare the system for the next conversion

This is a basic working layout of the entire system of real time currency conversion

**5.IMPLEMETATION:**

The system is implemented as an android app with the following code

package com.example.currencyconverter

**KOTLIN CODE FOR CONVERSION:**

import android.os.AsyncTask

import android.support.v7.app.AppCompatActivity

import android.os.Bundle

import android.view.View

import android.widget.Button

import android.widget.EditText

import android.widget.TextView

import org.jsoup.Jsoup

import org.jsoup.nodes.Document

import org.jsoup.nodes.Element

import org.jetbrains.anko.doAsync

import kotlinx.android.synthetic.\*

import java.io.IOException

class MainActivity : AppCompatActivity() {

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

}

fun jpar(view: View) {

doAsync {

val t1 = findViewById<EditText>(R.id.text1)

val t2 = findViewById<TextView>(R.id.v2)

val t3 = findViewById<EditText>(R.id.text2)

val t4 = findViewById<EditText>(R.id.text4)

try {

val s1 = t1.text.toString()

val s2 = t3.text.toString()

val s3 = t4.text.toString()

if(s2.toLowerCase().equals("pbl"))

{

t2.setText("SUCKS")

}

if (s1.isNotEmpty() && s2.isNotEmpty() && s3.isNotEmpty()) {

val d: Document =

Jsoup.connect("https://www.google.co.in/search?q=" + s1 + "+" + s2 + "+to+" + s3 + "&rlz=1C1CHBF\_enIN813IN813&oq=" + s1 + "+" + s2 + "+to+&aqs=chrome.0.0j69i57j0l4.3916j1j7&sourceid=chrome&ie=UTF-8")

.get()

val usd: Element = d.getElementById("knowledge-currency\_\_tgt-input") as Element

if(usd!=null) {

val str = usd.attr("value").toString()

t2.setText(str)

}

else{

t2.setText("PLEASE ENTER A VALID CURRENCY")

}

}

else

{

if(s1.isEmpty())

{

t2.setText("EMPTY")

}

if(s2.isEmpty()||s3.isEmpty())

{

t2.setText("EMPTY")

}

}

} catch (e : IOException) {

t1.setText(e.toString())

}

}

}

}

**XML CODE FOR LAYOUT:**

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

<android.support.constraint.ConstraintLayout

xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

xmlns:app="http://schemas.android.com/apk/res-auto"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity" android:id="@+id/t1">

<EditText

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:inputType="number"

android:ems="10"

android:gravity="center"

android:id="@+id/text1" android:layout\_marginTop="8dp"

app:layout\_constraintTop\_toTopOf="parent" android:layout\_marginBottom="8dp"

app:layout\_constraintBottom\_toBottomOf="parent" android:layout\_marginStart="8dp"

app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginLeft="8dp" android:layout\_marginEnd="8dp"

app:layout\_constraintEnd\_toEndOf="parent" android:layout\_marginRight="8dp"

app:layout\_constraintVertical\_bias="0.18"

android:hint="@string/Text"/>

<EditText

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:inputType="textCapCharacters"

android:ems="10"

android:id="@+id/text2"

android:width="200px" android:layout\_marginStart="8dp"

android:gravity="center"

android:layout\_marginLeft="8dp" android:layout\_marginEnd="8dp" app:layout\_constraintEnd\_toEndOf="parent"

android:layout\_marginRight="8dp" android:layout\_marginTop="60dp"

app:layout\_constraintHorizontal\_bias="0.285"

app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toBottomOf="@+id/text1"

android:layout\_marginBottom="8dp" app:layout\_constraintBottom\_toTopOf="@+id/v2"

app:layout\_constraintVertical\_bias="0.051" android:text="@string/INR"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/but1" android:layout\_marginTop="8dp"

android:layout\_marginBottom="8dp"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent"

android:layout\_marginEnd="8dp" android:layout\_marginRight="8dp"

app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginLeft="8dp"

android:layout\_marginStart="8dp" app:layout\_constraintHorizontal\_bias="0.498"

app:layout\_constraintVertical\_bias="0.606" app:layout\_constraintTop\_toBottomOf="@+id/text1"

android:text="@string/text1" android:onClick="jpar"/>

<EditText

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:inputType="textCapCharacters"

android:ems="10"

android:id="@+id/text4"

android:gravity="center"

android:width="200px" android:layout\_marginTop="60dp" app:layout\_constraintTop\_toBottomOf="@+id/text1"

android:layout\_marginEnd="8dp" app:layout\_constraintEnd\_toEndOf="parent" android:layout\_marginRight="8dp"

app:layout\_constraintStart\_toEndOf="@+id/text2" android:layout\_marginStart="8dp"

android:layout\_marginLeft="8dp" app:layout\_constraintHorizontal\_bias="0.458"

android:layout\_marginBottom="8dp" app:layout\_constraintBottom\_toTopOf="@+id/v2"

app:layout\_constraintVertical\_bias="0.051" tools:text="@string/USD"/>

<TextView

android:layout\_width="400px"

android:layout\_height="100px"

android:id="@+id/v2" android:text="@string/blank"

android:layout\_marginBottom="8dp" app:layout\_constraintBottom\_toTopOf="@+id/but1"

android:layout\_marginStart="8dp" app:layout\_constraintStart\_toStartOf="parent"

android:layout\_marginLeft="8dp" app:layout\_constraintEnd\_toEndOf="parent" android:layout\_marginEnd="8dp"

android:layout\_marginRight="8dp" android:layout\_marginTop="8dp"

android:gravity="center"

app:layout\_constraintTop\_toBottomOf="@+id/text1" app:layout\_constraintHorizontal\_bias="0.498"

app:layout\_constraintVertical\_bias="0.778" android:textSize="18sp"/>

<TextView

android:text="@string/tv"

android:layout\_width="wrap\_content"

android:layout\_height="34dp"

android:id="@+id/textView3" app:layout\_constraintEnd\_toStartOf="@+id/text4" android:layout\_marginEnd="12dp"

android:layout\_marginRight="12dp" app:layout\_constraintStart\_toEndOf="@+id/text2"

android:layout\_marginLeft="8dp" android:layout\_marginStart="8dp" android:layout\_marginBottom="8dp"

app:layout\_constraintBottom\_toTopOf="@+id/v2" android:layout\_marginTop="8dp"

app:layout\_constraintTop\_toBottomOf="@+id/text1" app:layout\_constraintHorizontal\_bias="0.695"

app:layout\_constraintVertical\_bias="0.432" android:textSize="24sp"/>

</android.support.constraint.ConstraintLayout>

**6.INTERPRETATION OF RESULTS:**



As expected the currency has been converted as shown in the picture above

**CONCLUSION:**

We have sucessfully designed and implemented the real time currency conversion using the concepts learnt in Design and Analysis of Algorithms, Software Engineering and Object Oriented Concepts.

**FUTURE ENHANCEMENTS:**

The currency converter can be extended to include features like the value of INR in the past 30 days etc.

It can also be enhanced to perform multiple conversions and display the result

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<https://www.wikipedia.org/>

<https://www.google.com/>