

MCSD 6215 Project 1 Proposal Form.docx

by Cheng Yun MCS241014

Submission date: 30-Nov-2024 04:42AM (UTC-0800)

Submission ID: 2522001965

File name: MCSD_6215_Project_1_Proposal_Form.docx (59.85K)

Word count: 676

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SCHOOL OF COMPUTING
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Project Proposal Form MCSD 6215

Sem:..... Session:.....

SECTION A: Project Information.

Program Name: **Masters of Science (Data Science)**

Subject Name: **Project 1 (MCSD 6215)**

Student Name: Cheng Yun

Metric Number: MCS241014

Student Email & Phone: chengyun@graduate.utm.my +60147703792

Project Title: Analysing and predicting the foreign exchange rate basing on the Chinese Yuan (CNY) and the U.S. Dollar (USD)

Supervisor 1:

Supervisor 2 / Industry

Advisor(if any):

SECTION B: Project Proposal

Introduction:

Predicting future foreign exchange rate is quite significant for most transnational enterprises and even for domestic central bank. First of all, foreign exchange means currency exchange between different countries. There are many factors to affect foreign exchange rate such as inflation, interest, balance of payment, relevant risks and so on. However, CPI (inflation) is basic factor and won't influence FOREX (Foreign Exchange Rate) clearly under 10%(CPI). Interest is a major factor which affect it obviously. Basing on analysing history data from interest, CPI and balance of payment, including considering domestic risks and rate of national debt, it will make a predicable data model to forecast the future Forex situation.

Problem Background:

According to the 2022 financial report of Google and Apple, we can clearly find the fact: Google lost approximate 1.511 billion dollars and Apple lost 1.836 billion dollars because of foreign exchange. Additionally, speaking about Forex, you have to mention Argentina. Because of rapidly devaluing of Argentina Pesos (comparing with USD), Argentina's poverty rate has recently climbed significantly, reaching over 52.9% (25.7% in 2018) in the first half of 2024, impacting roughly 25 million people. (report from UCA Social Debt Observatory)

Problem Statement:

1. Normally, many people face the problem lacking valuable financial knowledge, rather than Forex market. A useful and efficient data predicting model benefit their interest.

2. International businesses face Forex risk in nearly every transaction, which can decrease interest and increase costs if exchange rates shift unstably. This uncertainty leads companies to rely on hedging strategies, which can be costly and complex. Developing improved methods for managing currency risk, especially for small and medium-sized enterprises, is a critical issue in maintaining global trade efficiency.

Aim of the Project:

This project aim to build a CNY-USD Forex predicting model which can help Chinese people to address currency events when they facing exchange foreign rate problem.

Objectives of the Project:

To identify those data from Forex within decade years and collect these data by using data mining.

To establish a analysis model to address these data and find strong foreign exchange rate's relationship with factors, and then forecast the future trending basing on those data.

Scopes of the Project:

This project only involves the Forex changing data from between CNY and USD.

To ensure the accuracy of the analysis model, the project will adopt data from 1970 to 2023. This large scale time will significantly implement the success and stability of the model.

This project will engage in Machine Learning to analyse the data and the result will be displayed by Power BI.

Expected Contribution of the Project:**Project Requirements:**

Software: _____

Hardware: _____

Technology/Technique/
Methodology/Algorithm: _____

Type of Project (Focusing on Data Science):

☐ Data Preparation and Modeling

☐ Data Analysis and Visualization

☐ Business Intelligence and Analytics

☐ Machine Learning and Prediction

☐ Data Science Application in Business Domain

Status of Project:

☐ New

☐ Continued

SECTION C: Declaration

I declare that this project is proposed by:

[] Supervisor/Industry Advisor ()

The Supervisor(s) shall complete this section.

$$X_{\text{max}} = 1 - \frac{1}{1 + \exp(-\ln(1 + \exp(-1)) \cdot G_{\text{max}} - 1) + \exp(-1) \cdot G_{\text{max}} - 1) \cdot \ln(1 + \exp(-1))}$$

Name of Supervisor 1:

The Evaluator(s) shall complete this section.

☐ FULL APPROVAL ☐ CONDITIONAL APPROVAL (Major)*

* Student has to submit new proposal form considering the evaluators' comments.

Signature

Date _____

Signature

Date _____

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