U Mobile Cryptocurrency Prediction Software

Project Plan

Code Black

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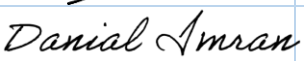
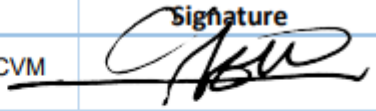
DOCUMENT CHANGE CONTROL

Version	Date	Authors	Summary of Changes
6	10/10/2022	*Bernard Joshua*	GitHub Standards
7	1/9/2022	Bernard Joshua	Document Standards
8	2/9/2022	Bernard Joshua	OneDrive Procedure, Documentation Procedure

DOCUMENT SIGN OFF

Name	Position	Signature	Date
Bernard Joshua	*Team Leader/Data Engineer*		2/9/2022
Lionel Low	*Backend Engineer*		2/9/2022
Danial Imran	*Frontend Engineer*		2/9/2022
Ming Xuan	*Frontend Engineer*		2/9/2022
Robina D. Tinawin	*Project Supervisor*		2/9/2022

CLIENT SIGN OFF

Name	Position	Signature	Date
Chew Yew Choong	Head of Data Science & CVM		25/06/2022
Organisation			
U Mobile Sdn Bhd			

CONTENTS

Document Change Control 2

Document Sign Off 2

Client Sign off 2

Contents 3

Introduction 1

1.1. Background 5

1.2. Key Project Personnel 5

1.2.1. Client 5

1.2.2. Other Stake holders 5

1.2.3. Project Supervisor, Team Leader and Key Project Members 6

2. Terms of Reference 7

2.1. Objectives 7

2.2. Scope 8

2.3. Critical Success Factors 8

2.4. Acceptance Criteria 8

3. Establishment 9

3.1. Processes, Procedures and Standards 9

3.2. Project Environment 9

3.3. Project Team Skill Development Requirements 10

4. Deliverables, Activities and Capital Resources 10

4.1. Deliverables 10

4.2. Activities 10

4.3. Resources 10

5. Organisation and Structure 11

6. Risks 12

7. Schedule 13

7.1. Project Time Line 13

7.2. External Dependencies 13

7.3. Assumptions 13

8. Budget 14

9. References 15

INTRODUCTION

To highlight and outline the project's purpose, cost, process, etc. It aims to help the individual reading it to make informed decisions about the project.

1.1. BACKGROUND

The client is a telecommunications service provider, who would like to get into the business of digital assets to expand their business domain. This comes at a time when the market conditions prove favorable to technology-based businesses to offer crypto-based services to its users. Hence, the client Has enlisted the help of our team to come up with a project that will develop an Artificially Intelligent crypto prediction software to be able to predict the price of specific crypto assets. This project will involve the team to do research on several machine learning algorithms and use the best one as per the clients request for the software. While at the same time developing a frontend service (UX Interface) for users to use to get the results of the prediction software. The project will also focus on using the latest technologies in the tech industry to further enhance the software to help the client better utilize it, by focusing on technologies that can help the client scale up the software faster as well as reduce the costs of maintenance in the long term.

1.2. KEY PROJECT PERSONNEL

The key personnel involve in this project are as follows:

1.2.1. CLIENT

U Mobile is one of the youngest data-centric telco companies in Malaysia. Founded in 1998 as MiTV Networks Sdn Bhd. U Mobile is a wholly owned subsidiary of U Television Sdn Bhd. Despite being the youngest telco company in the country they are well established with many achievements under their belt. They do not only provide telco services but have also established a comprehensive fintech ecosystem which comprises of GoPayz a universal e-wallet which provides both financial and lifestyle services as well as GoBiz a digital payment system designed for business of various sizes.

1.2.2. OTHER STAKE HOLDERS

Stakeholder	Description
Existing U Mobile users.	Success of the project will give the existing U Mobile users greater access to digital assets such as crypto by allowing then to make informed investment decisions relating to cryptocurrencies.
Greater Malaysian public.	There has been a rise in demand for services relating to cryptocurrencies. The success of this project will give Malaysians more options when it comes to cryptocurrency statistics and data analytics.

1.2.3 PROJECT SUPERVISOR, TEAM LEADER, AND KEY PROJECT MEMBERS:

Name	*Role*	*Contact*
Robina D. Tinawin	*Project Supervisor*	*rtinawin@swin.edu.au*
Bernard Joshua	*Team Leader/Data Engineer*	*103365867@student.swin.edu.au*
Lionel Low	*Backend Engineer*	*103235180@student.swin.edu.au*
Danial Imran	*Frontend Engineer*	*103701416@student.swin.edu.au*
Ming Xuan	*Frontend Engineer*	*103701377@student.swin.edu.au*

2. TERMS OF REFERENCE

The goal of the project is to research machine learning algorithms and come up with the best algorithm to be used in predicting the performance of specific cryptocurrencies ***(client has stated up to 3 cryptocurrencies of the development teams choosing)****. It must then be deployed on a web service via aUI interface for ease of use by individual users. The intended user groups would be existing U Mobile* ***(client)*** *users and the greater Malaysian public* ***(any Malaysian interested in Crypto)****.*

2.1. OBJECTIVES

Objective	***Description***
Come up with a comprehensive report on best suited machine learning algorithms to be used in predicting cryptocurrencies.	*In the initial meeting with the client the client has indicated that, the main focus of the project should be researching about the best machine learning algorithms to be used in performance prediction of cryptocurrencies. Hence the project will focus on this heavily all the while recording the findings of the research and compiling them into a comprehensive report.* ***(This will be done simultaneously while developing the backend part of the software.)***
Machine Learning Software/Algorithm with an acceptable degree of accuracy.	*The project will also focus on getting some tangible results from the algorithm that will be researched and chosen so that the software can "deployable" to a certain degree.*
User Interface with good heuristic principles met.	*Since the software that is to be developed is to be deployed via a web service the industry standard of UX design will be met. In relation to that the client's preference of having the UX look similar to the UX of the social trading platform "Etoro" will also be met.*
Exploring availabilities for project enhancements. (Scalability, Security and Cost Effectiveness)	*To further expand on the project capabilities, we will be looking for ways to ensure that the project can be scaled up by the client in the future if they wish to do so. We will also ensure that the security of the application that will be produced is also met as it will be handling data sensitive to the client. Besides that, we will also look for ways to ensure that the project's cost can be reduce over time as well as the cost of maintaining the software that will be produced will always be low.*

2.2. SCOPE

Within Scope:

- *Will research machine learning algorithms and decide on the best possible one to use to predict cryptocurrency performance.*
- *Will look for ways to ensure the scalability, security, and maintenance of the application/software in the long term would be feasible.*
- *Integrate the machine learning algorithms with web services for deployment.*
- *Follow industry standards for frontend, backend development and documentation.*

Out of Scope:

- *Integrate any sort of blockchain systems into the software.*

2.3. CRITICAL SUCCESS FACTORS

Factors	***Description***
Knowledge and expertise of the team.	*As all team members are still university students. How much the team manages to learn before developing the project will greatly influence the research of the machine learning algorithms as well as the development of the prediction software.*
Timeline and team's personal schedule.	*Due to the team being full time university students they may have additional workload from other subjects they are taking that semester. This would affect the amount of effort that the team can put into the project and may result in some deadlines not being met, especially during exam periods.*
Support from Client	*Getting the necessary support such as data and feedback from the client will also greatly influence the project's success.*

2.4. ACCEPTANCE CRITERIA

Acceptance Criteria	**How the Client would Measure This**
Prediction algorithm has an accuracy of atleast 60%	Client will be able to measure this by comparing the predictions of the algorithm to the closing price of the cryptocurrency in question over a span of one week.
User Interface has at least 90% of heuristic principles met.	Client can measure this with revieing the specific usability requirements that the team has carried out. If 90 percent of the requirements are met then the criteria is met.
Software has acceptable scalability.	Client can carry out a scalability analysis to estimating how its performance varies as a function of the input size growth and the numbers of processors

Software's security meets the specific ISO/IEC 9126 standards for quality.	Client can review results of the teams quality testing and determine if it meets the clients standards or the client can carry out a full security risk assessment on it.

3. ESTABLISHMENT

3.1. PROCESSES, PROCEDURES AND STANDARDS

Agile development methodology

The software development method that we will be adopting for the project will be Agile development methodology. We will be using this methodology as we have learnt this skill during our previous semester. The agile development methodology is also chosen as we can minimize risk such as bugs, cost overruns, and changing requirements when adding new functions to our project as according to agile SDLC, we will be having 2-week sprints to discuss and get feedback from our project employer. After each sprint, we will plan and react based on feedback given.

One of the main processes that will be adopted in the project is also the primary benefit of agile software development which is that it allows our project software to be released in iterations. Iterative releases improve efficiency by allowing our team to find and fix defects and align expectation early on. They also allow users to realize software benefits earlier, with frequent incremental improvements during each of our testing phases.
Besides that, we will have meetings with our project employer as stated to communicate freely and gain insight on UCD integration.

Procedure on Documentation

- Last person editing a file has to store it on OneDrive.
- All documents must get an unofficial approval from me before submission or sending to the employer.

Coding standards:

- Limited use of globals
- Standard headers for different modules
- Naming conventions for local variables, global variables, constants and functions
- Indentation
- Error return values and exception handling conventions
- Avoid using a coding style that is too difficult to understand
- Avoid using an identifier for multiple purposes
- Code should be well documented i.e.comments

Document Formatting Standards:

- Font to be used is Segoe UI.
- Heading 1, font size 16.
- Heading 2, font-size 14 and so on.
- Margins: 1 Inch.
- Content Justify

GitHub Naming Procedure:

- Use convention {team}_{name}_{what did you do}
- Follow file structure as main.

3.2. PROJECT ENVIRONMENT

- A room in INTI Subang that will be used to carry out our physical meetings and development.
- Personal Computers/Laptops

3.3. PROJECT TEAM SKILL DEVELOPMENT REQUIREMENTS

Project team will need to research and learn about Cryptocurrency, Machine Learning Algorithm, Django Framework, and SQLite

4. DELIVERABLES, ACTIVITIES AND CAPITAL RESOURCES

4.1. DELIVERABLES

- Prototype of the UI by first phase (By end of this semester - July)
- Working software by end of second phase (By end of next semester – December)
- Test results for UI
- Test results for Prediction Algorithm
- User manual for Application
- Debug manual for Application

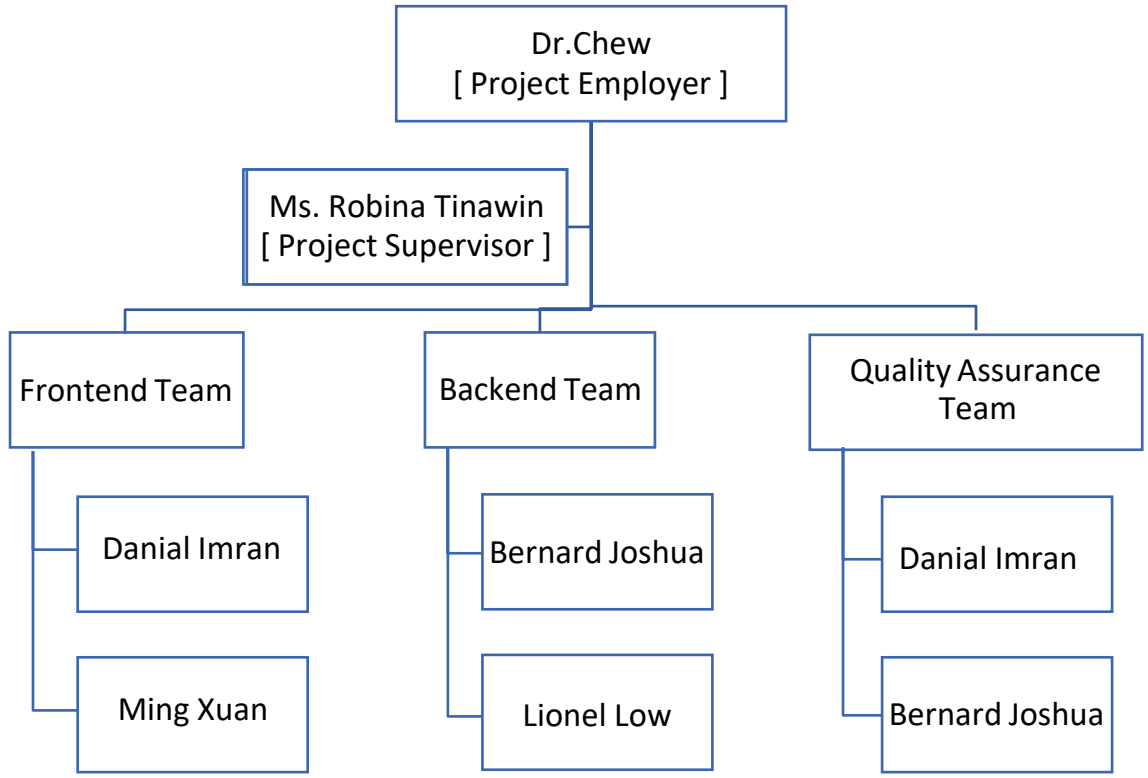
4.2. ACTIVITIES

- Research of UI Frameworks.
- Research of the Machine Learning Algorithms.
- Development of User Interface.
- Development of Prediction Algorithms
- Testing UI of the Application
- Testing Prediction Software (Backend)
- Security Testing (And any other tests)

4.3. RESOURCES

- A room that will be used to carry out our physical meetings and development.

5. ORGANISATION AND STRUCTURE



Deliverables	Frontend Team	Backend Team	QA Team
Prototype of the UI by first phase (By end of this semester - July)	✅		
Working software by end of second phase (By end of next semester – December)	✅	✅	
Test results for UI			✅
Test results for Prediction Algorithm			✅

Table 5.1 Roles based on Deliverables

Activities	Frontend Team	Backend Team	QA Team
Research of UI Frameworks.	✅		
Research of the Machine Learning Algorithms.		✅	
Development of User Interface.	✅		
Development of Prediction Algorithms		✅	
Testing UI of the Application			✅
Testing Prediction Software (Backend)			✅
Security Testing (And any other tests)			✅

Table 5.2 Roles based on Activities

6. RISKS

Risks associated with this project.

Rank	Name / Description	Occurrence Probability (H/M/L)	Severity (H/M/L)	Mitigation Strategy Number	Contingency
1	Miscommunication or Lack of Communication causing confusion	M	M	Have frequent communications with everyone to ensure they are clear on the tasks and goal of the project. Make use multiple communication channels	Clear up and correct the misunderstanding immediately. If needed reclarify with project sponsor to ensure everyone is on the same page.
2	Project schedule not properly defined/ misunderstood	L	M	Go through the schedule before an upcoming task together with team.	Work together with all team members on creating a new schedule. Worst case meet with project sponsor to request changes to schedule
3	Conflicts during project which are unable to be handled within timely manner	L	M	Hold regular meetings with team and lookout for conflict between members	If needed get help from project supervisor and sponsor in order to resolve conflict immediately
4	Delays on earlier task affecting ability to complete	M	H	Use good project management practices like work breakdown structure to help create accurate project plan.Frequently check the Gantt Chart to be able to catch if task are not behind schedule	Worst case have to ask project sponsor for changes to schedule

Table 6.1 Risks

7. SCHEDULE

7.1. PROJECT TIMELINE

Please refer to the Gantt chart (Excel File) that was attached with this file.

7.2 EXTERNAL DEPENDENCIES

No known external dependencies needed.

7.3 ASSUMPTIONS

Assumed each sprint will need 2 weeks and each activity within the sprint can be completed within that time frame. The project plan also assumes that 5 sprints will be enough to finish the project.

8. BUDGET

Personnel Cost

Name	Rate per Hour
Bernard Joshua	RM 5
Lionel Low	RM 5
Danial Imran	RM 5
Cheong Ming Xuan	RM 5

Table 8.1 Personnel Cost

Time Estimated to Complete Each Task

Activity	Task	Estimated days needed (days)	Total per activity (days)
Sprint 1	Research Front-end Framework	14	
	Research ML algorithms	14	
			14
Sprint 2	Develop Front-end Prototype	14	
	Documentation	14	
	Prototyping ML algorithms	14	
	Documentation	14	
			14
Sprint 3	Implement Front-end	14	
	Documentation	14	
	Implement ML algorithm	14	
	Documentation	14	
			14
1Sprint 4	Debugging and testing	14	
	Documentation	14	
	Training ML algorithm	14	
	Documentation	14	
			14
Sprint 5	Testing Front-end	14	
	Testing Algorithm	14	
	Creating User Manual	14	
	Creating Debug Manual	14	
			14
		Total	
			70

Table 8.2 Task time estimate

9. REFERENCES

- Docs.microsoft.com. 2022. *Azure documentation*. [online] Available at: <https://docs.microsoft.com/en-us/azure/?product=popular> [Accessed 20 April 2022].
- U.com.my. 2022. *Our Company | U Mobile*. [online] Available at: <https://www.u.com.my/en/about-us/our-company> [Accessed 22 April 2022].