CINNAMON AI

**2020 TAIWAN BOOTCAMP**

7th JULY 2020 – 14TH AUGUST 2020

**PROJECT PROGRESS REPORT:**

**INTEGRATING LANGUAGE MODEL WITH ASSET ALLOCATION MODEL**

**Group 1**

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Executive Summary

The increasing demand and dominance of NLP makes it a target to financial market where investors hope trade execution be carried out automatically. This work addresses the problem by combining language model and asset allocation model. First, we utilize a smaller general-purpose language representation model called DistilBERT to extract sentence embedding for financial news of S&P500. Second, we exploit semantics from DistilBERT as unique views inputs for Black-Litterman model. The resulting new vector of returns leads to intuitive portfolios with sensible portfolio weights. One of the challenging parts is that there may be over hundreds of news on a daily basis, however, we can not select all of them as our input to feed into our language model. Therefore, we conduct a zero-shot learner based on GPT-3, and select the most crucial news related to finance and stock. Next, we design a siamese-like model which uses the same weights while working in tandem on several different financial news input to compute comparable output semantics vectors.Introduction

* Background (What is the problem? What is the state of the art?)
* Original/updated motivations
* Original/updated objectives
* Current progress and evaluation of the progress based on the original plan

# Problem Statement

* Original problem statement
* The changes that have been made since the start of the project
* Original use case diagram
* The changes that you have made on the use cases since the start of the project.
* Reflection on the problem statement evolution.

# Object Model

* Original/updated diagram
* Changes and updates on the diagram that you have made since the start of the project

# Machine Intelligence and Methods

* Overview of the technology background that covers your techniques used.
* Intelligent behaviors of your system that you planned for, that you have already achieved, and that you still struggle for.
* Data source and knowledge source updates
* Implementation issues that you have encountered and/or you think you will encounter.
* Initial implementation and testing results.
* Reflection on the machine learning/data mining algorithms

# Graphical User Interface

* Original/updated design of graphical user interface
* Changes that have been made since the start of this project
* Implementation of the GUI
* Testing results and issues
* Reflection on GUI development.

# PROJECT PLAN Update

* Changes on personnel if any.
* Changes on scope of the project, if any
* Changes on the plan and rationales for these changes
* Current project plan (Gantt chart)

# SUMMARY

* Summarize the major points of your report
* Describe the next step of your work.

# Appendices

## Appendix A – Sample Codes

Add here the Python code that you have already developed.