## Initial Project Overview

## SOC10101 Honours Project (40 Credits)

### Title of Project: Analysis of the cryptocurrency markets using the data mining techniques

### Overview of Project Content and Milestones

The aim of the project is to apply the data mining techniques in order to analyse how valid and accurate those techniques and algorithms are in predicting the cryptocurrency market movement.

The main milestones / objectives of the project are:

* Review the literature surrounding the topic- applicable algorithms, cryptocurrency markets, similar projects
* Data gathering and cleaning/ processing
* Experiments: application of selected algorithms on datasets collected.
* Analysis / Evaluation of the results including the visualizations

### The Main Deliverable(s):

Main deliverable for this project are the results of the experiment performed and the evaluation of those results represented with help of appropriate visualizations.

### The Target Audience for the Deliverable(s):

Anyone interested in the predictive algorithms applied to the cryptocurrency market could benefit from reading the final report.

### The Work to be Undertaken:

First step during the project is the investigation of the subject and the work done by other researchers - literature review. Next step / milestone is the data collection – gathering the data that will be used in the analysis, using the cryptocurrency exchanges API, for example: exchange Binance allows for the users to gather historical data. Conducting the analysis is the next step- the data will be cleaned , processed and later on analysed using appropriate predicting / clustering algorithms. Last step is to prepare the final report evaluating the results of the analysis and visualizing them in the appropriate and understandable way.

### Additional Information / Knowledge Required:

Additional knowledge required for this project includes the following:

* Knowledge about the cryptocurrency market. How to read / analyse the charts and data, the variables that are important for the price for example volume, candles opening, closing time etc
* How to interact with the exchanges historical data – many exchanges provide API access to their datasets, some of them are using JS- node programming language, some Python.

### Information Sources that Provide a Context for the Project:

Similar projects that were an inspiration for my project:

Gupta, A., Bhatia, P., Dave, K., & Jain, P. (2019, April). Stock market prediction using data mining techniques. In *2nd International Conference on Advances in Science & Technology (ICAST)*.

Ou, Phichhang, & Wang, Hengshan. (2009). Prediction of Stock Market Index Movement by Ten Data Mining Techniques. *Modern Applied Science,* *3*(12), Modern applied science, 2009, Vol.3 (12).

### The Importance of the Project:

This project can provide an insight into the question of accuracy of predictive algorithms on the cryptocurrency markets. The cryptocurrency data from 2020 might provide additional variables that were not available before and increase the accuracy of the analysis.

### The Key Challenge(s) to be Overcome:

Collecting the datasets and preparing them for analysis is the biggest challenge in the project. Any mistakes made during the process might skew and have impact on the results. The mistakes can be easily done and hard to find during the process of the project, therefore I will have to be focused and precise when processing the data.