**INTRODUCTION**

Stock market prediction, in general, is about predicting, at time t, the stock movement (up or down) in the next k time steps. If profitability is the main prediction objective, formalizing the problem as classification suits it more than regression. There are two main hypotheses in stock market prediction as discussed by Ican in [1]. The first hypothesis suggests that stock prices move in a stochastic manner and cannot be predicted (Efficient Market Hypothesis). On the other hand, the other hypothesis claims that stock markets are predictable, at least to a certain degree, and prediction turns into long-term profits. As a matter of fact, the literature is rich with articles that support the latter hypothesis. Specifically, the research is ongoing to investigate the feasibility of probabilistic classification models in terms of profits generation capabilities. One of the main challenges related to modelling stock markets for prediction purposes is the selection of features set for training, and which models optimally fit with this set. Features and model selection philosophy is concerned about the method with which the features were selected, that is whether they are selected based on performing any type of analysis or arbitrary selection. Proper features selection does not only contribute to building more accurate and reliable AI models, but it is also vital for the application of stock market prediction. Professional charts analysts and traders have numerous, if not theoretically infinite, options of technical indicators that they can implement in their trading strategy to generate profits. After selecting the features (technical indicators), exploratory data analysis(EDA) that is concerned with visualizing the features should also be performed for developing a reliable classification model. It is also important to understand the statistical distribution of the classes and the features before attempting modelling, otherwise the models may result in adverse performance as stated by Kuhn [2]. Besides features and models selection, developing and training practical models that learn data patterns related to maximizing the returns rather than ones that optimize classification accuracy is of significant importance. Although that there are works in the literature present theirmodels' results based on profits, the ongoing research related to using supervised machine learning with adjusted loss function that match the purpose of trading is remarkably limited, at least at best of our knowledge. The novel contribution of this work is proposing a methodology for AI trading with systematic approach of developing and training the models. This mainly constitutes of setting and testing two hypotheses claiming that performing EDA and introducing new reward lossresult in higher returns.