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| Project Name | *Modelling direction detection in selected stocks in Indian BFSI sector* |
| Background Information | *Back Testing are still becoming a grim prospect, because of several things like value variations, quiet news, and existing noise. Hence, a feasible solution could be to identify and implement more than a few popular stock evaluation strategies.*  *A number of Machine-Learning associated techniques that are developed have created the potential to predict the market to an extent.*  *The requirement is to overcome the ambiguities of Fundamental and technical evaluation, and additionally, the glaring development in the modelling strategies has pushed several researchers to check new strategies for stock value forecasting. New innovative strategies are being used for stock price predictions.*  *Daily Trading NSE Data of HDFC, KOTAK, and SBI Bank from the year 2000 to 2022 is being used for this capstone project which would broadly come under BFSI.BFSI comprises of Banking, Financial Services, and Insurance sector. Also, the BFSI industry includes financial service firms such as Broking and Asset Management. The BFSI industry is growing year on year at a 27% rate.* |
| Literature Review | *When you have thought about the idea, you must have checked about it in several publications to build a foundation for your work. Describe here in brief those studies that you have done.*  *At least 4 to 5 papers must be briefly introduced, Sources must be referenced using APA and IEEE.* |
| Statement of the Problem | *There are plenty of Regression algorithms that can be utilized to detect the closing price of any stock. However, risks are more predominant in predicting the exact closing price using both Linear and Non-linear Regression algorithms.*  *When we have lesser data to build a regression model, under fitting scenarios may destroy the accuracy of our machine learning model especially when we are trying to build a linear model with a complex dataset.*  *At certain times, while trying to cater to all kinds of both existent and nonexistent possibilities in data points, over fitting scenarios in regression models may again destroy the accuracy of test data while the accuracy of the trained data may work perfectly fine.*  *The situation requires not completely relying only on regression algorithms to quantitatively predict the exact closing price of any stock. Investors can find plenty of algorithms that detect the exact closing price of any stock but will not tell the direction of the closing price.*  *Therefore, we should try alternate approaches as well which enables us to decide objectively whether say the price of any stock will move up or move down or remain neutral.* |
| Objectives | *•Firstly, the objective of this project is to get the right stock and collect all relevant data to make correct forecasting. Understand the data pattern using Exploratory Data Analysis and perform data preparation which enables the production of clean and well-curated info with extra Features addition that results in more sensible and correct model outcomes.*  *•Secondly, the objective of the project is to build the right models by using multiple Classification Modelling techniques namely LR Classifier, DT Classifier, RF Classifier, KNN Classifier, and XG Boost Classifier to determine the Modelling algorithm which would provide the best accuracy in direction prediction.*    *•Thirdly the objective of the project is to explore state-of-the-art solutions to minimize errors in direction prediction. For every forecasting Technique, there will be errors, and since the stock market has high volatility, hence the chances of errors are more. Therefore, given the historical data, it should be correctly predicted whether the price will move up or move down utilizing precision, recall, and accuracy Metrics used in classification modelling techniques.* |
| Methodology | *Must mention the proposed process including data sources/data collectionprocess/Implementation plan/Analysis and Insights.* |
| Proposed Solution/  Expected Results | Mention the benefits of doing this project with a perspective of the stakeholders? Mention business value/technical improvement/ease of use etc. |
| Detailed Scope of Work: | *Must have a flow diagram/high-level design. You may use MS-Visio or any such tools.* |
| Support needed from Program office | *Indicate preferred mentor or any other support required. Mentor can be from RACE or external.* |
| References | *Mendeley or any other referencing tools must be used. Both in text and end of the referencing is a must.*   1. *For MTech, MSc program, follow IEEEreferencing style.*   *E.g.: G. Liu, K. Y. Lee, and H. F. Jordan, "TDM and TWDM de Bruijn networks and shufflenets for optical communications," IEEE Trans. Comp., vol. 46, pp. 695-701, June 1997.*   1. *For MBA program, useAPA referencing style.* 2. *E.g.Grady, J. S., Her, M., Moreno, G., Perez, C., &Yelinek, J. (2019). Emotions in storybooks: A comparison of storybooks that represent ethnic and racial groups in the United States.*Psychology of Popular Media Culture*,*8*(3), 207-217. https://doi.org/10.1037/ppm0000185* |