Intro to AI

Final Coursework Assessment

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# Question 1

## Introduction

The task is to build a model to predict the adjusted close price of Apple Inc. on a given day using the open, high, low and close prices from that day as features. The fintech\_coursework.csv file contains the four input features and the correct outputs (adjusted close price) relating to Apple Inc. stock prices between 03/01/1995 and 31/12/2021. Clustering algorithms are used for unsupervised learning and classification algorithms are used for supervised learning where the output labels are discrete values. This is a supervised learning task with continuous output values therefore a regression algorithm should be used.

## Methods

This task requires to supervised learning regression algorithms to be used. I will use a

The performances of the algorithms will be evaluated using three metrics: adjusted R2 score, root mean squared error (RMSE) and mean absolute error (MAE). Compared to R2 score, the adjusted R2 score is more precise as it penalizes additional independent variables (input features) which helps to prevent overfitting. The value will be between 0 and 1, where a larger adjusted R2 score indicates a better fit to the dependent variable. In contrast, the RMSE and MAE are absolute measures of the goodness of the fit (the main difference is that RMSE penalizes large errors), both are useful for comparing results[[1]](#footnote-1).

State which specific algorithms you will use. State which performance metric you will use and why. Describe the baseline that you will measure your algorithms against. Describe how you will choose the hyperparameters of the algorithms. Ex- plain which hyperparameters you have selected for each model using tables or plots to illustrate your decision.

Results: Report the results of your models. Use tables or plots as appropriate to illustrate your results.

1. <https://towardsdatascience.com/what-are-the-best-metrics-to-evaluate-your-regression-model-418ca481755b> [↑](#footnote-ref-1)