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BSc Computer Science

**Module Title**

Machine Learning

**Assessment Title**

Project Final Report

**Assessment Weighting**

60% of the module mark

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(16/04/2024)

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PREDICTING BITCOIN MARKET PRICES

*By James Burt, Josep Haines and Reece Turner.*

# ABSTRACT (200)

While Finance has been around over 5000 years, Machine Learning (ML) has become an emerging subject of modern civilisation since the Turing Test, by Alan Turing. In This study we want to bridge the gap between the two subjects using models as the vehicle for prediction accurate Time Series data on Cryptocurrency in hopes the model can be used on Investments. We cover a range of Time Series Models such as Long Short-Term Memory (LSTM) and Auto Aggressive Integrated Moving Average (ARIMA) to investigate the accuracy of how they perform against historical price data. From there we can find proofs and comparison to further our study and optimise the model(s) as necessary. Our dataset covers a range no more than the last 4 years as any more is extreme for our purposes and with the conditions of the market because of COVID and recessions this makes it a perfect time to analyse the performance due to multiple extremes in our data. Our data is split into a training set, validation set and a test set. This enables us to investigate not only how the model learns and adapts to hyperparameters, but also evaluate the model’s ability to generalise unseen data.

# INTRODUCTION

## The problem.

## Aims and objectives.

## Scope and results.

# RELATED WORK

# DATA

# METHODS

# EXPERIMENTS

# CONCLUSION

# REFERENCES

# APPENDIX