**7PAM2002 Data Science Project Module**

**Choosing a Project Form**

**Semester C 2024/2025**

This form will be used by your supervisor to agree your project topic and dataset. Complete as much of the form as possible then submit the form into ‘Assignments’ on the Project Module Canvas site.

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**Course: 1 year**

**Semester intake to the course: A / B** *(delete as appropriate)*

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| SECTION A |  |
| **What is your proposed project title or topic?** | Stock Price Forecasting with LSTM Networks |
| **What is the Research Question for your project?** | 1- Does a univariate LSTM outperform ARIMA and Prophet models in next-day price prediction, measured by RMSE?  2-How does multi-step forecasting (1-day vs. 5-day horizons) impact error accumulation, and can attention mechanisms mitigate drift?  3-What is the benefit of incorporating technical indicators (RSI, MACD) as exogenous inputs to the LSTM? |
| **Dataset website address (or organisation and person the dataset is from).** | <https://www.kaggle.com/datasets/camnugent/sandp500> |
| **Where was the data originally collected? (who, when, where)** | Who: The original data comes from financial market data providers.  When: Historical stock prices from 2013 to 2018 for companies listed in the S&P 500 index as of February 2018.  Where: The Investor's Exchange (IEX) |
| **What type of data are you using? (e.g. image/ tabular/category/continuous etc)** | Tabular Data |
| SECTION B |  |
| Can you attend all 6 supervision sessions on-campus? If not state reason. | **Yes** |
| What was the subject of your BSc degree and any other Master’s degrees you have taken? | Supply chain and finance |
| What are your career aims and/or the industry sector you would like to get into? | Finance Industry |
| A brief account of your programming/data science experience (including work or placement). | I had really good experience in programming. I learn Python from Data Camp. |
| Any work experience (including non-computing related). | I had work experience in financial audit. |
| Do you have any hobbies, activities, or interests. | Book reading, traveling |