**Require；**

This project is designed to acquaint people with the application of forecasting techniques in business. This involves planning research, collecting data, carrying out appropriate tests, analysing data using regression analysis, and writing a business report based upon this empirical work.

**Background:**

Financial analysts and Economists are often interested in the relationship between future and past (lagged) stock returns of individual companies. If an accurate prediction of future stock prices can be made based on past values, the monetary benefits can be substantial. Your team’s task in here is therefore to examine this relationship.

**Specifications:**

Your first task is to find and download the relevant data. To do this, you will need to go to the Yahoo Finance website (https://sg.finance.yahoo.com or https://au.finance.yahoo.com) and search for the required data. You may choose a US listed company as well if you wish. Before you search for your data you will need to determine the following:

1) The company you are interested in exploring. The choice is yours – you can choose any company listed on the Singapore or Australian (or US) stock exchange (just check the company has the required data on the Yahoo Finance website).

2) Time interval. Here you will need to choose between daily, weekly, or monthly data. You can use any or all these time intervals.

3) Timeframe (time period for the data) – we recommend data from the past 6 months as minimum for daily data (longer for weekly or monthly).

Once you have selected your 1)company, 2)time interval/s, and 3)timeframe, you can download the data from the Yahoo Finance website. Your company will have a symbol ending .AX or .SI (for example, symbol ANZ.AX if you choose ANZ). The data will be available under the ‘Historical data’ tab.

**Important: You will need to set the frequency to ‘daily’, ‘Weekly’, or ‘monthly’ for you chosen time period, and press Apply before you download your dataset (download button is just below ‘Apply’).**

Your next task is to calculate daily/weekly/monthly returns for the Open prices (which is the opening price for the day/week/month and is also the last recorded price for the previous day/week/month). Recall that return is calculated by, if weekly interval is used: (Price in current week – Price in the previous week)/Price in the previous week (and in a similar way daily/monthly return can be calculated if a different time interval is used). For example, given the below table, returns for the week starting 7/01/2018 is calculated by: (6122.3-6065.1)/ 6065.1=0.009431. You can rename this variable as “RET”. You can also create lagged returns (RETLAG) as this is just the return from the previous week:

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Open | RET | RETLAG |
| 31/12/2017 | 6065.1 |  |  |
| 7/01/2018 | 6122.3 | 0.009431 |  |
| 14/01/2018 | 6070.1 | -0.00853 | 0.009431 |
| 21/01/2018 | 6005.8 | -0.01059 | -0.00853 |

You can now begin your analysis.

**Required:**

1. Start your business report with a short formal introduction stating the background of the company and what you are studying. Discuss and justify your choice of time interval/s (daily, weekly, monthly), and time period.
2. Present your data graphically and discuss the results. Please explain whether transformation/adjustment/decomposition is needed for your data. Plot the company returns ACF. Do the returns look like white noise? Explain.
3. Calculate and present descriptive statistics for the stock returns and discuss the results.
4. In this section you are required to use regression analysis to test the predictive power of past returns (RETLAG) on future returns (RET). Write down the regression equation – be sure to label correctly the x and y variables, and include the values of the slope and intercept. Create a new table that summarises the following key measures of your regression analysis – Number of Observations, Adjusted R Square, Value of the Slope, and P-Value of the Slope. Be sure to comment on each measure.
5. Summarise your results and provide conclusions. Include any relevant recommendations that you believe could improve your analysis. Discuss the variables and methods you used for the prediction.
6. The report should be well presented and coherent with no grammar/spelling mistakes, each question should be clearly defined and answered in a separate section, and graphs and tables should be clearly labelled and presented.