

## ENG 3120 STATISTICS

### STEP 1: Find your group number

- $ab=27$

### STEP 2: Get your personalized data

- Download the attached MS Excel file which includes the historical data for Ethereum cryptocurrency. There are three columns in this data file which are *Date*, *Price*, and *Volume*.
- Use the *Price* data for the year 2020 for test purposes (to calculate  $R^2$ ).
- Pick every  $ab$ th day of every month between the beginning of 2017 and the end of 2019 to calculate the regression coefficients.

### STEP 3: Build your model

- You should transform your *Date* column to be equal to a time interval starting from your zero day. Obviously your *Date* data should start on some day and then increase by steps equal to 1 month.
- Use at least three different models to predict *Price* for the year 2020 by using *Date* and *Volume* data of the years 2017, 2018, and 2019. You can use the polynomials, power or exponential formulations, or combinations of them.

Example Models:

- $\text{Predicted\_Price} = \text{Bias} + (\text{Coeff\_Date} * \text{Date}) + (\text{Coeff\_Volume} * \text{Volume})$
- $\text{Predicted\_Price} = b_0 + b_1 * \text{Date} + b_2 * \text{Date}^2 + c_1 * \text{Volume} + c_2 * \text{Volume}^2$

### STEP 4: Report your work

- Prepare a **single** PDF file for your report and upload it as your work for this assignment in MS Teams.
- Your report should include all the details of your calculation.
- Your report should include your selected models, and the final numerical values for the regression coefficients of these models.
- Your report should include the  $R^2$  values for your selected models for the test data for the year 2020.
- I would very much like to see the scatter plots of your data, and also a graphical comparison of your models and the test data.