

# COMP30760 Assignment 2

**Deadline:** Monday 6th December 2021

## Overview:

The objective of this assignment is to collect historical stock price data from HTML pages, construct time series representations from the collected data, then analyse and compare the resulting series.

The assignment should be implemented as two Jupyter Notebooks (not script files). Your notebooks should be clearly documented, using comments and Markdown cells to explain the code and interpret the results of your analysis.

## Tasks:

Complete the following two tasks in two separate notebooks:

### 1. Data Collection and Preparation

- a) Select four stocks to analyse from the page below. Use Python to download the HTML pages for your chosen stocks:

<http://mlg.ucd.ie/modules/COMP30760/timeseries.html>

- b) Use Python to parse and extract the relevant stock price data from each selected stock's HTML page.
- c) Replace any missing values in each dataset with appropriate values.
- d) Save the preprocessed versions of the four time series datasets in an appropriate format.

### 2. Time Series Analysis

- a) Load the preprocessed time series datasets from Task 2 into an appropriate data structure.
- b) Characterise and visualise each time series individually at daily, monthly, and quarterly frequencies.
- c) Quantify and discuss how each time series is changing over time. This should include identifying and highlighting any peaks and troughs which occur in each series.
- d) Compare and discuss the similarity of the trends appearing in the different series to one another.
- e) At the end of your notebook, summarise any insights which you gained from your analysis of the data and suggest ideas for further analysis which could be performed on the data.

**Guidelines:**

- The assignment should be completed individually. All submissions will be subject to plagiarism checking. Any evidence of plagiarism will result in a 0 grade.
- The grade awarded will depend on the complexity of the analysis and level of detail, i.e. data cleaning and preparation, analysis, interpretation etc.
- Submit your assignment via the COMP30760 Brightspace page. Your submission should be in the form of a single ZIP file which contains:
  1. The two Jupyter notebooks for Task 1 and Task 2 respectively. These should be IPYNB files, not a HTML files.
  2. The stock datasets you saved in Task 1.
- In your notebook please clearly state your full name, your student number, and the list of stocks you have selected to analyse.
- Hard deadline: Submit by end of Monday 6th December 2021.  
Penalties will apply for late submissions:
  - 1-5 days late: 1 grade point deduction, e.g. B to B-
  - 6-10 days late: 2 grade point deduction, e.g. B to C+
  - Assignments will not be accepted after 10 working days without Extenuating Circumstances formally approved by UCD.