Project & Report Assignment

How-To Guide

This assignment represents 100% of the overall course grade.

Instructions

Develop a Python project to analyse real world finance scenarios and generate valuable insights by visualising information. The project aims to analyse data from different data sources, manipulate information and visualise to generate insights.

You can use any open-source dataset available online for analytics. Each bullet point for every learning outcome is a milestone to be achieved.

The project should be submitted on the Learn Site under the Assessments section. You will need to include two files, as described below.

There are three deliverables contained in two files:

1. Project ZIP
    - Create a ZIP file of your entire Python project along with all the code and data files and upload as part of your submission
    - The project should cover all milestones in each learning outcome to gain full marks (see below)
2. Project Report
    - A document containing between 1,500 and 2,000 words
    - Please use the template provided (see Assessments section to download)
    - The report describes your process, dataset, different sources, graphs and insights
    - Justify the use of each learning outcome concept, for example: Why did you use list over dictionary?
    - Upload the document file along with the ZIP file
3. GitHub repository URL
    - Create a new repository on GitHub as [UCDPA_yourname]
    - Keep committing to the repository
    - Remember to include the URL of your repository at the beginning of your Project Report document

The goal of the assignment is to demonstrate how you are thinking about putting course concepts and learning into practice to demonstrate the course learning outcomes:

1. Derive insights into data sources a company can use and how to store that data and understand trading dynamics to risk management systems
2. Outline fundamentals of Python data structures such as lists and arrays and learn powerful ways to store and manipulate financial data to identify trends
3. Outline investment strategies to calculate risk based on stock price data and display

this data in easy to read plot
4. Identify ways to use Python data structures, execution control statements, and DataFrames to manipulate financial data
5. Derive meaningful financial decisions using Python to compare potential projects and how to make rational, data-driven financial decisions

How You Will Be Assessed

The following list describes the areas being assessed, for a total of 150 points (points awarded are indicated in brackets).

1. Real-world scenario
    - The project should use a real-world dataset and include a reference of their source in the report (10)
2. Importing data
    - Retrieve data from online APIs (10)
    - Import a CSV file into a Pandas DataFrame (10)
3. Analysing data
    - Your project should include sorting, indexing, grouping (10)
    - Replace missing values or drop duplicates (10)
    - Looping, iterrows (10)
    - Merge DataFrames (10)
4. Python
    - Define a custom function to create reusable code (10)
    - NumPy (10)
    - Dictionary or Lists (10)
5. Visualise
    - Generate at least two charts using Matplotlib (20)
6. Generate valuable insights
    - 5 insights from the project (30)

The final grade is indicated by a scale as follows:

No attempt	Clear fail	Fail	Pass	Merit	Distinction
0 to 15	16 to 38	39 to 74	75 to 96	97 to 119	120 to 150