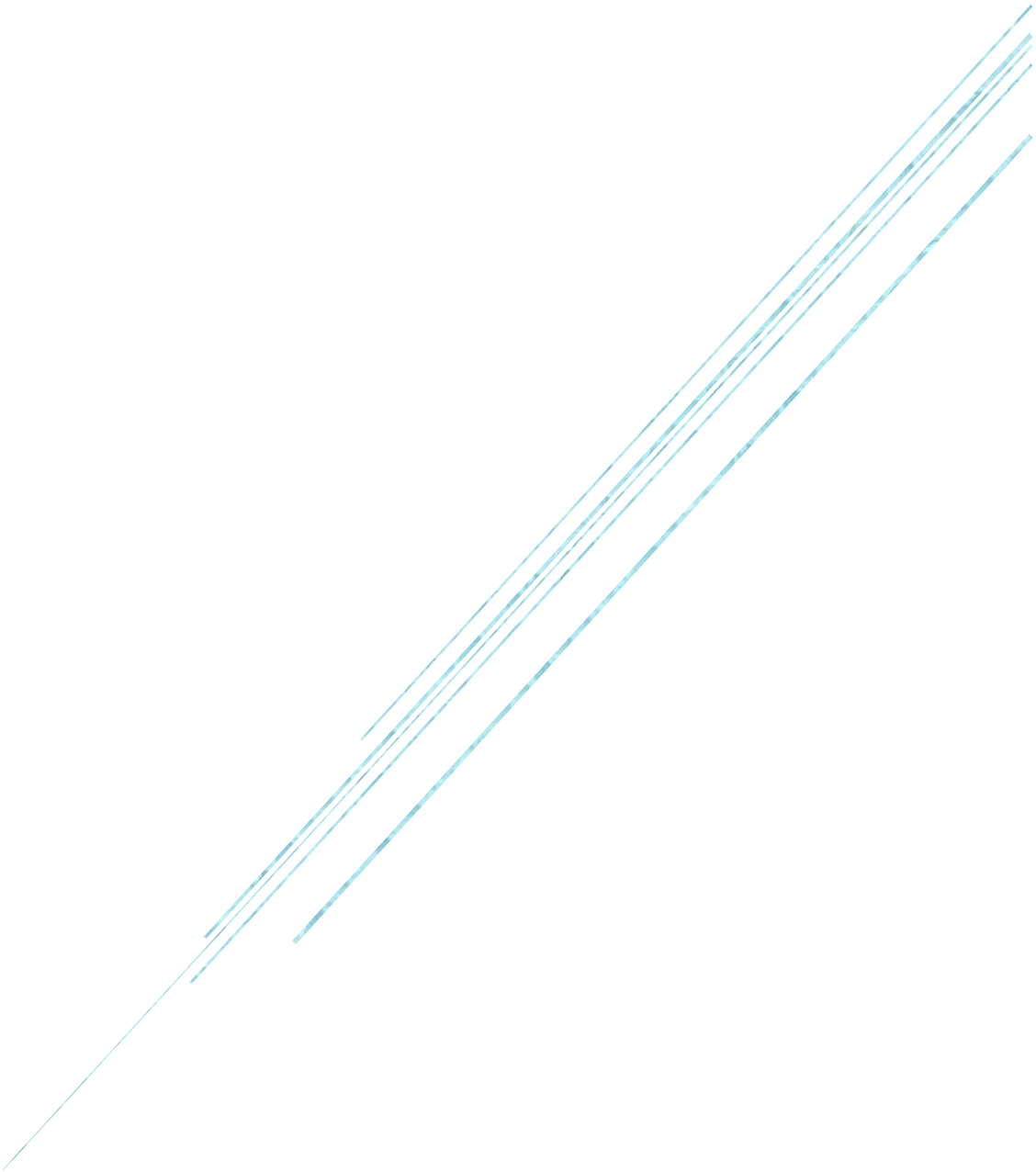
PDA FINAL ASSESSMENT REPORT

Predictive Data Analytics Course



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Even though one option is enough, just to learn more, I have tried to work on all four chapters of our course, Python, MySQL, RapidMiner, and Power BI, in two different Scenarios to cover two distinct data, one from Siemens company and the other from ASX Australian market.

Please, pay attention to every folder and subfolder of both scenarios to find individual reports in addition to this introductory report accordingly.

First Scenario: Siemens Financial Statements Analysis in Python and MySQL

Siemens is a global powerhouse focusing on the areas of electrification, automation, and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of systems for power generation and transmission as well as medical diagnosis. (Siemens B, 2022)

Three reports from its financial statements have been downloaded in Python at the first step and after analyses to provide various results and interpretations in a file named "Hossein Yazdi. PDA Final Assessment in Python" has been exported to CSV files and then imported to MySQL to extract some specific results. The second part in MySQL is minor duties, while the main focus had been performed in Python.

To see the full report in both parts please refer to the repository's folder "First Scenario" as in the Python and the SQL files, the complementary reports, are provided.

However, the following section is a summary extracted from the mentioned folder:

Python:

Some libraries like Panda and matplotlib are imported

Three primary files are as follows:

- Siemens Consolidated Income Statement.csv from 2020 and 2021
- Siemens Consolidated Statements of Financial Position.csv from 2017 to 2020
- Siemens Consolidated Statements of Comprehensive income.csv from 2020 and 2021

The files are cleaned and prepared by removing some unwanted rows, filling out some empty data by other elements, and changing the names of columns. After that, to establish the vertical and horizontal analyses we need some new columns to calculate the ratios based on the primary or major items like revenue in the income statement.

Then to be able to interpret the results there are different graphs, pie charts, and bar charts. For every diagram, the relevant interpretation is written under them. It is noticeable that the company had managed the costs, especially the variable costs, in a great manner during these years, because of notable results in some ratios like income per revenue.

MySQL:

Finally, the final data are transferred to MySQL to extract some minor particular tables, such as the five larger amounts, or joining data from two or more tables. The complete report including the information needed is prepared in one file called "MySQL for First Scenario".

Second Scenario: ASX 200 Analysis in MySQL, RapidMiner, and Power BI

MySQL:

ASX 200, is an Australian share market index comprising the 200 largest companies (by market capitalization) listed on the Australian stock market. (Staff, 2022)

Extracting the age of every transaction by using the “TIMESTAMPDIFF(DAY, Date, CURDATE())”

Then by applying the “select, from, where” command, the companies with high performances in some specific sectors are extracted.

Another task is to have all companies with the date of 1 April 2016, with a market cap between 400 million and 1.5 billion, Weight_Percentage between 20 and 80 percent in either of these sectors: "Consumer Staples", "Materials", "Health Care". Also, have the number of rows as a new column called "Three Market Caps".

Finally, returning the sum, average, minimum, maximum, and their round figures for some different categorizations is demanded.

The full report of this part is in another distinct file in SQL format, “MySQL for First Scenario”. Also, the relevant exported Excel files are in the “Second Scenario/MySQL Part” folder.

RapidMiner

In RapidMiner two datasets, one as a training one and the other one, an unlabeled file are employed. The prediction for this latter one is achieved by using the applied model and other tools in RapidMiner.

The full report of this part is in another distinct file “Full Report of RapidMiner”. Also, the files related to this section are in the “Second Scenario/RapidMiner Part” folder, containing some of the “rmp” files saved from RapidMiner are in the folder, as examples.

Power BI

The same file from asx200, training one, is loaded as CSV to Power BI.

The full report of this part is in another distinct file “Full Report of Power BI”. Also, the files related to this section are in the “Second Scenario/Power BI Part” folder.

Reference

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Siemens, 2022. Siemens Aktiengesellschaft (SIE.DE) Aktienpreis, Nachrichten, Kurs und Verlauf – Yahoo Finanzen. [online] Available at: <https://de.finance.yahoo.com/quote/SIE.DE/> [Accessed 2 July 2022].

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The link for asx200.csv: http://www.asx200list.com/wp-content/uploads/csv/20170401-asx200.csv"