College of Computing and Informatics, Drexel University

INFO 212: Data Science Programming I

Due: Sunday, Dec. 10, 2023

Final Project Report

Project Title:

Student(s):

Date:

Abstract

(Briefly summarize the project including the problem, data sets, and final findings.)

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1. Introduction

(Introduce the project, describe the objectives, and present the results. This section will provide an overview of the entire project including the description of the data sets and the specific data analytics methods and techniques the team used for analyzing the data to address the problem. Highlight the key findings.)

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2. Problem Definition

(Define the problem that will be solved in this data analytics project. Where does the problem come from? Who would be benefited from the solutions presented in this project? Use formal languages and notations to define the problem as much as possible.)

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3. Data Sources

(Describe the origin of the data sources. What is the format of the original data? How to access the data?)

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4. Acquiring and Loading Data

(Present the code and methods for acquiring the data. Load the data into appropriate format for analysis. Explain the process and results.)

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5. Exploring and Visualizing Data

(Explore the data by analyzing its statistics and visualizing the values of features and correlations between different features. Explain the process and the results.)

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6. Wrangling and Cleansing Data

(Cleanse the data, fill up missing data, and wrangle the data to prepare for analysis. Explain the process and the results.)

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7. Analyzing Data

(Analyze the data by applying various data analytics methods. The analysis should be guided by the problem defined earlier. Explain the process and results.)

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8. Reporting Results

(Use appropriate methods to present the results including tables, plots, and bullet points. Explain how the analysis process and results solve the problem.)

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9. Conclusion

(Briefly describe what you have done and what you discovered. Discuss any shortcomings of the process and results. Propose future work. ***Finally, discuss the lessons learned from doing the project****.)*

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10. References

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(*Use the following requirements for writing your reports. DO NOT DELETE THE CELLS BELLOW*)

Project Requirements

This final project examines the level of knowledge the students have learned from the course. The following course outcomes will be checked against the content of the report:

Upon successful completion of this course, a student will be able to:

- Describe the main steps and key issues in the process of acquiring and preparing data for data analytics.
- Set up data analysis environment by integrating commonly used practical tools and programming packages.
- Explain different types of data storages and formats and apply appropriate tools for extracting and transforming data.
- Create interactive and programming code for cleansing, wrangling, reshaping, visualizing and analyzing various data sets.
- Explain the concepts of aggregation and grouping, and apply tools and write programs to aggregate and group data.

** Marking will be foucsed on both presentation and content.**

Written Presentation Requirements

The report will be judged on the basis of visual appearance, grammatical correctness, and quality of writing, as well as its contents. Please make sure that the text of your report is well-structured, using paragraphs, full sentences, and other features of well-written presentation.

Technical Content:

- Is the problem well defined and described thoroughly?
- Is the size and complexity of the data set used in this project comparable to that of the example data sets used in the lectures and assignments?
- Did the report describe the charactriatics of the data?
- Did the report describe the goals of the data analysis?
- Did the analysis use plotting methods for visualization? Does the visualization convey meaningful messages?
- Did the analysis use wrangling, cleaning, and preparation methods? Does the work on wrangling, cleaning, and preparation demonstrate the student's knowlegde about these topics covered in this course?
- Did the analysis conduct aggretation and create descriptive statistics? Does the work on aggregation and descriptive statistics demonstrate the student's knowlegde about these topics covered in this course?
- Did the report include all related references?

- Only those projects that exceed the sophistication of the final data analysis examples and assignments can be marked as the highest level of grade.
- Overall, what is the rating of this project?

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