HHA 550 Applied Healthcare Analytics

Python – Group Project Requirements

Scenario:
You have been assigned a new project from the Director of Clinical Informatics. She would like you to and your team to use the dataset provided to determine the leading variables of readmission so that the hospital can start taking corrective action and reduce the 30-day readmission rate.

Dataset:
https://archive.ics.uci.edu/ml/datasets/Diabetes+130-US+hospitals+for+years+1999-2008

Objectives

1) Create four groups of students
    a. Each group must email the professor with the students names in each group
2) Download the data
3) Clean the data
    a. Perform the ETL process to normalize the data
4) Put the dataset into the Python program
5) Using the dataset provided find the fewest variables out of the dataset that will be required to predict readmission
    a. Show what variables they are and why they are important
        i. Correlation
        ii. Linear regression
        iii. Logistic regression
        iv. ANOVA
        v. Multilevel linear modes
        vi. Clusters
        vii. Etc…
    b. Show your work in the presentation
        i. Code
        ii. Algorithms
        iii. Visuals
        iv. Anything else to support your findings
6) Present your findings and how you came to your conclusion
    a. Everyone must participate in the project and the presentation

Presentation Audience:
Executive IT and nursing staff that have a basic understanding of informatics and healthcare data but need to know in the basic of terms how you came about your findings so that they trust what you are presenting

Special Notes:
You and your group will be presenting all 3 projects at the same time (infrastructure, Python, Tableau)

HHA 552.42 Healthcare Data Visualization

Visualization Project

Scenario:
You have been assigned a new project from the Director of Clinical Informatics. She would like you to and your team to visualize the work done in building the diabetes readmission predictive model so that the hospital can start taking corrective action and reduce the 30-day readmission rate.

Dataset:
https://archive.ics.uci.edu/ml/datasets/Diabetes+130-US+hospitals+for+years+1999-2008

Objectives

7) Create groups of 4 students
    a. Each group must email the professor with the students names in each group
8) Download the data
9) Clean the data
10) Put the dataset into the Python program
11) Complete the Python Project
12) Using Tableau visualize the data that was provided for this assignment. Keeping in mind the intended audience of nurses and hospital executives present an overall view of the diabetes data set. Include demographics such as gender and age as well as the features that carry the greatest influence on readmissions.

    The intention is for each group to walk the audience through the visualization of the data in Tableau so that the audience understands the make up of the patients in the data set as well as the various features that were discovered in the other two projects that have the most influence on readmissions.

    Make this visualization in Tableau an interactive dashboard so that the end user will be able to drill down as they see fit, we will publish these to Tableau Public at the end of the semester.

    A Power Point presentation will not be required for this group assignment. The presenter or presenters will present from Tableau.
    a. Everyone must participate in the project and the presentation

Presentation Audience:
Executive IT and nursing staff that have a basic understanding of informatics and healthcare data but need to know in the basic of terms how you came about your findings so that they trust what you are presenting

Special Notes:
You and your group will be presenting all 3 projects at the same time.

HHA 551.42 Big Data Technologies in Healthcare

Infrastructure Project

Scenario:
You have been assigned a new project from the Director of Clinical Informatics. She would like you to and your team design the infrastructure components necessary to build, test and deploy an algorithm to predict the likelihood of 30-day readmissions in the diabetic population. Using the technology learned in the first half of the semester design and put into the workflow the readmission model so that the hospital can start taking corrective action and reduce the 30-day readmission rate for this population.

Dataset:
https://archive.ics.uci.edu/ml/datasets/Diabetes+130-US+hospitals+for+years+1999-2008

Objectives

13) Create groups of 4 students
    a. Each group must email the professor with the students names in each group
14) Design an infrastructure to support the building and testing of a diabetic readmission predictor model and then the infrastructure to place the model into the clinical workflow
15) A Power Point presentation will be required for this Project
    a. Everyone must participate in the project and the presentation

Presentation Audience:
Executive IT and nursing staff that have a basic understanding of informatics and healthcare data but need to know in the basic of terms how you came about your findings so that they trust what you are presenting

Special Notes:
You and your group will be presenting all 3 projects at the same time.