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DATA-151-A

Prof. Goebert

Due: 09/27/21 by class time

Project Description for the DATA-151 Semester Project

For our project, we are going to determine what categories could cause a student to have a failing final grade. We plan to use some categories to determine what could cause a student in high school to have a failing final grade. Our current plan of attack is to first explore the data, since our dataset has many categorical and quantitative variables. After investigating our dataset, we then are going to run the appropriate validation tests to ensure that our data can be used by the appropriate statistical tests. Here below, we have these items to determine and find in order to use for our project.

- Research Question: What factors are most important in determining a student's final grade?
- Null Hypothesis: No factor will have a significant impact on a student's final grade.
- Alternative Hypothesis: The following factors will have a significant impact on a student’s final grade; studytime, q1 grade, q2 grade, internet.
- Categories: We will run a regression analysis in order to determine which variables are affecting the model's correlation the most. We can also perform a two-sample t-test on individual groups to determine if the relationship is significant inside that group. The

tests will yield a test statistic, p-value, standard deviation, effect values, etc. We can also determine which variables are independent and dependent.

- Schedule: The project schedule will go as follows ;
    - Layer 1: Understanding the Problem
        - Sept 23th - 27th
            - Complete a project proposal/outline. - All team members
    - Layer 2: Data Collection, Understanding, and Preparation
        - Sept 28th - Oct 8th
            - Begin data cleaning - All team members
            - Exploratory Analysis - Josh
            - Fit and refine best models - Ashley
            - Enter models on Python - Ethan
        - Oct 8th-21st
            - Create presentation and report on exploratory analysis - All team members
    - Layer 3: Modelling & Evaluation
        - Oct 22nd - Oct 25th
            - Research related papers - All team members
        - Oct 25th-Nov 8th
            - Begin research paper
            - Intro- Ethan
            - Body - Ashley
            - Conclusion - Ethan

        - Nov 8th - Nov 16th
            - Finalize paper & prepare for demonstration - All team members
    - Layer 4: Finalize Model and Deploy
        - Nov 17th- Nov 30th
            - Evaluate feedback of paper and revise - All team members
        - Nov 30th - Dec 16th
            - Work on final model - All team members