# INCLASS ASSIGNMENT

## 1 Question

We have a relatively rich data on program choices of high school students. The data includes the following features:

- ID
- Female or Male
- Social economic status
- School Type
- Program
- Reading Score
- Writing Score
- Math Score
- Science Score
- Social Sciences Score
- Honor Status
- Awards
- CID ???

The newly entered high school students make program choices among general program, vocational program and academic program. Suppose that their choice might be modeled using their writing score and their social economic status.

1. Calculate the relative probability change in being in general program vs. being in academic program for a one-unit increase in writing score.
2. Calculate the relative probability change in being in vocation program vs. being in academic program for a student with social economic status equals to 3 vs for a student with social economic status equals to 1.

3. Calculate the relative probability of in being in vocation program vs. being in general program for a student with social economic status equals to 2 and with a writing score of 30 vs for a student with social economic status equals to 1 with a writing score of 50.

4. Finally, determine the best multi-nominal classification model that has the highest classification accuracy score.