ENSF 692 Spring 2024 – Assignment 3 Grading

Assignment 3 Rubric (33 marks, 12% of overall grade)

Your code must successfully compile to be graded. Code that does not compile will be given a grade of zero. For compiled code, partial marks may be given for each criterion listed below.

NOTE: You may hardcode the following values as necessary, however your code should limit redundant hardcoding. You may copy/paste from the .csv data to save yourself typing time!
- The school names
- The school codes
- The school years
- The grades

Commenting and Syntax (5 marks):

- (3) Comments must be included throughout the code to explain the functionality
- (2) All classes, methods, and functions are fully documented using docstrings (including summary, parameters, and return values)

Code Structure and Semantics (8 marks):

- (3) Solution contains at least one 3-dimensional array
- (1) Solution contains at least one subarray view (dimensions may vary)
- (2) Solution contains at least four different NumPy computational functions
- (1) Solution contains at least one masking operation
- (1) Solution contains at least one dictionary
- One mark will be deducted for each error or missing component, up to a maximum of 8 marks

User Interface and Functionality (6 marks):

- (1) User is given clear guidance on how to enter the input values
- (1) Program accepts either the school name or school code
- (1) If an invalid name or code is provided, a ValueError exception is used to prompt for re-entry without terminating the program
- (1) The program prints the shape and dimension of the 3-dimensional array
- (1) All values are displayed as floored integers (e.g. 5/2 = 2, not 2.0 or 2.5)
- (1) NaN values are handled using built-in NumPy functionality
- One mark will be deducted for each error or missing component, up to a maximum of 6 marks

Execution (6 marks):

- (3) Provide a screenshot of successful execution. Your screenshot should include all specified functionality
- (3) Your program will be executed to test the following cases:
    - Entering a school name that is included in the provided dataset

- Entering a school code that is included in the provided dataset
- Entering an invalid input that is not included the provided dataset
- All students will have their code tested with the same input values

Calculations (8 marks):

- The following school-specific calculations will be checked for accuracy (will vary depending on the user input):
  - The school name and school code
  - Mean enrollment for Grade 10 across all years
  - Mean enrollment for Grade 11 across all years
  - Mean enrollment for Grade 12 across all years
  - Highest enrollment for a single grade within the entire time period
  - Lowest enrollment for a single grade within the entire time period
  - Total enrollment for each year from 2013 to 2022
  - The total enrollment across ten years
  - The mean total yearly enrollment across ten years
  - If no enrollment numbers over 500, print “No enrollments over 500.”
  - If any enrollment numbers over 500, print the median value of the >500 enrollments
- The following general calculations will be checked for accuracy (will be the same for every run):
  - The mean enrollment in 2013
  - The mean enrollment in 2022
  - Total graduating class of 2022 across all schools
  - Highest enrollment for a single grade within the entire time period (across all schools)
  - Lowest enrollment for a single grade within the entire time period (across all schools)
- 0.5 marks will be deducted for each error or missing component, up to a maximum of 8 marks