ENSF 592 Spring 2021 – Assignment 4 Grading

Assignment 4 Rubric (31 marks, 10% 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.

Commenting and Syntax (6 marks):
- (1) Your name must be included in the file header
- (1) 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)
- (1) All variables and functions have clear and useful names that use lowercase words separated by an underscore, all classes have CamelCase names
- (1) Code is clearly indented and spaces are included between variables and operators
- One mark will be deducted for each error or missing component, up to a maximum of 6 marks

Code Structure and Semantics (8 marks):
- (3) Solution contains at least one 3-dimensional array
- (1) Solution contains at least one subarray (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 (4 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
- One mark will be deducted for each error or missing component, up to a maximum of 4 marks

Execution (6 marks):
- Example test screenshots are provided in the repository and may be used as an output template
- (3) Provide a screenshot of successful execution. Your screenshot should include all specified functionality:
  - 1) returning the correct results when a school name is input
  - 2) returning the correct results when a school code is input
  - 3) handling incorrect input
- (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
- One mark will be deducted for each error or missing component, up to a maximum of 6 marks

Calculations (7 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 2020
    - 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 2020
    - Total graduating class of 2020 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 7 marks