**INSY 5336**

**Python Programming**

**Spring 2023**

**Extra Credit (50 points)**

**Deadline: 30th April, 2023 (No exception)**

**Guidelines:**

* It is required that all code be implemented and submitted as an Ipynb file (.ipynb).
* The assignment must be submitted individually; group submissions are not acceptable.
* Your code needs to be extensively tested for all possible test cases.
* In markdown language, you should document the high-level algorithm that is being used to solve the problem.
* There should be comments on every code segment in the Jupyter notebook cells. The # symbol in the code should be used to provide comments explaining the algorithm step and the purpose of the code segment.
* In order to differentiate a high-quality programmer from a low-quality one, it is very important to check your code for errors. Error messages should be provided for invalid inputs, infinite loops, and out of range results.

**Tasks to Do:**

* Write 3 programming questions for each of the following topics and solve them. The questions must be original.
* Topics: Operators, if-elif-else, while loop, for loop, functions (e.g., lambda, filter, map), exception handling, regular expression, list, dictionary, set, tuple, files, inheritance, encapsulation, polymorphism, and abstraction.