Lab 4: Vector Operation Lab

This is an INDIVIDUAL assignment. Due date is as indicated on BeachBoard. Follow ALL instructions otherwise you will lose points. In this lab, you will be overloading two operators from a class called `Vector`.

Instructions:

1. Take a close look at the `Vector.py` file. There are some functions that have already been implemented. In addition, there are two operators that you need to overload: `__sub__` and `__mul__`. Read through both of their descriptions carefully.
   - `__sub__()`: vector subtraction
   - `__mul__()`: dot product

   Remember, you will lose points if you do not follow the instructions. We are using a grading script.

2. Please note that a few functions are already completed:
   - constructor
   - `get_ith_element(i)`: gets the ith value in the Vector
   - `__add__()`: +, vector addition
   - `__str__()`: to string function

   Do NOT alter the already implemented functions in ANY significant way.

3. Your job is to implement both `__sub__()` and `__mul__()` so that it passes any test case. There are four sample test cases provided for you, but these are not the only cases that we will test. We will be testing other test cases in the same way the test cases are presented.

4. After completing these functions, comment out the test cases (or delete them) or else the grading script will pick it up and mark your program as incorrect.

5. Rename your `Vector.py` file to
   `lastName_firstName_section#_idNumber.py`
   this step is important!!!! Do not forget it! Please avoid spaces and additional symbols when renaming your file.

6. Convert your newly named `Vector.py` file to a `.txt` file with the same naming scheme as above. Submit your newly named `Vector.py` file and your `.txt` file on BeachBoard. Do NOT submit it in compressed folder.

7. Do not email us your code asking us to verify it. We will answer general questions, but we will not debug your code over email.

Grading rubric

Points	Requirement
15	Implemented `__sub__()` correctly
15	Implemented `__mul__()` correctly
5	Passes 2 original test cases (also commented out or deleted the test cases)

*** Note: If you name your file incorrectly or if your program has an error, you will automatically get a 0 on the lab! Double check to make sure that you do not have any errors and that you name your file correctly!!!

** If we find that you have significantly altered the already implemented functions, then you will get an automatic 0! Regardless of your other functions being correct or not.