DSC 430: Python Programming
Assignment 0901: Numpy Intro

For this assignment you are going to practice the basic functions of NumPy.

1. Import NumPy
2. Use *arange* to create a NumPy array with 100 equally spaced values in the range 0 through 100 (not including 100). Name this NumPy array *a*.
3. Use *arange* to create a NumPy array with 10 equally spaced values in the range 0 through 100 (not including 100). Name this NumPy array *b*.
4. Use *linspace* to create a NumPy array in the range 0 through 10 (inclusive) with values spaced at 0.1. Call this NumPy array *c*.
5. Create a random two-dimensional array with the dimensions 10 by 10. Call this NumPy array *d*.
6. Reshape *a* so that it is a two-dimensional array with the dimensions 10 by 10.
7. Show the results of "a[4,5]".
8. Show the results of "a[4]".
9. Show the sum of *d*.
10. Show the max of *a*.
11. Show the transpose of *b*.
12. Show the results of adding *a* and *d.*
13. Show the results of multiplying *a* and *d*.
14. Show the results of computing the dot product of *a* and *d*.

Record a three minute video in which you run the code. Then, present your code. Specifically, answer the following questions:

- Show how you created *a*, *b*, and *c*.
- Explain the results of "a[4,5]" and "a[4]".
- Why is the result of multiplying *a* and *d* different from computing the dot product of *a* and *d*.

Submission: Submit a single .py file containing all the code to the D2L. Do not zip or archive the file. Your code must include comments at the top including your name, date, video link, and the honor statement, "I have not given or received any unauthorized assistance on this assignment." Each function must include a docstring and be commented appropriately.