

Homework 01

DSO 545: Statistical Computing and Data Visualization

Fall 2019

Due Date: Friday September 6, 2019 (at the end of the day at 11:59pm)

Instructions

- Use Python to answer all questions (Feel free to use any IDE or Jupyter notebook)
- Submit your Python file to blackboard with comments when needed
- USC won't tolerate any kind of cheating
- Good luck

Questions

1. (1 point) Create a list (call it `x`) of all integers between 1 and 100 (inclusive). Use the function `range()` to create the list.
2. (1 point) Select the first 5 elements in the list `x`.
3. (1 point) What is the length of the list `x`?
4. (1 point) Select the last 10 elements in `x`.
5. (1 point) Create a list that has the first 5 and last 10 elements in `x`.
6. (1 point) Use a `for` loop to show only the numbers in the list `x` that are divisible by 20.
7. (1 point) Create the following list, and find the maximum using only the `sort()` method and indexing techniques.

```
list = [90, -5, 870, 20, 400, 1000, 95]
```

8. (1 point) Create the following list, and find the maximum using a `for` loop. (You are **not** expected to use the python function `max()`).

```
list = [90, -5, 870, 20, 400, 1000, 95]
```

9. Suppose that have a simple linear regression model that relates the GPA to salaries. The model is $Salary = 6430 * GPA + 1980$.

- (1 point) If someone's GPA is 3.9, what is their expected salary? Write Python code to compute the salary.
- (1 point) Use list comprehensions to find the salaries of all GPAs in the following list:

```
x = [2.8, 3.4, 3.2, 3.8]
```