

**MSCS3045 FA22, Assignment#1, due Sep. 26<sup>th</sup>, midnight**

Q1: (5 points) Why the data type in NumPy is floating point in many cases?

**Answer:**

Q2: (40 points) Write a statement that performs the desired action. Assume the list `housePrices = ['$140,000', '$550,000', '$480,000']` exists. (10 point for each subquestion)

2.1 Update the price of the second item in `housePrices` to '\$175,000'.

**Answer:**

2.2 Add a price to the end of the list with a value of '\$1,000,000', use `.append()`.

**Answer:**

2.3 Remove the first element from `housePrices`, using the `pop()` method.

**Answer:**

2.4 Sort the list in-place (without creating a new object) by calling sort function:

**Answer:**

Q3: (10 points) Which statement adds 'data' to the following dictionary? (5 points)  
Why? (5 points)

```
prices = {'apples': 1.99, 'oranges': 1.49, 'kiwi': 0.79}
```

- ☐ prices['pears'] = 1.79
- ☐ prices['pears': 1.79]

**Answer:**

Q4: (10 points) What's the result of set([100, 200, 100, 200, 300])? Select the correct answer (5 points) and explain Why (5 points):

- ☐ A list with the following elements: [100, 200, 100, 200, 300].
- ☐ A set that contains 100, 200, and 300.
- ☐ A set that contains 100, 200, 300, another 100, and another 200.

**Answer:**

Q5: (25 points) At the end of Chapter4, section 4.5, you can find an example of utilizing array operations. Clearly explain why you need the following method in such code: (5 points for each)

1. .cumsum()
2. .min()
3. .max()
4. .abs(walk)
5. .argmax()

Answer:

- 1.
- 2.
- 3.
- 4.
- 5.

Q6: (10 points) The python code (given in p123) simulates 5,000 random walks, change this code to: (5 points for each)

6.1 Simulate 7500 walks, a single random walk with 2,000 steps.

Answer:

6.2. Find how long it took the random walk to get at least 50 steps away from the origin 0 in either direction

Answer: