

**Question - 1**  
**Stable Sort**

SCORE: 5 points

Consider an employee database where people are added based on hire date and then sorted based on last name. If two people in the employee database have the same last name, which sorting method(s) will not change their order relative to each other? (*Hint: this concept is known as stability*)

- ☐ Selection sort
- ☒ Insertion sort
- ☐ Shell sort
- ☐ All of the above

**Question - 2**  
**Question 2**

SCORE: 5 points

How many inversions does the sequence E F J K Y T O R Z W contain?

- ☐ 5
- ☐ 6
- ☒ 7
- ☐ 8

**Question - 3**  
**Selection Sort**

SCORE: 5 points

Given an array in reverse order [6, 5, 4, 3, 2, 1], what are the steps in selection sort?

- ☒ 1 5 4 3 2 6, 1 2 4 3 5 6, 1 2 3 4 5 6
- ☐ 3 5 4 6 2 1, 3 2 4 6 5 1, 3 2 1 6 5 4, 1 2 3 4 5 6
- ☐ 5 6 4 3 2 1, 4 5 6 3 2 1, 3 4 5 6 2 1, 2 3 4 5 6 1, 1 2 3 4 5 6
- ☐ 6 5 4 3 1 2, 6 5 4 1 2 3, 6 5 1 2 3 4, 6 1 2 3 4 5, 1 2 3 4 5 6

**Question - 4**  
**Sort Time**

SCORE: 5 points

Given an array in sorted order, which sort runs faster?

- ☐ Selection sort
- ☒ Insertion sort
- ☐ They run the same

Question - 5  
Old

SCORE: 30 points

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Your task is to implement a student ranking system using insertion sort. Your `sort()` method should sort students from highest to lowest GPA. You must also implement the `higher()` method used to compare the students' GPAs.

Both methods to be implemented are in the `StudentRank` class. There is also a `Student` class that you should not modify.