**Data Structures and Algorithms**

**Project 1**

[22,27,16,2,18,6] --🡪 Insertion Sort

Step 1:

[**2**,27,16,**22**,18,6]

Step 2:

[2,**6**,16,22,18,**27**]

Step 3:

[2,6,16,22,18,27]

Step 4:

[2,6,16,**18**,**22**,27]

Step 5:

[2,6,16,18,22,27]

1. Write the Big O Notation:

O(n^2) --🡪 O (62) == 36

1. Time Complexity:

Average case: The number we are looking for is middle.

Worst case: The number we are looking for is at the end.

Best case: The number we are looking for is at the first.

1. 18 --🡪 Average case.

[7,3,5,2,9,4,15,6] --🡪 Insertion Sort (first 4 steps)

Step 1:

[**2**,3,5,**7**,9,4,15,6]

Step 2:

[2,3,5,7,9,4,15,6]

Step 3:

[2,3,**4**,7,9,**5**,15,6]

Step 4:

[2,3,4,**5**,9,**7**,15,6]