

```

1  """
2  CS241 Checkpoint 10A/B - Insert Sort
3  Written by Chad Macbeth
4  """
5
6  """
7  File: sorting.py
8  Original Author: Br. Burton, designed to be completed by others.
9  Sorts a list of numbers.
10 """
11
12 def sort(numbers):
13     """
14     Fill in this method to sort the list of numbers
15     """
16
17     # Algorithm for Insertion Sort for a list of size n
18     # Pass 1: Insert the value at position 1 to the proper location between positions 0
19     # and 1 by swapping
20     # Pass 2: Insert the value at position 2 to the proper location between positions 0
21     # and 2 by swapping
22     # ...
23     # Pass n-1: Insert the value at position n-1 to the proper location between
24     # positions 0 and n-2 by swapping
25
26     # Complete passes by looping from 1 to n-1
27     for sort_pos in range(1, len(numbers)):
28         # Find swapping each pair starting from sort_pos to 1
29         for swap_pos in range(sort_pos, 0, -1):
30             # Compare swap_pos and swap_pos-1
31             if numbers[swap_pos] < numbers[swap_pos-1]:
32                 # Swap if needed
33                 numbers[swap_pos], numbers[swap_pos-1] = numbers[swap_pos-1],
34                 numbers[swap_pos]
35
36 def prompt_for_numbers():
37     """
38     Prompts the user for a list of numbers and returns it.
39     :return: The list of numbers.
40     """
41
42     numbers = []
43     print("Enter a series of numbers, with -1 to quit")
44
45     num = 0
46
47     while num != -1:
48         num = int(input())
49
50         if num != -1:
51             numbers.append(num)
52
53     return numbers
54
55 def display(numbers):
56     """
57     Displays the numbers in the list
58     """
59     print("The list is:")
60     for num in numbers:
61         print(num)
62
63 def main():
64     """
65     Tests the sorting process
66     """

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```
63     numbers = prompt_for_numbers()
64     sort(numbers)
65     display(numbers)
66
67 if __name__ == "__main__":
68     main()
69
```