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1  """
2  CS241 Checkpoint 10A/B - Selection 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     # Alogirthim for Selection Sort for a list of size n:
18     # Pass 1: Find the largest number from position 0 to n-1 and put into position n-1
19     # Pass 2: Find the second largest number from position 0 to n-2 and put into
20     # position n-2
21     # ...
22     # Pass n-1: Find the second smallest number from position 0 to 1 and put into
23     # position 1
24     # The smallest number will be left in position 0.
25
26     # Complete passes by looping fro n-1 to 1 decreasing.
27     for sort_pos in range(len(numbers)-1, 0, -1):
28         max_pos = 0
29         # Find the maximum from position 0 to sort_pos
30         for swap_pos in range(sort_pos+1):
31             # Save swap_pos for max
32             if numbers[swap_pos] > numbers[max_pos]:
33                 max_pos = swap_pos
34             # Swap the maximum number into the proper position
35             numbers[sort_pos], numbers[max_pos] = numbers[max_pos], numbers[sort_pos]
36
37 def prompt_for_numbers():
38     """
39     Prompts the user for a list of numbers and returns it.
40     :return: The list of numbers.
41     """
42
43     numbers = []
44     print("Enter a series of numbers, with -1 to quit")
45
46     num = 0
47
48     while num != -1:
49         num = int(input())
50
51         if num != -1:
52             numbers.append(num)
53
54     return numbers
55
56 def display(numbers):
57     """
58     Displays the numbers in the list
59     """
60     print("The list is:")
61     for num in numbers:
62         print(num)
63
64 def main():
65     """
66     Tests the sorting process

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```
65         """
66         numbers = prompt_for_numbers()
67         sort(numbers)
68         display(numbers)
69
70     if __name__ == "__main__":
71         main()
72
```