BRAC University **Set A**

Department of Computer Science and Engineering

CSE110: Programming Language I

Examination: *Quiz #4* Semester: *Summer 2022*

Date: 29 / 08 / 2022 Time: 40 Minutes

ID: _ _ _ _ _ _ _ _ _	Name: *(Please write in **CAPITAL LETTERS**)*	Obtained Points: **/ 20**	Section: **29**

- Read questions carefully.
- Understanding the question is part of the exam, please do not ask questions.

1. Write a **sign_sorter(...)** function in Python that sort a list of numbers such that:
   a. Negative numbers appears before positive numbers.
   b. Negative numbers are in descending order.
   c. Positive numbers are in ascending order.

   [**CO1**, **CO5**] (**10 Marks**)

Sample Function Call	Sample Output
lst = [96, -80, 26, -1, 84, -70, 43, -26, -59, -98] sign_sorter(lst) print(my_list)	[-1, -26, -59, -70, -80, -98, 26, 43, 84, 96]
lst = [60, 81, -82, 32, 26, -12, -90, -53, 39, 18] sign_sorter(lst) print(lst)	[-12, -53, -82, -90, 18, 26, 32, 39, 60, 81]

2. Write a **find(...)** function in Python that takes a sorted list of numbers and an element as argument and returns the index of that element found in the list. If the element does not exist, return **None**.

   [**CO1**, **CO5**] (**10 Marks**)

   Hint: *You may use either linear or binary search.*

Sample Function Call	Sample Output
lst = [-98, -80, -70, -59, -26, -1, 26, 43, 84, 96] print(find(lst, 26))	6
lst = [-98, -80, -70, -59, -26, -1, 26, 43, 84, 96] print(find(lst, 25))	None

Bonus

Trace the following code. [**CO4**, **CO6**] (**5 Marks**)

1	`lst1 = [1, 2, 3, 4, 5]`
2	`lst2 = [10, 20, 30, 40, 50]`
3	
4	`i = 0`
5	`while i < 5:`
6	`    j = 0`
7	`    k = i + j`
8	`    while j < 5:`
9	`        k = i + j - (4 % 3) ** 2`
10	`        if k > 3:`
11	`            lst2 = lst1`
12	`        lst1[i] = lst1[i] * 2`
13	`        j += 3`
14	`    k = k % len(lst2)`
15	`    print(lst2[k])`
16	`    i += 1`

BRAC University **Set B**

Department of Computer Science and Engineering

CSE110: Programming Language I

Examination: *Quiz #4* Semester: *Summer 2022*

Date: 29 / 08 / 2022 Time: 40 Minutes

ID: _ _ _ _ _ _ _ _ _	Name: *(Please write in **CAPITAL LETTERS**)*	Obtained Points: **/ 20**	Section: **29**

- Read questions carefully.
- Understanding the question is part of the exam, please do not ask questions.

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1. Write a **sign_sorter(...)** function in Python that sort a list of numbers such that:
   a. Negative numbers appears before positive numbers.
   b. Negative numbers are in ascending order.
   c. Positive numbers are in descending order.

   [**CO1**, **CO5**] (**10 Marks**)

Sample Function Call	Sample Output
lst = [96, -80, 26, -1, 84, -70, 43, -26, -59, -98] sign_sorter(lst) print(my_list)	[-98, -80, -70, -59, -26, -1, 96, 84, 43, 26]
lst = [60, 81, -82, 32, 26, -12, -90, -53, 39, 18] sign_sorter(lst) print(lst)	[-90, -82, -53, -12, 81, 60, 39, 32, 26, 18]

2. Write a **find(...)** function in Python that takes a sorted list of numbers and an element as argument and returns the index of that element found in the list. If the element does not exist, return **None**.

   [**CO1**, **CO5**] (**10 Marks**)

   Hint: *You may use either linear or binary search.*

Sample Function Call	Sample Output
lst = [-76, -44, -40, -32, -31, 10, 11, 27, 39, 99] print(find(lst, 40))	None
lst = [-76, -44, -40, -32, -31, 10, 11, 27, 39, 99] print(find(lst, -40))	2

Bonus

Trace the following code. [**CO4**, **CO6**] (**5 Marks**)

1	`lst1 = [3, 5, 7, 9, 2]`
2	`lst2 = [20, 40, 60, 80, 10]`
3	
4	`i = 0`
5	`while i < 5:`
6	`    j = 0`
7	`    k = i + j`
8	`    while j < 5:`
9	`        k = i + j - (4 % 3) ** 2`
10	`        if k > 3:`
11	`            lst2 = lst1`
12	`        lst1[i] = lst1[i] * 2`
13	`        j += 3`
14	`    k = k % len(lst2)`
15	`    print(lst2[k])`
16	`    i += 1`

BRAC University **Set C**

Department of Computer Science and Engineering

CSE110: Programming Language I

Examination: *Quiz #4* Semester: *Summer 2022*

Date: 29 / 08 / 2022 Time: 40 Minutes

ID: _ _ _ _ _ _ _ _ _	Name: *(Please write in **CAPITAL LETTERS**)*	Obtained Points: **/ 20**	Section: **29**

- Read questions carefully.
- Understanding the question is part of the exam, please do not ask questions.

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1. Write a **sign_sorter(...)** function in Python that sort a list of numbers such that:
   a. Negative numbers appears before positive numbers.
   b. Negative numbers are in descending order.
   c. Positive numbers are in descending order.

   [**CO1**, **CO5**] (**10 Marks**)

Sample Function Call	Sample Output
lst = [96, -80, 26, -1, 84, -70, 43, -26, -59, -98] sign_sorter(lst) print(lst)	[-1, -26, -59, -70, -80, -98, 96, 84, 43, 26]
lst = [60, 81, -82, 32, 26, -12, -90, -53, 39, 18] sign_sorter(lst) print(lst)	[-12, -53, -82, -90, 81, 60, 39, 32, 26, 18]

2. Write a **find(...)** function in Python that takes a sorted list of numbers and an element as argument and returns the index of that element found in the list. If the element does not exist, return **None**.

   [**CO1**, **CO5**] (**10 Marks**)

   Hint: *You may use either linear or binary search.*

Sample Function Call	Sample Output
lst = [-67, -54, -46, -29, -21, 14, 14, 37, 51, 66] print(find(lst, 37))	7
lst = [-67, -54, -46, -29, -21, 14, 14, 37, 51, 66] print(find(lst, -55))	None

Bonus

Trace the following code. [**CO4**, **CO6**] (**5 Marks**)

```
1  lst1 = [1, 4, 7, 2, 5]
2  lst2 = [30, 10, 40, 20, 50]
3
4  i = 0
5  while i < 5:
6      j = 0
7      k = i + j
8      while j < 5:
9          k = i + j - (4 % 3) ** 2
10         if k > 3:
11             lst2 = lst1
12     lst1[i] = lst1[i] * 2
13 j += 3
14 k = k % len(lst2)
15 print(lst2[k])
16 i += 1
```