

Exercise 2

Task-1

```
lab2 > task1.py > ...
1 import timeit
2
3 # custom insert algo
4 def ins(lst, data, pos):
5     list1 = lst[:pos]
6     list2 = lst[pos:]
7     return list1 + [data] + list2
8
9 # custom delete algo
10 def dele(lst, data):
11     for i in range(len(lst)):
12         if lst[i] == data:
13             return lst[:i] + lst[i+1:]
14     return lst
15
16 # custom search algo
17 def search(lst, data):
18     for i in range(len(lst)):
19         if lst[i] == data:
20             return i
21     return -1
22
23 test_list = list(range(10000))
24 # comparing the timings
25 print("Insert - Custom:", timeit.timeit("ins(test_list, 9999, 5000)", globals=globals(), number=1000))
26 print("Insert - Built-in:", timeit.timeit("test_list.insert(5000, 9999)", globals=globals(), number=1000))
27
28 print("Delete - Custom:", timeit.timeit("dele(test_list, 9999)", globals=globals(), number=1000))
29 print("Delete - Built-in:", timeit.timeit("test_list.remove(9999)", globals=globals(), number=1000))
30
31 print("Search - Custom:", timeit.timeit("search(test_list, 9999)", globals=globals(), number=1000))
32 print("Search - Built-in:", timeit.timeit("test_list.index(9999)", globals=globals(), number=1000))
33
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

the items before tuple are: [1, 2, 3]
The index of the tuple is: 3
The address of the list is: 1868518330752
The address of the tuple is: 1868521321088

PS C:\Users\NB\Desktop\LabCIS\DSATsks> python -u "c:\Users\NB\Desktop\LabCIS\DSATsks\lab2\task1.py"

Insert - Custom: 0.3373753000050783
Insert - Built-in: 0.003663300070911646

Delete - Custom: 0.8519275999860838
Delete - Built-in: 0.11533699999563396

Search - Custom: 1.509792200056836
Search - Built-in: 0.17611240001861006

Task-2

```
PS C:\Users\NB\Desktop\LabCIS\DSATsks> python -u "c:\Users\NB\Desktop\LabCIS\DSATsks\lab2\task2.py"
```

Custom dict insert: {1: 'a', 2: 'b', 3: 'c', 4: 'z'}

Custom dict delete: {1: 'a', 3: 'c'}

Custom dict search: c

Custom tuple insert: (1, 2, 99, 3, 4, 5)

Custom tuple delete: (1, 2, 4, 5)

Custom tuple search: 3

Dictionary timings

Insert custom: 0.0011913999915122986

Insert built-in: 0.0007473999867215753

Delete custom: 0.001204300089739263

Delete built-in: 0.0009038998978212476

Search custom: 0.0007530000293627381

Search built-in: 0.00015230011194944382

Tuple timings

Insert custom: 0.0011264000786468387

Insert built-in: 0.001200400060042739

Delete custom: 0.0031271999469026923

Delete built-in: 0.0012713000178337097

Search custom: 0.0012278999201953411

Search built-in: 0.0002902999985963106

PS C:\Users\NB\Desktop\LabCIS\DSATsks>

