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Department : BS(CS)

Semester : 4th

ID # : 15366

Sessional Assignment No : 2nd

Subject : Design and Analysis of
Algorithm

Submitted To : Muhammad Adil Sir

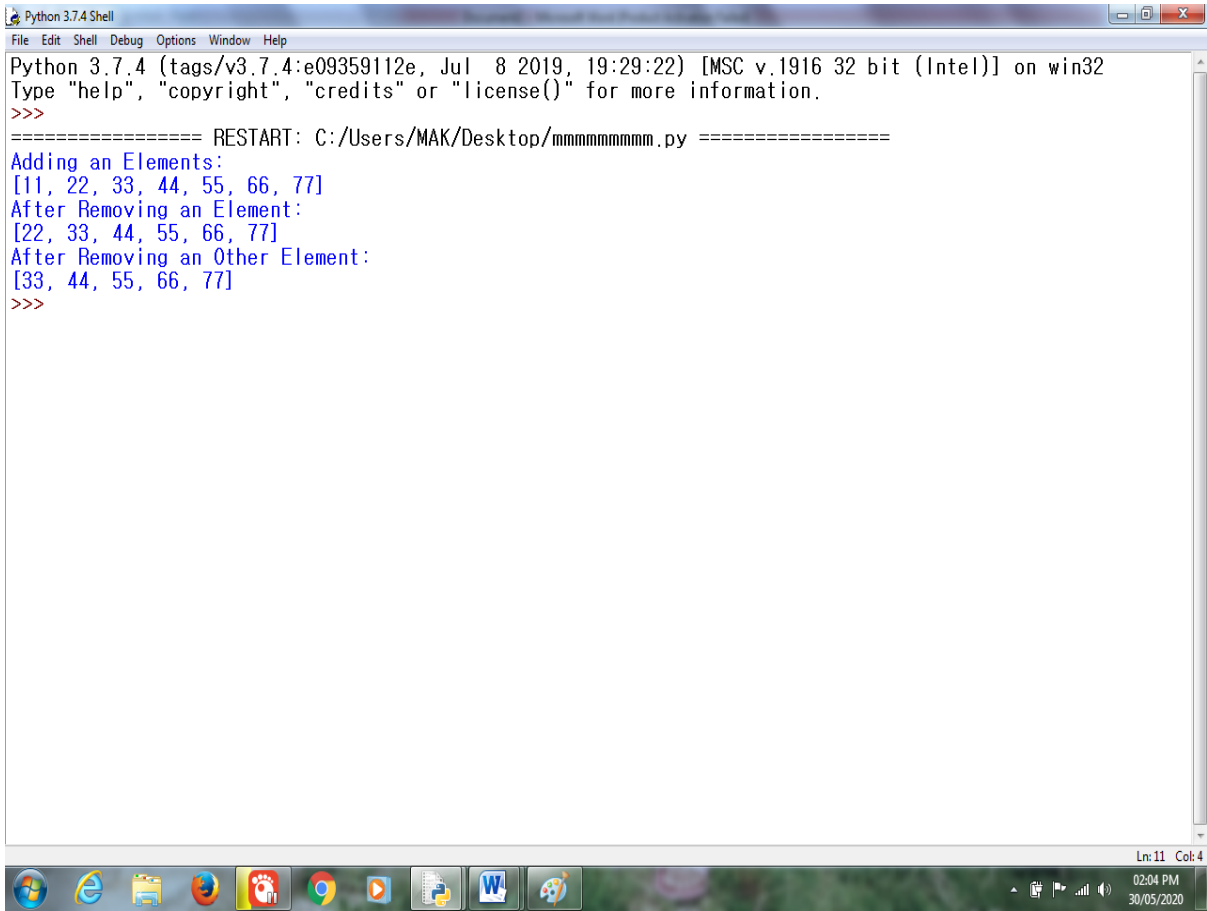
Dated : 31th May 2020

Q1: Push and Pop an Element in a Queue:

```
mmmmmmmm.py - C:/Users/MAK/Desktop/mmmmmmm.py (3.7.4)
File Edit Format Run Options Window Help
class Queue:
    def __init__(self):
        self.queue = []
        """ Add an element """
    def inqueue(self, element):
        self.queue.append(element)
        """ Remove an element """
    def outqueue(self):
        if len(self.queue) < 1:
            return None
        return self.queue.pop(0)
        """ Display the queue """
    def display(self):
        print (self.queue)
    def size(self):
        return len(self.queue)
print ("Adding an Elements:")
a = Queue()
a.inqueue(11)
a.inqueue(22)
a.inqueue(33)
a.inqueue(44)
a.inqueue(55)
a.inqueue(66)
a.inqueue(77)
a.display()
a.outqueue()
print("After Removing an Element:")
a.display()
a.outqueue()
print("After Removing an Other Element:")
a.display()
```

Ln:14 Col:26
02:02 PM
30/05/2020

Result:



```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 19:29:22) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/MAK/Desktop/mmmmmmmmm.py =====
Adding an Elements:
[11, 22, 33, 44, 55, 66, 77]
After Removing an Element:
[22, 33, 44, 55, 66, 77]
After Removing an Other Element:
[33, 44, 55, 66, 77]
>>>
```

Ln: 11 Col: 4
02:04 PM
30/05/2020

Q2: Linked List and One Way Linked List:

```
Linked List.py - C:/Users/MAK/Desktop/Linked List.py (3.7.4)
File Edit Format Run Options Window Help
class Node:
    """ Establishing a Node """
    def __init__(self, element):
        self.element = element
        self.next = None

class linked_list:
    def __init__(self):
        self.head = None
if __name__ == '__main__':
    LinkedList = linked_list()

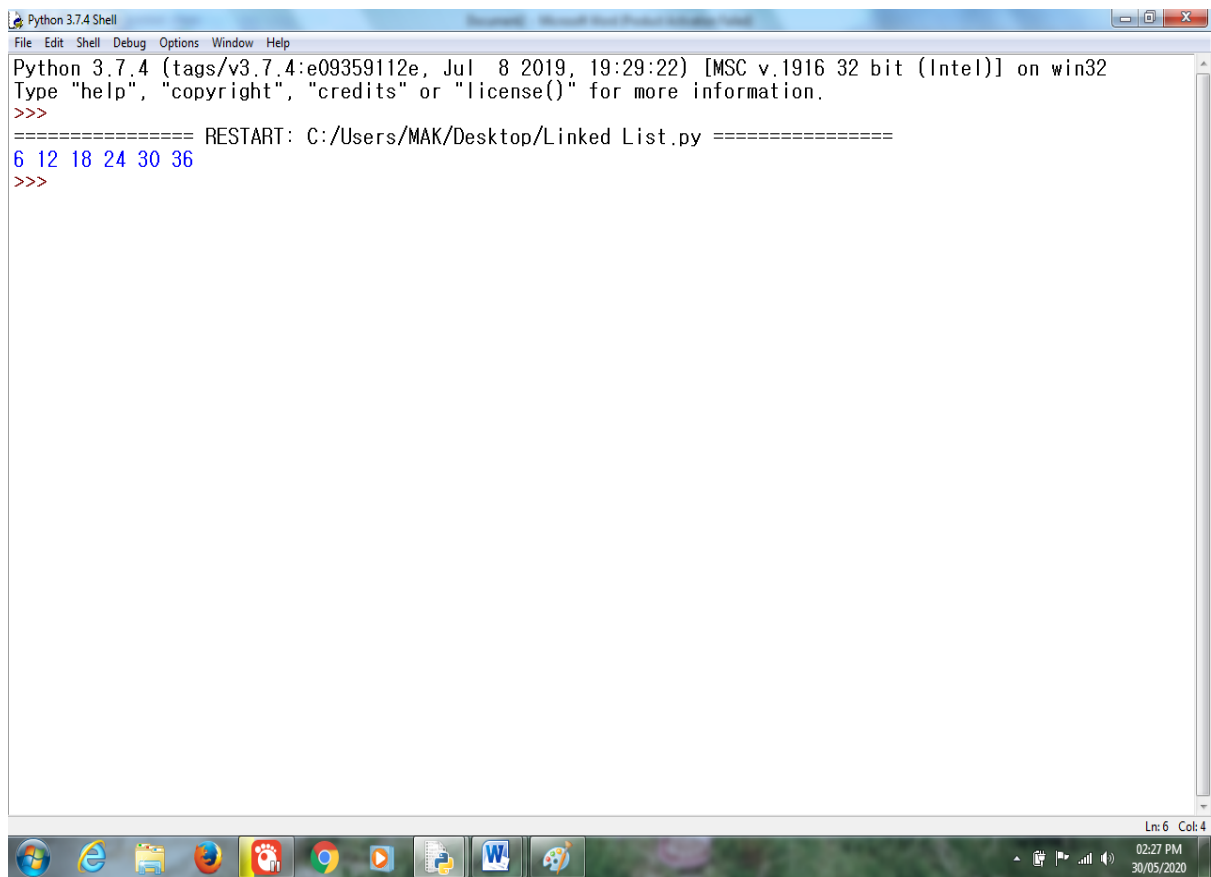
    """ Assign Element Values """
    LinkedList.head = Node(6)
    second = Node(12)
    third = Node(18)
    fourth = Node(24)
    fifth = Node(30)
    sixth = Node(36)

    """ Connect Nodes """
    LinkedList.head.next = second
    second.next = third
    third.next = fourth
    fourth.next = fifth
    fifth.next = sixth

    """ Print the Linked List Elements """
    while LinkedList.head != None:
        print(LinkedList.head.element, end = " ")
        LinkedList.head = LinkedList.head.next

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02:25 PM
30/05/2020
```

Result:



```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 19:29:22) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/MAK/Desktop/Linked List.py =====
6 12 18 24 30 36
>>>
```

The screenshot shows a Windows desktop environment with a taskbar at the bottom containing icons for Internet Explorer, File Explorer, Firefox, Chrome, VLC, and Word. The active window is titled "Python 3.7.4 Shell" and displays the Python interpreter's startup message and a successful restart of a script named "Linked List.py". The output of the script is the sequence of numbers "6 12 18 24 30 36". The status bar at the bottom right of the window shows "Ln: 6 Col: 4", the time "02:27 PM", and the date "30/05/2020".