Task 2

Team Members: _____

In this practice, we will be implementing several custom methods for the linked list class. You are required to use python. For help you can use the lecture slides.

Task: (points 3+4+3)

Given the code for the following linked list class

```
class LinkedList(object):
    def __init__(self):
    # head of list
        self.head = None

    # Linked list Node
    class Node(object):
        def __init__(self, d):
            self.data = d
            self.next = None

    def insert_at_head(self, value):
        new_node = self.Node(value)
        new_node.next = self.head
        self.head = new_node

     def printrange(self, x, y):
      ######### Write your code here######




      ####################################

    def alternateListjoin(self, q):
      ######### Write your code here######




      ####################################

    # Function to print linked list
    def printList(self):
        temp = self.head
        while temp != None:
            print(str(temp.data))
            temp = temp.next
        print(' ')
```

1. Complete the **printrange** method. The method takes two integer numbers x and y as input and print the items from position x to y (Assuming the first item is at position 1 and x>=y).

   Example 1:
   P = 1->2->3->4->5
   P.printrange (3,5) will print 3 4 5

   Example 2:
   P = None
   P.printrange (3,5) will print "No item in range"

   Example 3:
   P = 1->2->3->4->5
   P.printrange (3,10) will print 3 4 5

2. Complete the **alternateListjoin** method. Both p and q are LinkedList objects. The method inserts nodes of linked list ***q*** at alternate position of the list pointed by self. For example,

   Example 1:
   P = 1->3->5->7->9 and
   q = 2->4->6->8->10
   P.alternateListjoin(q) method will update ***P*** to 1->2->3->4->5->6->7->8->9->10 and ***q*** will become null

   Example 2:
   P *= 1->3->5 and*
   q *= 2->4->6->8->10*
   P.alternateListjoin(q) method will update the list ***P*** to 1->2->3->4->5->6 (elements of ***q*** is inserted at alternate locations of ***P***) and ***q*** will be 8->10

   Example 3:
   P = 1->3->5->7->9 and
   q = 2->4->6
   P.alternateListjoin(q) method will update the list ***P*** to 1->2->3->4->5->6->7->9 and ***q*** will be null

3. Write a code to test your implementation for various *cases.*