NAME: ASIF ERFAN KHAN

ROLL NUMBER: 546

COURSE: MSc CS

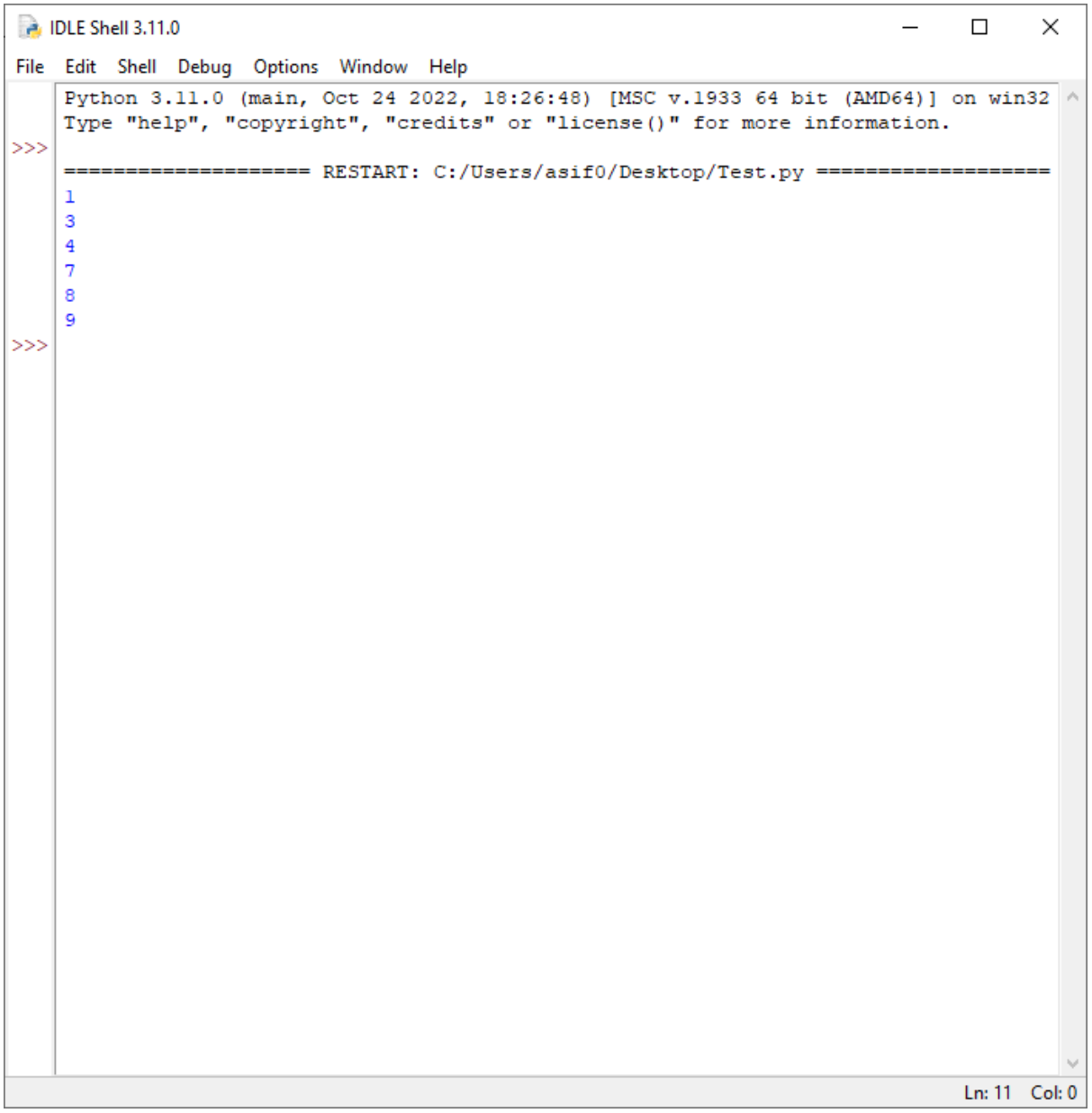
SUBJECT: ALGORITHM

TOPIC: RANDOMIZED SELECTION ALGORITHM

**PRACTICAL 1**

```
from random import randrange
def partition(x, pivot_index = 0):
   i = 0
   if pivot_index !=0: x[0],x[pivot_index] = x[pivot_index],x[0]
   for j in range(len(x)-1):
      if x[j+1] < x[0]:
         x[j+1],x[i+1] = x[i+1],x[j+1]
         i += 1
   x[0],x[i] = x[i],x[0]
   return x,i
def RSelect(x,k):
   if len(x) == 1:
      return x[0]
   else:
      xpart = partition(x,randrange(len(x)))
      x = xpart[0] # partitioned array
      j = xpart[1] # pivot index
      if j == k:
         return x[j]
      elif j > k:
         return RSelect(x[:j],k)
      else:
         k = k - j - 1
         return RSelect(x[(j+1):], k)
x = [3,1,8,4,7,9]
for i in range(len(x)):
   print (RSelect(x,i)),
```

OUTPUT:


IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/asif0/Desktop/Test.py ==========
1
3
4
7
8
9
>>>
Ln: 11 Col: 0