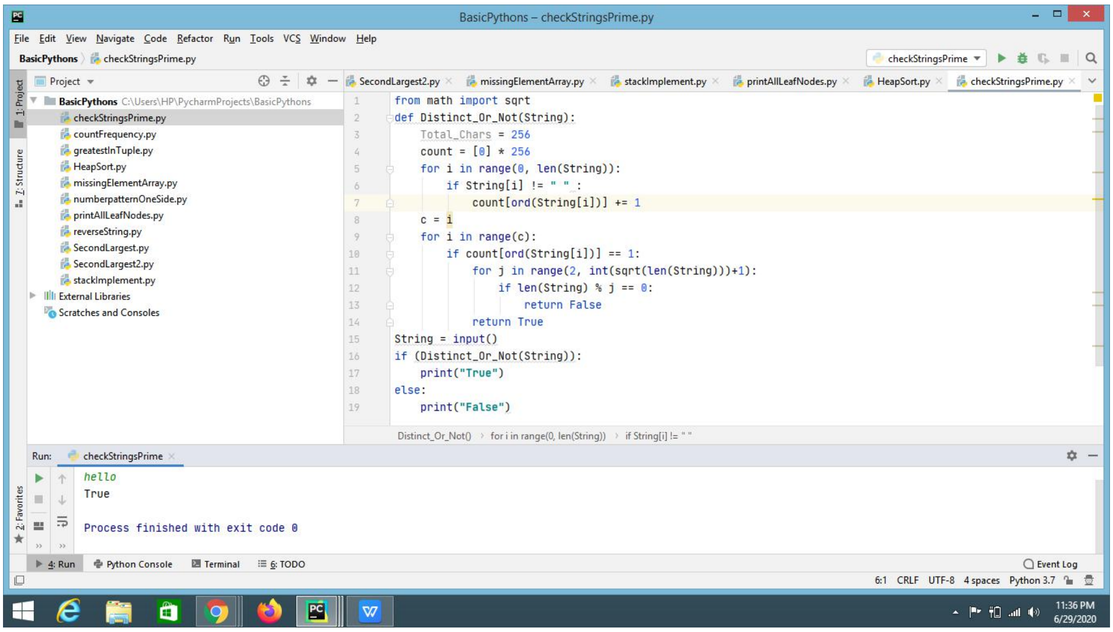
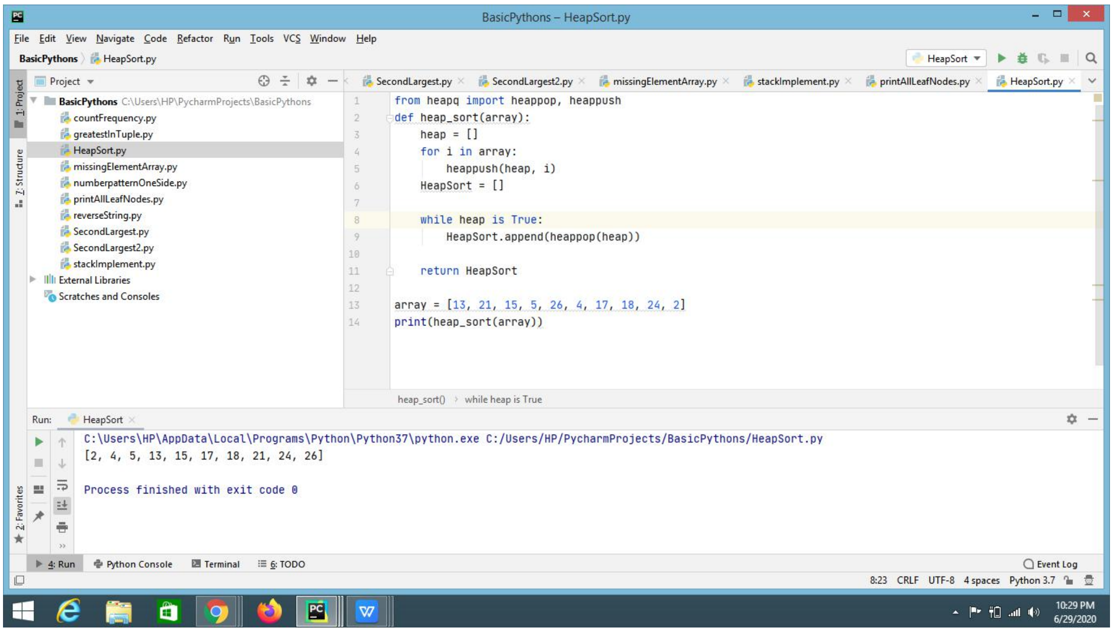
Q1. Check whether count of distinct characters in string is prime or not?



```python
from math import sqrt
def Distinct_Or_Not(String):
    Total_Chars = 256
    count = [0] * 256
    for i in range(0, len(String)):
        if String[i] != " " :
            count[ord(String[i])] += 1
    c = i
    for i in range(c):
        if count[ord(String[i])] == 1:
            for j in range(2, int(sqrt(len(String)))+1):
                if len(String) % j == 0:
                    return False
            return True
String = input()
if (Distinct_Or_Not(String)):
    print("True")
else:
    print("False")
```

```
hello
True

Process finished with exit code 0
```

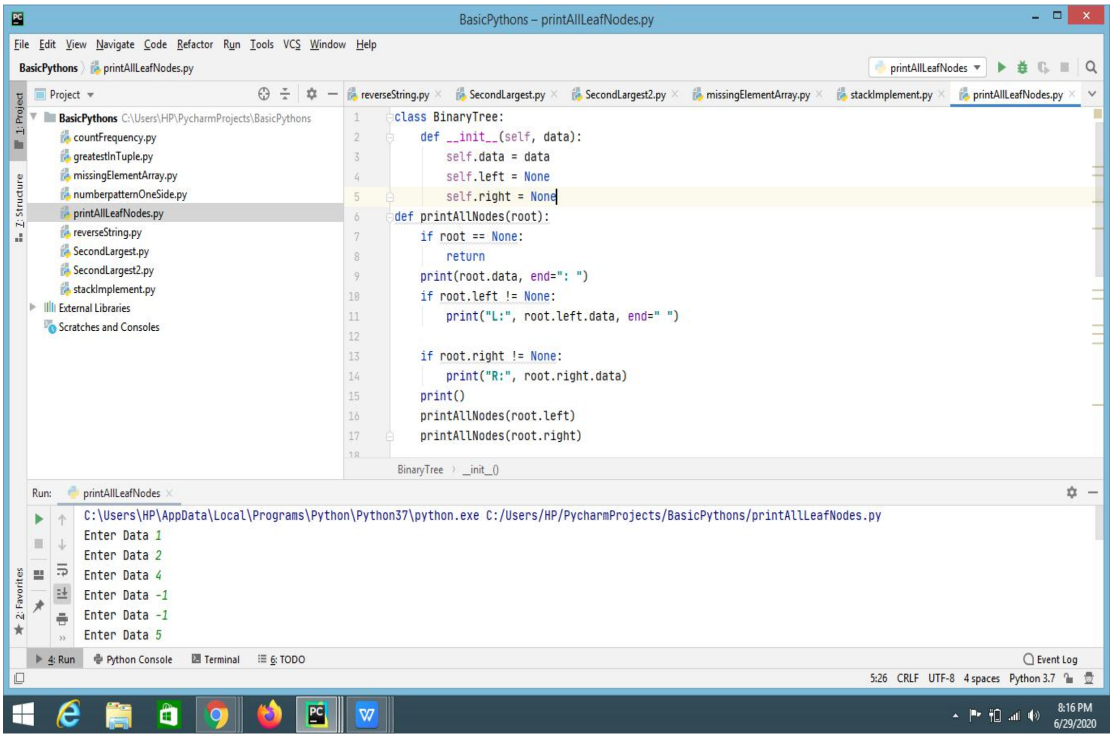
Q2. How to sort numbers using heap algorithm?



```python
from heapq import heappop, heappush
def heap_sort(array):
    heap = []
    for i in array:
        heappush(heap, i)
    HeapSort = []

    while heap is True:
        HeapSort.append(heappop(heap))

    return HeapSort

array = [13, 21, 15, 5, 26, 4, 17, 18, 24, 2]
print(heap_sort(array))
```

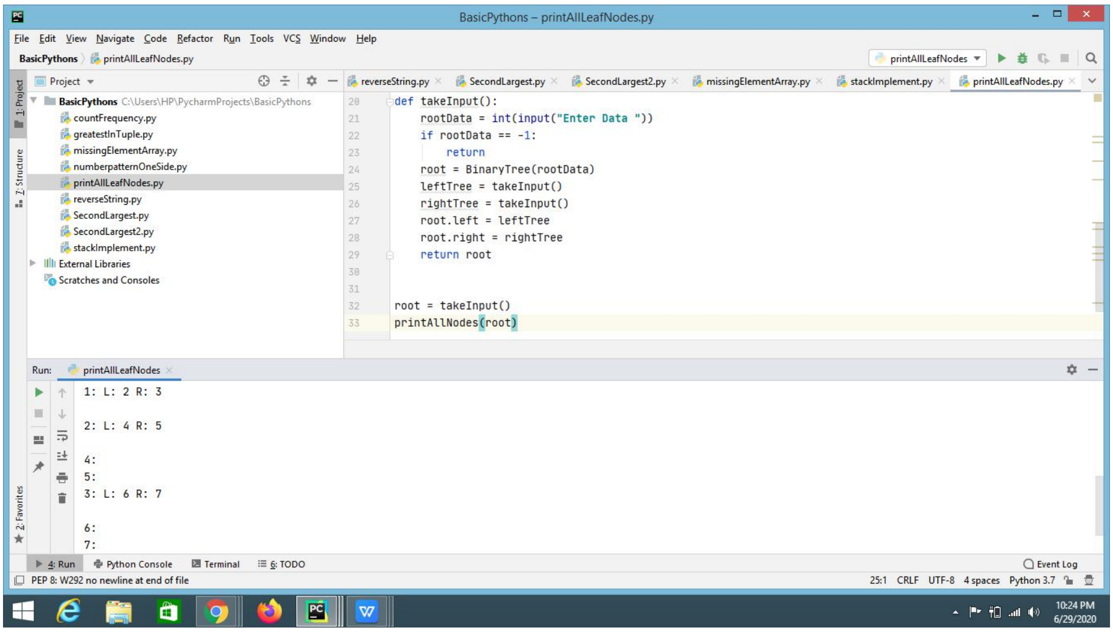
```
C:\Users\HP\AppData\Local\Programs\Python\Python37\python.exe C:/Users/HP/PycharmProjects/BasicPythons/HeapSort.py
[2, 4, 5, 13, 15, 17, 18, 21, 24, 26]

Process finished with exit code 0
```

Q3. WAP to print all the leaf nodes of binary tree?



```
class BinaryTree:
    def __init__(self, data):
        self.data = data
        self.left = None
        self.right = None
def printAllNodes(root):
    if root == None:
        return
    print(root.data, end=": ")
    if root.left != None:
        print("L:", root.left.data, end=" ")

    if root.right != None:
        print("R:", root.right.data)
    print()
    printAllNodes(root.left)
    printAllNodes(root.right)
```

```
C:\Users\HP\AppData\Local\Programs\Python\Python37\python.exe C:/Users/HP/PycharmProjects/BasicPythons/printAllLeafNodes.py
Enter Data 1
Enter Data 2
Enter Data 4
Enter Data -1
Enter Data -1
Enter Data 5
```


BasicPythons – printAllLeafNodes.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
Run: printAllLeafNodes
4: Run
Python Console
Terminal
6: TODO
Event Log
25:1 CRLF UTF-8 4 spaces Python 3.7
10:24 PM
6/29/2020

```
def takeInput():
    rootData = int(input("Enter Data "))
    if rootData == -1:
        return
    root = BinaryTree(rootData)
    leftTree = takeInput()
    rightTree = takeInput()
    root.left = leftTree
    root.right = rightTree
    return root


root = takeInput()
printAllNodes(root)
```

```
1: L: 2 R: 3

2: L: 4 R: 5

4:
5:
3: L: 6 R: 7

6:
7:
```

PEP 8: W292 no newline at end of file