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ROLL NUMBER: 546

COURSE: MSc CS

SUBJECT: ALGORITHM

TOPIC: COUNTING SORT

PRACTICAL 6

Python3 program for counting sort

The main function that sort the given string arr[] in

alphabetical order

def countSort(arr):

 # The output character array that will have sorted arr

 output = [0 for i in range(len(arr))]

 # Create a count array to store count of individual

 # characters and initialize count array as 0

 count = [0 for i in range(256)]

 # For storing the resulting answer since the

 # string is immutable

 ans = [""] for _ in arr]

 # Store count of each character

 for i in arr:

 count[ord(i)] += 1

 # Change count[i] so that count[i] now contains actual

 # position of this character in output array

 for i in range(256):

 count[i] += count[i-1]

 # Build the output character array

 for i in range(len(arr)):

```
output[count[ord(arr[i])]-1] = arr[i]
count[ord(arr[i])] -= 1
```

```
# Copy the output array to arr, so that arr now
# contains sorted characters
for i in range(len(arr)):
    ans[i] = output[i]
return ans
```

Driver code

```
if __name__ == '__main__':
    arr = "geeksforgeeks"
    ans = countSort(arr)
    print("Sorted character array is % s" % ("".join(ans)))
```

OUTPUT:

```
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 =====
Sorted character array is eeeefggkkorss
>>> |
```

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