



Python Programming - 2301CS404

Lab - 5

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1) Character Category Counter

Problem: Count uppercase, lowercase, digits, and special characters in a string.

Sample Inputs & Outputs:

- Input: Python3@Lab → Uppercase: 2, Lowercase: 7, Digits: 1, Special: 1
- Input: HELLO123 → Uppercase: 5, Lowercase: 0, Digits: 3, Special: 0

- Input: `hi@#9` → Uppercase: 0, Lowercase: 2,
Digits: 1, Special: 2

```
In [2]: str1 = input("Enter String:")
countup = 0
countlow = 0
countdigit = 0
countsep = 0
for i in str1:
    if i.isupper():
        countup += 1
    elif i.islower():
        countlow += 1
    elif i.isdigit():
        countdigit += 1
    else:
        countsep += 1

print(f"UpperCase : {countup}");
print(f"LowerCase : {countlow}");
print(f"Digit : {countdigit}");
print(f"Special : {countsep}");
```

```
UpperCase : 2
LowerCase : 7
Digit : 1
Special : 1
```

2) Reverse Each Word

- Input: `Python is Easy` → `nohtyP si ysaE`
- Input: `Hello World` → `olleH dlrow`
- Input: `Learn Python Fast` → `nraeL nohtyP tsaF`

```
In [14]: s = input("Enter string: ")
output = ''
```

```

for word in s.split():
    output += word[::-1] + ' '

print(output.strip())

```

nohtyP si ysaE

3) Case Pattern Identifier

- PYTHON → Uppercase
- python → Lowercase
- Python Programming → Title Case

```

In [15]: s = input("Enter a String :")
if s.isupper():
    print("Uppercase")
elif s.islower():
    print("Lowercase")
elif s.istitle():
    print("Title Case")
else:
    print("Mixed Case")

```

Uppercase

4) First and Last Occurrence Finder

- programming , g → First:3 Last:10
- banana , a → First:1 Last:5
- hello , z → Not found

```

In [ ]: str1 = input()
char = input("Enetr char that u want to find: ")
First = str1.find(char)
Last = str1.rfind(char)
if(First != -1):
    print(f"First:{First} Last:{Last}");

```

```
else :  
    print("Not found")
```

5) Word Frequency Counter (ignore the case)

- Python is easy and Python is powerful → python: 2
- Java is popular but java is verbose → java: 2
- C is fast → c:1

```
In [1]: str1 = input("Enter String :")  
sub = input("Enter a substring That u want to c  
print(str1.count(sub))
```

2

6) Remove Extra Spaces

- Python is fun → Python is fun
- Hello World → Hello World
- NoExtraSpace → NoExtraSpace

```
In [4]: s = input ("Enter String")  
output = ''  
for i in s.split():  
    output += i + '  
print(output.rstrip())
```

Python is fun

7) Prefix and Suffix Removal

- unhappy.txt → happy
- pretest.py → test

- unwanted.doc → wanted

```
In [5]: s = input("Enter String :")
pre = input("Enter a Prefix: ")
suf = input("Enter a Suffix")
s = s.removeprefix(pre)
s = s.removesuffix(suf)
print(s)
```

happy

8) Replace Vowels

- Programming → Pr*gr*mm*ng
- Education → *d*c*t**n
- Sky → Sky

```
In [7]: s = input("Enetr String :")
s = s.lower()
for i in s:
    if i in "aeiou":
        s = s.replace(i,"*")
print(s)
```

pr*gr*mm*ng

9) String Compression

- aaabbcccc → a3b2c4
- xxxyyyz → x3y3z1
- abcd → a1b1c1d1

```
In [20]: s = input("Enter String :")
count = 1
for i in range(0,len(s)-1):
    if s[i] == s[i+1]:
        count += 1
```

```
    else :
        print(f"{s[i]}{count}",end=' ')
        count = 1
    print(f"{s[i+1]}{count}",end=' ')
```

x3y3z1

10) Toggle Case (without using str.swapcase())

- PyThOn → pYtHoN
- HELlo → helLo
- Python → pYTHON

```
In [9]: s = input("Enter a String :")
output = ''
for i in s:
    if i.isupper():
        output += i.lower()
    elif i.islower():
        output += i.upper()
print(output)
```

pYtHoN

11) Username Validation

valid username rules:

1. only alphabets and digits
2. does not start with a digit
3. length ≥ 6

- User123 → Valid
- 123User → Invalid
- Us@12 → Invalid

```
In [27]: s = input("Enter a valid Username :");
if s.isalnum() and len(s)>=6:
    print("Valid")
else :
    print("Invalid")
```

Invalid

12) Palindrome Checker (ignore the case)

- Madam → Palindrome
- Level → Palindrome
- Python → Not Palindrome

```
In [13]: s = input("Enter a String :")
s = s.lower()
rev = s[::-1]
if s == rev:
    print("Palindrome.")
else :
    print("Not Palindrome.")
```

Palindrome.

13) Longest Word Finder

- Python programming is interesting → programming
- I love coding → coding
- Data structures and algorithms → structures

```
s = input("Enter String :")
```

```
output = " for i in s.split(): if len(output) < len(i):  
output = i print(output)
```

14) Case Conversion

- `python programming`
 - Upper: PYTHON PROGRAMMING
 - Lower: python programming
 - Title: Python Programming
 - Capitalize: Python programming

```
In [6]: s = input("Enter a string :")  
print(f"Upper: {s.upper()}")  
print(f"Lower: {s.lower()}")  
print(f"Title: {s.title()}")  
print(f"Capitalize: {s.capitalize()}")
```

```
Upper:PYHTON PROGRAMMING  
Lower:pyhton programming  
Title:Pyhton Programming  
Capitalize:Pyhton programming
```

15) Custom Split

- `apple,banana,grape`
- `10|20|30`
- `A-B-C-D`

```
In [24]: char = input ("Enetr your custom split special  
s = input("Enetr string :")
```

```
output = ''  
for i in s.split():  
    output = output+i+char  
print(output[0:len(output)-1])
```

apple,banana,grape

In []: