AKSHAT KUMAR
20MIS0183

ASSESSMENT-2 (1.13-Strings in Python)

1. Program to print all characters in a given string in forward and reverse order.

CODE:

```
#python code to print entered string in forward and reverse order
string=input("Enter a string: ").lower()
reverse_string=string[::-1]
print("The given string in forward order : ",string)
print("The given string in reverse order : ",reverse_string)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/1.py

Enter a string: AKSHAT KUMAR
The given string in forward order :  akshat kumar
The given string in reverse order :  ramuk tahska

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/1.py

Enter a string: REG NO 20MIS0183
The given string in forward order :  reg no 20mis0183
The given string in reverse order :  3810sim02 on ger

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/1.py

Enter a string: I AM IN VIT
The given string in forward order :  i am in vit
The given string in reverse order :  tiv ni ma i
```

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2. Program to count the number of vowels in a given string.

CODE:

```
#python code to count the number of vowels in the string
vowels=['a','e','i','o','u']
string=input("Enter a string : ").lower()
l=len(string)-1
i=0
v_count=0
while i<=l:
    if string[i] in vowels:
        v_count+=1
    i+=1
print("The number of vowels in the given string is : ",v_count)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/2.py

Enter a string : I am akshat kumar
The number of vowels in the given string is :  6

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/2.py

Enter a string : i am in vit university
The number of vowels in the given string is :  8

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/2.py

Enter a string : registration number is 20MIS0183
The number of vowels in the given string is :  9
```

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3. Program to check whether the given string is palindrome or not.

CODE:

```
#python code to check whether the entered string is palindrome or not
string=input("Enter a string : ").lower()
a=string[::-1]
if a==string:
    print("The given string is palindrome")
else:
    print("The given string is not a palindrome")
    print("PROOF !")
    print("The given string is : ",string)
    print("Its reverse is : ",a)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/3.py
Enter a string : English
The given string is not a palindrome
PROOF !
The given string is :  english
Its reverse is :  hsilgne

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/3.py
Enter a string : malayalam
The given string is palindrome

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/3.py
Enter a string : vit
The given string is not a palindrome
PROOF !
The given string is :  vit
Its reverse is :  tiv

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/3.py
Enter a string : madam
The given string is palindrome
```

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4. Program to check whether a given string (say string1) is present or not in another string (say string 2).

EG:
string 1: India
String 2: India is our country.
Output: String 'India' is present in string 'India is our Country'.

CODE:

```
main=input("Enter the main string : ")
str=input("Enter a string to be checked in main string : ")
if str in main :
    print("The given word(",str,")is in the main string ")
else:
    print("The given word(",str,")is not in main string")
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/4.py

Enter the main string : i am akshat kumar
Enter a string to be checked in main string : akshat
The given word ( akshat ) is in the main string

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/4.py

Enter the main string : i am pursuing mtech integrated
Enter a string to be checked in main string : btech
The given word ( btech ) is not in main string

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/4.py

Enter the main string : i am in vit
Enter a string to be checked in main string : vit
The given word ( vit ) is in the main string
```

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5. Program to print the following patterns.

a. A
B B
C C C
D D D D
...

CODE:

```
a=int(input("Enter number of rows : "))
b=65
l=0
while l <= (a-1):
    j=0
    while j <= l:
        print(chr(b),end=' ')
        j+=1
    print(" ")
    l+=1
    b+=1
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/5a.py

Enter number of rows : 15
A
B B
C C C
D D D D
E E E E E
F F F F F F
G G G G G G G
H H H H H H H H
I I I I I I I I I
J J J J J J J J J J
K K K K K K K K K K K
L L L L L L L L L L L L
M M M M M M M M M M M M M
N N N N N N N N N N N N N N
O O O O O O O O O O O O O O O
```

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5. Program to print the following patterns.

b. A
A B
A B C
A B C D
...

CODE:

```
r=int(input("Enter number of rows needed : "))
n=0
j=1
while n!=r:
    c=0
    b=64
    if j%2!=0:
        while c<=n:
            b+=1
            c+=1
            print(chr(b),end=' ')
    if j%2==0:
        while c<=n:
            b+=1
            c+=1
            print(chr(b),end=" ")
    j+=1
    print(end="\n")
    n+=1
```

OUPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python8-
32/python.exe c:/Users/user/Desktop/python/act1.13/5b.py
Enter number of rows needed : 12
A
A B
A B C
A B C D
A B C D E
A B C D E F
A B C D E F G
A B C D E F G H
A B C D E F G H I
A B C D E F G H I J
A B C D E F G H I J K
A B C D E F G H I J K L
```

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5. Program to print the following patterns.

C. A
2 2
C C C
4 4 4 4
E E E E E...

CODE:

```
a=int(input("Enter the number of rows needed : "))
b=65
c=1
d=1
while c<=a:
    j=1
    while j<=c:
        if c%2!=0:
            print(chr(b), end=" ")
        else:
            print(d, end=" ")
        j+=1
    d+=1
    print(" ")
    c+=1
    b+=1
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Pyt8-32/python.exe
c:/Users/user/Desktop/python/act1.13/5c.py

Enter the number of rows needed : 12
A
2 2
C C C
4 4 4 4
E E E E E
6 6 6 6 6 6
G G G G G G G
8 8 8 8 8 8 8 8
I I I I I I I I I
10 10 10 10 10 10 10 10 10 10
K K K K K K K K K K K
12 12 12 12 12 12 12 12 12 12 12 12
```

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6. Program for simple encoding.
a. Read a sentence (original data) from user.
b. Encode the user input as follows.
i. Replace 'a' by '5'
ii. Replace 'b' by '+'
iii. Replace 'c' by '$'
c. Print both original data and encoded data in the screen.

Examples:
1. Input (Original data): India
Output (Encoded data): Indi5
2.Input (original data): Carbon
Output (Encoded data): C5r+on

CODE:

```
ch=input("DO YOU WANT TO ENCODE (YES/NO): ").lower()
if ch == "yes" :
    original_string=input("ENTER THE STRING TO BE ENCODED :")
    en_a=original_string.replace('a', '5')
    en_b=en_a.replace('b', '+')
    en_c=en_b.replace('c', '$')
    print("THE ORIGINAL STRING : ",original_string)
    print("THE ENCODED STRING : ", en_c)
elif ch == "no":
    print("OKAY HAVE A GREAT TIME")
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/6.py

DO YOU WANT TO ENCODE (YES/NO): YES
ENTER THE STRING TO BE ENCODED :I Am Akshat Kumar Registartion Number 20MIS0183
THE ORIGINAL STRING :  I Am Akshat Kumar Registration Number 20MIS0183
THE ENCODED STRING :  I Am Aksh5t Kum5r Registr5tion Num+er 20MIS0183

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/6.py

DO YOU WANT TO ENCODE (YES/NO): NO
OKAY HAVE A GREAT TIME
```

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7. Read input string from user and convert into title case.

Example:

Input:

Airplanes come in a variety of sizes, shapes, and wing configurations

Output (Title case):

Airplanes Come In A Variety Of Sizes, Shapes, And Wing Configurations

---

CODE:

```
string=input("Enter the String : ").capitalize()
temp = ""
i=0
a=len(string)
while i<a:
    if string[i]== " ":
        k = i+1
        temp = temp + " " + string[k].upper()
        i+=2
        continue
    else:
        temp=temp+string[i]
    i+=1
print("The String in Title Case is : ",temp)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/7.py
Enter the String : i am akshat kumar from mtech integrated software engineering
The String in Title Case is :  I Am Akshat Kumar From Mtech Integrated Software Engineering

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/7.py
Enter the String : my registration number is 20MIS0183.
The String in Title Case is :  My Registration Number Is 20mis0183.

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/7.py
Enter the String : THIS IS MY FIRST YEAR IN COLLEGE
The String in Title Case is :  This Is My First Year In College
```

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8. Write a program to count the number of upper case letters (A,B,...Z), lower case letters (a, b, ...z) and numeric digits (0,1...9) in a given input string. Exclude special characters including 'white space'.

Example:
Input: Autopilot Version is 04
Output:
Number of upper case letters: 02
Number of lower case letters: 16
Number of numeric digits: 02

CODE:

```
string=input("Enter a String : ")
a=len(string)
i=0
cc=0
lc=0
nc=0
while i<a:
    if string[i].isupper():
        cc+=1
    if string[i].islower():
        lc+=1
    if string[i].isdigit():
        nc+=1
    i+=1
print("Upper Case             :", cc)
print("Lower Case             :", lc)
print("Numeric Digits         :", nc)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/8.py

Enter a String : I Am Akshat Kumar Registration  Number 20MIS0183
Upper Case             : 9
Lower Case             : 26
Numeric Digits         : 6
```

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9. Write a program to count the number of occurrences of a given word (user input) in a given sentence (user input).

Example-1:

Input:

Given sentence: I like apple very much.
Given word to be searched: apple

Output:

The number of occurrences of apple is: 1

Example-2:

Input:

Given sentence: I like self-driving car as it requires no human for driving.
Given word to be searched: driving

Output:

The number of occurrences of the word driving: 2

CODE:

```
string=input("Enter the String : ")
check=input("Enter the string to be searched : ")
a=len(string)
b=len(check)
c=0
for j in range(a):
    if string[j:j+b]==check:
        c+=1
print("The number of occurence of", check, "is : ", c)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python3
8-32/python.exe c:/Users/user/Desktop/python/act1.13/9.py
Enter the String : i have done my matriculation from dav and intermediate from dav.
Enter the string to be searched : dav
The number of occurence of dav is :  2

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-
32/python.exe c:/Users/user/Desktop/python/act1.13/9.py
Enter the String : Hey i am Akshat Kumar
Enter the string to be searched : Hey
The number of occurence of Hey is :  1
```

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10. Write a program to count all characters except numeric digits (0-9) and alphabets (both a-z and A-Z).

Example 1:

Input: *The expression to be evaluated is c=a+(b*d)%(i-j).*

Output: *Total number of characters except numeric digits (0-9) and alphabets (both a-z and A-Z): 10*

CODE:

```
var=input("Enter the String :")
i=0
a=0
b=0
while i<len(var):
    if ord(var[i])>=65 and ord(var[i])<=90:
        a+=1
    elif ord(var[i])>=97 and ord(var[i])<=122:
        a+=1
    elif ord(var[i])>=48 and ord(var[i])<=57:
        a+=1
    else:
        b+=1
    i+=1
print("Total number of characters except numeric digits (0-9) and alphabets (both a-z and A-Z):", b)
```

OUTPUT:

```
C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-32/python.exe c:/Users/user/Desktop/python/act1.13/10.py

Enter the String :Hey There! I am Akshat Kumar (18y/o).
Total number of characters except numeric digits (0-9) and alphabets (both a-z and A-Z): 11

C:\Users\user\Desktop\python>C:/Users/user/AppData/Local/Programs/Python/Python38-32/python.exe c:/Users/user/Desktop/python/act1.13/10.py

Enter the String :My Date Of Birth Is 05/02/2002.
Total number of characters except numeric digits (0-9) and alphabets (both a-z and A-Z): 8
```

(*This Project is made under Guidance of* **Dr. Shunmuga Perumal Sir**)