Practical – 1

Aim : Practice List and String

1. Python program to interchange first and last elements in a list

Program :

```
list = [1,3,9,5,10,12,2,6,8]

print(f"List before Interchange : {list}")

list[0],list[-1] = list[-1],list[0]

print(f"List After Interchange : {list}")
```

Output :

```
List before Interchange : [1, 3, 9, 5, 10, 12, 2, 6, 8]
List After Interchange : [8, 3, 9, 5, 10, 12, 2, 6, 1]
```

2. Python program to swap two elements in a list

Program :

```
print(f"List before Interchange : {list}")

x = [int(i) for i in input("Enter Index Space-Separated : ").split(' ')]

list[x[0]],list[x[1]] = list[x[1]],list[x[0]]

print(f"List After Interchange : {list}")
```

Output :

```
List before Interchange : [8, 3, 9, 5, 10, 12, 2, 6, 1]
Enter Index Space-Separated : 2 3
List After Interchange : [8, 3, 5, 9, 10, 12, 2, 6, 1]
```

3. Python | Ways to find length of list

Program :

```
count = 0

print(f"List : {list}")

print(f"Length of a list is {len(list)} by len function.")

for i in list:

  count += 1

print(f"Length of a list is {count} by for loop.")
```

Output :

```
List : [8, 3, 5, 9, 10, 12, 2, 6, 1]
Length of a list is 9 by len function.
Length of a list is 9 by for loop.
```

4. Maximum of two numbers in Python

Program :

```
def maxOfTwo(x,y):
  if(x >= y):
    return x
  else:
    return y
a = int(input("Enter First number : "))
b = int(input("Enter Second number : "))
print(f"Maximum of two number is {max(a,b)} by max() function.")
print(f"Maximum of two number is {maxOfTwo(a,b)} by maxOfTwo() function.")
```

Output :

```
Enter First number : 10
Enter Second number : 20
Maximum of two number is 20 by max() function.
Maximum of two number is 20 by maxOfTwo() function.
```

5. Minimum of two numbers in Python

Program :

```
def minOfTwo(x,y):
  if(x <= y):
    return x
  else:
    return y
a = int(input("Enter First number : "))
b = int(input("Enter Second number : "))
print(f"Minimum of two number is {min(a,b)} by min() function.")
```

```
print(f"Minimum of two number is {minOfTwo(a,b)} by minOfTwo() function.")
```

Output :

```
Enter First number : 10
Enter Second number : 20
Minimum of two number is 10 by min() function.
Minimum of two number is 10 by minOfTwo() function.
```

Python String Exercises

1. Python program to check whether the string is Symmetrical or Palindrome

Program :

```
str1 = "khokho"
def isPalindrome(s):
    return s == s[::-1]
def isSymmetric(s):
   s1 = s[:len(s)//2]
   s2 = s[len(s)//2:]
   if s1 == s2:
      return True
   else:
      return False
ans1 = isPalindrome(str1)
ans2 = isSymmetric(str1)
if ans1 == True:
  print(f"String : {str1} is Palindrome.")
else:
  print(f"String : {str1} is not Palindrome.")
if ans2 == True:
  print(f"String : {str1} is Symmetric.")
else:
  print(f"String : {str1} is not Symmetric.")
```

Output :

```
String : khokho is not Palindrome.
String : khokho is Symmetric.
```

2. Reverse words in a given String in Python

Program :

```
string_list = str1.split(' ')
new_string = ''
print("Method - 1 : Using for loop")
for i in range(len(string_list) - 1, -1, -1):
  new_string += string_list[i] + ' '
new_string = new_string[:-1]
print(new_string,"\n")
print("Method - 2 : Using Slicing")
new_string = " ".join(string_list[::-1])
print(new_string)
```

Output :

```
Method - 1 : Using for loop
khokho

Method - 2 : Using Slicing
khokho
```

3. Ways to remove i'th character from string in Python

Program :

```
print(f"Original String : {str1}")
idx = int(input("Enter an index value : "))
print("Method - 1")
new_string = ''
for i in range(len(str1)):
   if i != idx:
      new_string += str1[i]
```

```
print(f"New String : {new_string}")

print("\nMethod - 2")

new_string = str1[:idx] + str1[idx+1:]

print(f"New String : {new_string}")
```

Output :

```
Original String : khokho
Enter an index value : 3
Method - 1
New String : khoho

Method - 2
New String : khoho
```

4. Find length of a string in python (4 ways)

Program :

```
def find_len1(str_1):
 counter = 0
 for i in str_1:
  counter += 1
 return counter
def find_len2(str_1):
  return sum( 1 for i in str_1);
def find_len3(str_1):
 counter = 0
 for i, a in enumerate(str_1):
  counter += 1
 return counter
print(f"Original String : {str1}\n")
print(f"String length is {find_len1(str1)} using find_len1() function.")
print(f"String length is {find_len2(str1)} using find_len2() function.")
print(f"String length is {find_len3(str1)} using find_len3() function.")
print(f"String length is {len(str1)} using len() function.")
```

Output :

```
Original String : khokho

String length is 6 using find_len1() function.
String length is 6 using find_len2() function.
String length is 6 using find_len3() function.
String length is 6 using len() function.
```

5. Python program to print even length words in a string

```
print(f"Original String : {str1}\n")
print("Here are even words : ")
str_list = str1.split(' ')
for i in range(0,len(str_list),2):
  print(str_list[i],end = '\t')
```

Output :

```
Original String : chess is good game

Here are even words :
chess   good
```

Calculator - Addition | Subtraction | Multiplication | Division
Program :

```
def add(num1,num2):
   return num1+num2
def sub(num1,num2):
   return num1-num2
def mul(num1,num2):
   return num1*num2
def div(num1,num2):
   return num1/num2
def mod(num1,num2):
   return num1%num2
num1 = float(input("Enter first number : "))
num2 = float(input("Enter second number : "))
```

```
choice = int(input("1. Addition\n2. Subtraction\n3. Multiplication\n4. Division\n5. Find Reminder\n6. Exit\n\nEnter your choice : "))

if choice == 1:
    print(f"Sum of {num1} and {num2} is {add(num1,num2)}.\n")
elif choice == 2:
    print(f"Subtraction of {num1} and {num2} is {sub(num1,num2)}.\n")
elif choice == 3:
    print(f"Multiplication of {num1} and {num2} is {mul(num1,num2)}.\n")
elif choice == 4:
    print(f"Division of {num1} and {num2} is {div(num1,num2)}.\n")
elif choice == 5:
    print(f"{num1} % {num2} = {mod(num1,num2)}\n")
elif choice == 6:
    exit(0)
else:
    print("Invalid Choice !!")
```

Output :

```
Enter first number : 3
Enter second number : 8
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Find Reminder
6. Exit

Enter your choice : 3
Multiplication of 3.0 and 8.0 is 24.0.
```