Practical Set – 1

1. Write a Python program to print “Hello World”.

   Code:

```
print('Hello world')
```

   Output:

```
Hello world
```

2. Write a Python program to swap two variables using third variable.

   Code:

```
a = int(input("Enter some value of a:"))
b = int(input("Enter some value of b:"))
temp_1 = a
a = b
b = temp_1
print("The value of a after swapping is", a)
print("The value of b after swapping is", b)
```

   Output:

```
Enter some value of a:2
Enter some value of b:4
The value of a after swapping is 4
The value of b after swapping is 2
```

3. Write a Python program to swap two variables without third variable.

Code:

```
x = 5
y = 7
print ("Before swapping: ")
print("Value of x : ", x, " and y : ", y)
# code to swap 'x' and 'y'
x, y = y, x
print ("After swapping: ")
print("Value of x : ", x, " and y : ", y)
```

Output:

```
Before swapping:
Value of x :  5  and y :  7
After swapping:
Value of x :  7  and y :  5
```

4. Write a Python program to find square root of positive number.

Code:

```
a = int(input("Enter positive number of a:"))
sqrt = a**0.5
print("The square root of positive number is:", sqrt)
```

Output:

```
Enter positive number of a:9
The square root of positive number is: 3.0
```

5. Write a Python program to find area of a rectangle and circle.

Code:

```
#Area of Rectangle
a = int(input("Enter length:"))
b = int(input("Enter width:"))
areaR = a*b
print("Area of Rectangle = "+str(areaR)
#Area of Circle
pi = 3.14
r = float(input("Enter the radius of circle :"))
area_C = pi*r*r
print("The area of circle = "+str(area_C))
```

Output:

```
Enter the radius of circle :2
The area of circle = 12.56
```

6. Write a Python program to find sum of n natural numbers without loop.

Code:

```
a = int(input("Enter natural no. N:"))
sum_n = (a*(a+1))/2
print("The natural no. is "+str(sum_n))
```

Output:

```
Enter natural no. N:4
The natural no. is10.0
```

7. Check various arithmetic operators of Python.

Code:

```
x = int(input("Enter the value of x :"))
y = int(input("Enter the value of y :"))
#addition
a = x+y
#subtraction
b = x-y
#multiplication
c = x*y
#division
d = x/y
#modulus
e = x%y
#Exponentiation
f = x**y
 #floor division
g = x//y
print("ADD of x & y--> ", a, "\nSUB of x & y-->", b, "\nMUL of x & y-->", c,
"\nDIV of x & y-->", d, "\nMOD of x & y-->", e, "\nEXP of x & y-->", f,
"\nFLOOR DIV of x & y-->", g)
```

Output:

```
ADD of x & y-->  12
SUB of x & y--> 8
MUL of x & y--> 20
DIV of x & y--> 5.0
MOD of x & y--> 0
```

EXP of x & y--> 100

FLOOR DIV of x & y--> 5

8. Write a Python program to check output of modulo operator.

Code:

```
x = int(input("Enter the value of x :"))
y = int(input("Enter the value of y :"))
e = x%y
print("modulus of x & y is ", e)
```

Output:

```
Enter the value of x :4
Enter the value of y :3
 modulus of x & y is  1
```

Practical Set – 2

1. WAP to check whether entered number is even or odd.

   Code:

```
a = int(input("Enter the number :"))
if(a%2==0):
print("The given number", a, "is even")
else:
print("The given number", a, "is odd")
```

   Output:

```
Enter the number :3
The given number 3 is odd
```

2. WAP to find whether entered number is positive, negative or zero.

   Code:

```
n = float(input("Enter the no."))
if n>=0:
if n==0:
print("The given no. is ZERO!")
else:
print("The give no. is positive")
else:
print("The given no. is negative")
```

Output:

```
Enter the no.0
The given no. is ZERO!
```

3. WAP to find roots of quadratic equations if roots are real.

Code:

```
import math as m
a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
c = int(input("Enter the value of c: "))
d  =float( b*b-4*a*c)
sqrt_d = m.sqrt(d)
if d>0:
print("The roots are real and unequal.")
root_1 = (-b - sqrt_d)/(2*a)
root_2 = (-b + sqrt_d)/(2*a)
print("The roots are :\n", "Root_1 :", root_1, "\n", "Root_2 :", root_2)
elif d == 0:
print("The roots are real and equal.\n")
root_0 = -b/(2*a)
print("The roots are :", root_0)
else:
print("The roots are imaginary and unequal.")
```

Output:

```
Enter the value of a: 1
Enter the value of b: 7
Enter the value of c: 12
The roots are real and unequal.
```

The roots are :

Root_1 : -4.0

Root_2 : -3.0

4. WAP to check whether entered character is vowel or consonant.

Code:

```
ch = input("Enter a character:")
 if(ch=='A' or ch=='a' or ch=='E' or ch =='e' or ch=='I'
 or ch=='i' or ch=='O' or ch=='o' or ch=='U' or ch=='u'):
print("The given character is Vowel.")
else:
print("The given character is Consonant.")
```

Output:

```
Enter a character:p
The given character is Consonant.
```

5. WAP to find maximum of three numbers (nested if-else).

Code:

```
a = float(input("Enter the value of a: "))
b = float(input("Enter the value of b: "))
c = float(input("Enter the value of c: "))
if (a > b and c):
print("The MAXIMUM no. is a")
elif(b > a and c):
 print("The MAXIMUM no. is b")
 else:
 print("The MAXIMUM no. is c")
```

Output:

```
Enter the value of a: 2
Enter the value of b: 6
Enter the value of c: 1
The MAXIMUM no. is b
```

6. WAP to calculate the salary of an employee based on following conditions (nested if-else):

1. if degree = B.E. and experience < 5 years, salary=30000
2. if degree = B.E. and experience >= 5 years, salary=40000
3. if degree = M.E. and experience < 5 years, salary=50000
4. if degree = M.E. and experience >= 5 years, salary= 60000

Code:

```
a = input("Enter your Degree (B.E./M.E.):")
b = int(input("Enter your Experience: "))
if(a=='B.E.' and b < 5):
print("Your Salary is 30000.")
elif(a=='B.E.' and b >= 5):
 print("Your Salary is 40000.")
elif(a=='M.E.' and b < 5):
print("Your Salary is 50000.")
elif(a=='M.E.' and b >= 5):
print("Your Salary is 60000.")
```

Output:

```
Enter your Degree (B.E./M.E.):B.E.
Enter your Experience: 7
Your Salary is 40000.
```

7. WAP to check whether entered input is character, digit or special symbol using ladder if-else.

Code:

```
ch = input("Enter character: ")
if (ch.isalpha()):
print("The given character is Alphabet.")
elif(ch.isdigit()):
print("The given character is numerical")
else:
 print("The given character is special character.")
```

Output:

```
Enter character: $

The given character is special character.
```

Practical Set – 3

1. WAP to find sum of first N numbers.

   Code:

```
a = 5
n = 0
for i in range(1,a+1):
 n = n + i
 print(n)
```

   Output:

```
15
```

2. WAP to find sum of N scanned numbers.

   Code:

```
a = int(input("Enter The number: "))
n = 0
for i in range(1,a+1):
n = n + i
print("The Sum of ", a,"number is :", n)
```

   Output:

```
Enter The number: 5
The Sum of  5 number is : 15
```

3. Write a Python program to find N!.

   Code:

```
a = int(input("Enter The number: "))
n = 1
if (a == 1 or a == 0):
print("1")
```

```
else:
for i in range(1,a+1):
n = n*i
print("The factorial of given no. is ",n)
```

Output:

```
Enter The number: 4
The factorial of given no. is  24
```

4. Write a Python program to print Fibonacci series upto n terms.

Code:

```
num = int(input("Enter The number: "))
a = 0
b = 1
if (num == 0):
print(a)
else:
print(a)
print(b)
for i in range(2,num):
c = a + b
a = b
b = c
print(c)
```

Output:

```
Enter The number: 10
0
1
1
```

2

3

5

8

13

21

34

5. WAP to find the reverse of given numbers (Example 2564-4652).

Code:

```
a = 2564
rev = 0
while (a>0):
rev = rev*10+a%10
a = a//10
print(rev)
```

Output:

4652

6. WAP to check whether entered number is prime or not.

Code:

```
a = int(input("Enter The number: "))
if (a > 1):
for i in range(2,int(a/2)+1):
if(a % i == 0):
print("The given no. is not  Prime.")
break
else:
print("The given no. is Prime.")
```

```
else:
print("The given no. is not Prime.")
```

Output:

```
Enter The number: 11
The given no. is Prime.
```

7. WAP to print all even numbers between 1 to n except the numbers

Code:

```
a = int(input("Enter The number: "))
for i in range(1, a+1):
if(i % 2 == 0 and i % 6 != 0):
print(i)
```

Output:

```
Enter The number: 24
2
4
8
10
14
16
20
22
```

8. Write a python program to calculate N!.

Code:

```
a = int(input("Enter The number: "))
n = 1
if (a == 1 or a == 0):
print("1")
else:
for i in range(1,a+1):
n = n*i
print("The factorial of given no. is ",n)
```

Output:

```
Enter The number: 5
The factorial of given no. is  120
```

9. Write a python program to check whether given number is Armstrong or not.

Code:

```
a = int(input("Enter The number: "))
digits = len(str(a))
b = a
sum = 0
while b != 0:
 k = b % 10
 sum += k**digits
 b = b//10
 if sum == a:
 print("The given no. is Armstrong number.")
  else:
  print("The given no. is not Armstrong number.")
```

Output:

Enter The number: 1624

The given no. is not Armstrong number.

10. Write a python program to check whether given number is Palindrome or not.

Code:

```
a = int(input("Enter The number: "))
b = a
rev = 0
while a > 0:
c = a % 10
rev = rev * 10 + c
a = a//10
if b == rev:
print("The given no. is Palindrome number.")
else:
 print("The given no. is not Palindrome number.")
```

Output:

Enter The number: 121

The given no. is Palindrome number.

11. WAP to print the following:

1) 1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

2) *****
****
***
**
*

Code:

```
a = 5
for i in range(1,a+1):
for j in range(1,i+1):
print(j, end='')
print("")
```

Output:

```
1
12
123
1234
12345
```

Code:

```
a=5
for i in range(a+1,0,-1):
for j in range(0,i-1):
print("*", end='')
print("")
```

Output:

```
*****
****
***
 **
 *
```

Practical Set – 4

1. Write a python program which covers all the methods (functions) of list.

Code:

```
# append
list1 = [1,2,3,4]
list1.append(5)
print(list1)
```

Output:

```
[1, 2, 3, 4, 5]
```

Code:

```
# copy
list1=[1,2,3]
list2=list1.copy()
print(list2)
```

Output:

```
[1, 2, 3]
```

Code:

```
# clear
list1=["a","b","c","d"]
list1.clear()
print(list1)
```

Output:

```
[]
```

Code:

```
#count
list1=[1,2,3,1,2,3,1,2,3,4,1,2,4,5]
print(list1.count(2))
```

Output:

4

Code:

```
list1=[1,2,3,4,5]
list1.extend([6,7,8])
list1.extend((9,10,11))
print(list1)
```

Output:

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]

Code:

```
#index
List1=[1,3,2,5,76,3,2,6]
print(list1.index(2))
```

Output:

2

Code:

```
#insert
List1=[1,2,3,4]
List1.insert(0,5)
print(list1)
```

Output:

[5, 1, 2, 3, 4]

Code:

```
#pop
list1=[1,2,3,4]
list1.pop(2)
```

```
print(list1)
```

Output:

```
[1, 2, 4]
```

Code:

```
#remove
list1=[4,5,6,7,8]
list1.remove(6)
print(list1)
```

Output:

```
[4, 5, 7, 8]
```

Code:

```
#reverse
list1=[1,2,3,3,4,5]
list1.reverse()
print(list1)
```

Output:

```
[5, 4, 3, 3, 2, 1]
```

Code:

```
#sort
list1=[1,2,3,34,4]
list1.sort(reverse=True)
print(list1)
```

Output:

```
[34, 4, 3, 2, 1]
```

Code:

```
#max
list1=[12,23,4,3,1,2,4,21,32,12]
x=max(list1)
print(x)
```

Output:

```
32
```

2. Write a Python program to append a list to the second list.

Code:

```
list1=[1,2,3,4]
list2=[5,6,7,8]
list3=list1+list2
list1.append(list2)
print(list1)
```

Output:

```
[1, 2, 3, 4, [5, 6, 7, 8]]
```

3. Write a python program to check whether the given list is palindrome or not.

Code:

```
list1=[1,2,1]
list1.reverse()
print(list1)
list2=list1[::-1]
if list1==list2:
print("list is palindrom")
else:
print("not")
```

Output:

[1, 2, 1]

list is palindrom

4. Write a python program to store strings in list and then print them.

Code:

```
num=int(input("how many string you want to add:"))
list1=[]
for i in range(num):
x=input(f"enter string {i+1}:")
list1.append(x)
print(list1)
```

Output:

how many string you want to add:2

enter string 1:hi

enter string 2:python

['hi', 'python']

5. Write a python program to print list of prime numbers upto N using loop and else clause.

Code:

```
list1=[]
var=int(input("enter N:"))
for i in range(var):
num=i
if num == 1:
print(num, "is not a prime number")
elif num > 1:
for i in range(2, num):
```

```
        if (num % i) == 0:
        print(num, "is not a prime number")
       else:
        list1.append(num)
        print(num, "is a prime number")
        print(list1)
```

Output:

```
enter N:4
1 is not a prime number
3 is a prime number
[3]
```

6. Write python program to check whether the given list is palindrome or not.

Code:

```
test_list = [1, 4, 5, 4, 1]
print("The original list is : " + str(test_list))
reverse = test_list[::-1]
res = test_list == reverse
print("Is list Palindrome : " + str(res))
```

Output:

```
The original list is : [1, 4, 5, 4, 1]
Is list Palindrome : True
```

7. Write a Python program to multiply all the items in a list.

Code:

```
list1=[1,2,3,4,5]
mul=1
```

```
for i in range(len(list1)):
mul=mul*list1[i]
print(mul)
```

Output:

```
120
```

8. Write a Python program to get the largest number from a list.

   Code:

```
list1=[1,2,3,4,5]
x=max(list1)
print(x)
```

   Output:

```
5
```

9. Write a Python program to find the second smallest number in a list.

   Code:

```
list1=[11,52,31,44,95]
x=min(list1)
list1.remove(x)
print(list1)
y=min(list1)
print(y)
```

   Output:

```
31
```

10. Write a Python program to count the number of strings where the stringlength is 2 or more and the first and last character are same from a givenlist of strings.

Code:

```
list=["abc","aba","bcdsb","madfkdfm"]
list2=[]
for i in range(len(list)):
 x=list[i]
 if len(x)>2 :
 if x[0]==x[len(x)-1]:
 list2.append(list[i])
 print(list2)
```

Output:

```
['aba', 'bcdsb', 'madfkdfm']
```

11. Write a Python program to remove duplicates from a list.

Code:

```
list=[1,2,1,1,2,4,2,2,1,3,4,5,6]
list1=[*set(list)]
print(list1)
```

Output:

```
[1, 2, 3, 4, 5, 6]
```

12. Write a Python program to find the list of words that are longer than n from a given string.

Code:

```
n=4
str="Find the List of Words that are Longer than n from a given List of Words"
new_list = []
text = str.split(" ")
```

```
for x in text:
if len(x) > n:
new_list.append(x)
print(nw_list)
```

Output:

```
['Words', 'Longer', 'given', 'Words']
```

13. Write a Python function that takes two lists and returns True if they have at least one common member.

Code:

```
def common_no(lst1, lst2):
result = False
for i in lst1:
for j in lst2:
if i == j:
result = True
return result
print(common_no([1,2,3,4,5], [5,6,7,8,9]))
print(common_no([1,2,3,4,5], [6,7,8,9,1]))
```

Output:

```
True
True
```

14. Write a Python program to print the numbers of a specified list after removing even numbers from it.

Code:

```
list = [1,2,3,4,55,89,20]
list = [i for i in list if i%2!=0]
print(list)
```

Output:

[1, 3, 55, 89]

15. Write a Python program to add two matrices.

Code:

```
a = [[1,2,3],[4,5,6],[7,8,9]]
b = [[9,8,7],[6,5,4],[3,2,1]]
result = [[0,0,0],[0,0,0],[0,0,0]]
for i in range(len(a)):
for j in range(len(a[0])):
 result[i][j] = a[i][j] + b[i][j]
for r in result:
print(r)
```

Output:

[10, 10, 10]

[10, 10, 10]

[10, 10, 10]

16. Write a Python program to transpose a given matrix.

Code:

```
def transpose(a,b):
for i in range(M):
for j in range(M):
b[i][j] = a[j][i]
a = [[1,2,3],[1,2,3],[1,2,3]]
b = a[:][:]
transpose(a,b)
print("Result matrix is: ")
for i in range(M):
```

```
for j in range(M):
print(b[i][j], " ",end="")
```

Output:

```
1  1  1
1  2  2
1    2  3
```

17. Flatten a nested list structure.

Example: if list1 = [1, [2, 3], [4, 5, [6, 7]]] then try to convert it in 1-dimensional

[1, 2, 3, 4, 5, 6, 7]

Code:

```
def flat(lis):
flatList = []
for element in lis:
if type(element) is list:
for item in elemet:
flatList.append(item)
else:
flatList.append(element)
return flatList
lis = [[11, 22, 33, 44], [55, 66, 77], [88, 99, 100]]
flatList = [element for innerList in lis for element in innerList]
print('List', lis)
print('Flat List', flatList)
```

Output:

```
List [[11, 22, 33, 44], [55, 66, 77], [88, 99, 100]]
Flat List [11, 22, 33, 44, 55, 66, 77, 88, 99, 100]
```

18. Write a Python program to split a list every Nth element.

Code:

```
a = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n']

def list_slice(b, step):

return [b[i::step] for i in range(step)]

print(list_slice(a,3))
```

Output:

```
[['a', 'd', 'g', 'j', 'm'], ['b', 'e', 'h', 'k', 'n'], ['c', 'f', 'i', 'l']]
```