

STUDENT ID-2022180761

NAME-JATAN SAHU

Lab 03: Assignment

1. Print 1 to n.

```
[ ]: n=int(input("Enter any number to print 1 to n ")) i=1
while(i<=n):
    print(i,end=' ')
    i+=1
```

Enter any number to print 1 to n 10

1 2 3 4 5 6 7 8 9 10

2. Print 2,4,6,8,10,.....n,

```
[ ]: n=int(input("Enter any number to print 2,4,6,to n ")) i=2
while(i<=n):
    print(i,end=' ')
    i+=2
```

Enter any number to print 1 to n 11

2 4 6 8 10

3. Print 1,3,5,7,9,.....n,

```
[105]: n=int(input("Enter any number to print 3,6,9,to n ")) i=1
while(i<=n):
    print(i,end=' ')
    i+=2
```

Enter any number to print 3,6,9,to n 9

1 3 5 7 9

4. Print 1,2,4,8,16,32,64,.....,n

```
[ ]: n=int(input("Enter any number to print 1,2,4,8,16,32,64 to n ")) i=1
while(i<=n):
    print(i,end=' ')
    i=i*2
```

Enter any number to print 1,2,4,8,16,32,64 to n 128

1 2 4 8 16 32 64 128

5. Print n to 1

```
[ ]: n=int(input("Enter any number to print n to 1 ")) while(n>=1):
    print(n,end=' ')
    n=n-1
```

Enter any number to print n to 1 15

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

6. Observe the pattern and print 1,10,2,9,3,8,4,7,5,6 using for loop without pre-defining this sequence.

```
[106]: i = 1
      j = 10
      while i < 6 and j > 0:
          print(i, j, end = " ")
          i += 1
          j -= 1
```

1 10 2 9 3 8 4 7 5 6

7. Observe the pattern and print 2,11,20,28,25,41,46,50,53,55,56 using for loop without pre- defining this sequence.

```
[107]: num = 1

      for i in range(10, -1, -1):
          print(num, end = " ")
          num += i
```

1 11 20 28 35 41 46 50 53 55 56

8. Print first n even numbers.

```
[11]: n=int(input("Enter n to print first n even numbers."))
      for i in range(2,(n*2)+1,2) :
          print(i,end=' ')
```

Enter any number to print first n even numbers.10
2 4 6 8 10 12 14 16 18 20

9. Print first n odd numbers.

```
[12]: n=int(input("Enter n to print first n odd numbers."))
      for i in range(1,(n*2)+1) :
          if(i%2!=0):
              print(i,end=' ')
```

Enter n to print first n odd numbers.10
1 3 5 7 9 11 13 15 17 19

10. Print first n natural numbers.

```
[ ]: n=int(input("Enter n to print first n natural numbers"))
      for i in range(1,n+1):
          print(i,end=' ')
```

Enter any number to print first n natural numbers15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

11. Print the total of 1 to n.

```
[ ]: n=int(input("Enter n to Print the total of 1 to n :"))
      tot=0
```

```
for i in range(1,(n*2)+1):
    tot=tot+i
```

```
print(tot)
```

Enter any number to Print the total of 1 to n :10
55

12. Print the total of $1/2+2/3+....+(n-1)/n$.

```
[41]: n=int(input("Enter n to Print the total of 1/2+2/3+....+(n-1)/n :")) tot=0
for i in range(1,n+1):
    tot=i/(i+1) + tot
print(tot)
```

Enter n to Print the total of $1/2+2/3+...+(n-1)/n$:1
0.5

13. Print the total of $1-2+3-4+5-6+7-8+9-10+...+n$.

```
[44]: n=int(input("Enter n to Print the total of 1-2+3-4+5-6+7-8+9-10+...+n. :")) tot=0
for i in range(1,n+1):
    if(i%2!=0):
        tot=tot+i
    if(i%2==0):
        tot=tot-i
print(tot)
```

Enter n to Print the total of $1-2+3-4+5-6+7-8+9-10+...+n$:10
-5

14. Print the total of first n even numbers.

```
[111]: n=int(input("Enter any number to print the total of first n even numbers :"))
```

```
sum = 0
num = 2
for i in range(n):
    sum += num
    num += 2

print(sum)
```

Enter any number to print the total of first n even numbers :6
42

15. Print the total of first n odd numbers.

```
[126]: sum = 0
n=int(input("Enter any number to print the total of 1+3+5+7+ ...upto n numbers :"))
for i in range(1,(n*2)+1,2):
    sum=i+sum
```

```
print(sum)
```

Enter any number to print the total of 1+3+5+7+ ...upto n numbers :5
25

16. print 0.1+0.02+0.003+0.0004+0.000005.

```
[113]: sum=0
      for i in range(1,6):
          a = (i/10**i)
          sum=sum + a
      print(sum)
```

0.12345

17. Accept one number (atleast 4 digit number) from user and display Reverse of it.

```
[32]: a=int(input("Enter atleast 4 digit number : "))
      digits=len(str(a)) #We can not use len function in string so we have to convert int to str
      rev=0
      if(digits>=4):
          for i in range(1,digits+1):
              rem=a%10
              rev=rev*10+rem
              a=a//10
          print("Reverse of entered number is ",rev)
      else:
          print("Enter atleast 4 digit number")
```

Enter atleast 4 digit number : 12345
Reverse of entered number is 54321

18. Accept one number (atleast 4 digit number) from user and display sum of its digits.

```
[45]: a=int(input("Enter atleast 4 digit number to sum of its digits : ")) digits=len(str(a)) #We can not use len
      function in string so we have to convert int to str
      sum=0
      if(digits>=4):
          for i in range(1,digits+1):
              rem=a%10
              sum=sum+rem
              a=a//10
          print("Sum of entered number is ",sum)
      else:
          print("Enter atleast 4 digit number")
```

Enter atleast 4 digit number to sum of its digits : 12345
Sum of entered number is 15

19. Accept one number from user and display its factorial.

```
[50]: a=int(input("Enter one number to display its factorial. : "))
      fact=1
      for i in range(1,a+1):
          fact=fact*i
      print(fact)
```

Enter one number from user and display its factorial. : 5
120

[]:

20. Accept one number from user and find if it is prime or not.

```
[71]: a=int(input("Enter one number to find it is prime or not. : ")) if(a>1):
      for i in range(2,a):
          if(a%i==0):
              print("Numer is not prime")
              break
      else:
          print("Number is prime")
      else:
          print("Not prime")
```

Enter one number to find it is prime or not. : 17
Number is prime

21. Accept one number from user and find if it is Armstrong or not.

```
[84]: a=int(input("Enter one number to find it is Armstrong or not. : ")) digits=len(str(a)) #We can not use len
      function in string so we have to convert int_ to str
      sum=0
      num=a
      for i in range(1,digits+1):
          rem=a%10
          rem=(rem**3)
          sum=sum+rem
          a=a//10

      print("Sum of cube of digits ",sum)

      if(sum==num):
          print("ARMSTRONG")
      else:
          print("NOT ARMSTRONG")
```

Enter one number to find it is Armstrong or not. : 153
Sum of cube of digits 153
ARMSTRONG

22. Print 0 1 1 2 3 5 8 13 21 34 55 ... (Fibonacci series)

```
[95]: n=int(input("Enter how many terms you want to print Fibonanci series :")) sum=0
a=0
b=1
print(a,b ,end=" ")
if(n>1):
    for i in range(0,n-2):
        a, b = b, b+a
        print(b,end=" ")
    else:
        print("Invalid")
```

Enter how many terms you want to print Fibonanci series :5
0 1 1 2 3

23. Generate the value of n! factorial for n number

```
[89]: n=int(input("Enter how many times you want to print factorial ")) for i in
range(n):
    a=int(input("Enter one number to display its factorial. : ")) fact=1
    for i in range(1,a+1):
        fact=fact*i
    print("factorial",fact)
```

Enter how many times you want to print factorial5
Enter one number to display its factorial. : 5
factorial 120
Enter one number to display its factorial. : 4
factorial 24
Enter one number to display its factorial. : 3
factorial 6
Enter one number to display its factorial. : 2
factorial 2
Enter one number to display its factorial. : 1
factorial 1

[]:

24. 1+2+3+4+5+6 up to n terms

```
[96]: n=int(input("Enter n to Print the Sum of 1 to n :"))
sum=0
for i in range(1,n+1):
    sum=sum+i

print(sum)
```

Enter n to Print the Sum of 1 to n :6
21

25. 1+3+5+7+9 up to n terms

```
[124]: sum = 0
n=int(input("Enter any number to print the total of 1+3+5+7+ ...upto n numbers :"))
for i in range(1,(n*2)+1,2):
    sum=i+sum

print(sum)
```

Enter any number to print the total of 1+3+5+7+ ...upto n numbers :4
16

26. 1+2+4+5+7+8 up to n terms

```
[137]: n=int(input("Enter any number to print 1+2+4+5+7+8 up to n terms:"))
sum=0
for i in range(1,n+1):
    if i%3!=0:
        sum+=i
print("total of n terms :",sum)
```

Enter any number to print 1+2+4+5+7+8 up to n terms:10
total of n terms : 37

27. Write a program that perform the following output for n by n matrix without using array 1

```
2 3 4 5
10 9 8 7 6
11 12 13 14 15
20 19 18 17 16
21 22 23 24 25
```

```
[138]: n = int(input("Enter number: "))

for i in range(0, (n * n), n):
    if (i/n) % 2 == 0:
        for j in range(i + 1, i + n + 1):
            print(j, end = " ")
    else:
        for j in range(i + n, i, -1):
            print(j, end = " ")

print()
```

```
Enter number: 7
1 2 3 4 5 6 7
14 13 12 11 10 9 8
15 16 17 18 19 20 21
28 27 26 25 24 23 22
29 30 31 32 33 34 35
42 41 40 39 38 37 36
43 44 45 46 47 48 49
```

28. Accept a number (X) and perform $X + X^2 + X^3 + X^4 + X^5 + \dots + X^n$

up to n terms

```
[142]: n=int(input("Enter n to print series total:"))
x=int(input("Enter value of x :"))
sum=0
for i in range(1,n+1):
    sum+=x**i
print(sum)
```

Enter n to print series total:5

Enter value of x :5

3905

29. Print the following patterns for n number of rows Pattern 1 Pattern 2 Pattern 3

```
[143]: n=int(input("Enter number to print :"))
print("1st PATTERN ")
for i in range(n):
    for i in range(i+1):
        print("*", end = " ")
    print()
```

```
print("\n 2nd PATTERN 2: ")
for i in range(n):
    for j in range(n - i):
        print(" ", end = "")
    for k in range(i+1):
        print("*", end = " ")
    print()
```

```
print("\n 3rd PATTERN 3: ")
for i in range(n):
    for j in range(0, n - i):
        print(" ", end = " ")
    for k in range(i+1):
        print("*", end = " ")
    print()
```

Enter number to print :5

1st PATTERN

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

2nd PATTERN 2:

```

*
* *
```



```

* * *
* * * *
* * * * *

```

8

3rd PATTERN 3:

```

      *
     * *
    * * *
   * * * *
  * * * * *

```

30. Print the following pattern for n number of rows

```
[144]: n = int(input("Enter number: "))
```

```

print("1st PATTERN : ")
for i in range(65, 65 + n):
    for j in range(5):
        print(chr(i), end = " ")
    print()

```

Enter number: 5

1st PATTERN :

```

A A A A A
B B B B B
C C C C C
D D D D D
E E E E E

```

```
[145]: n = int(input("Enter number: "))
```

```

print(" 2nd PATTERN 2: ")
for i in range(n):
    for j in range(i + 1):
        if j == 0:
            print(1, end = "")
        else:
            print(0, end = "")
    print()

```

Enter number: 5

2nd PATTERN 2:

```

1
10
100
1000
10000

```

```
[146]: n = int(input("Enter number: "))
```

```
print(" 3rd PATTERN 3: ")
for i in range(n):
    for j in range(1, n - i + 1):
```

9

```
        print(j, end = "")
    print()
```

Enter number: 5
3rd PATTERN 3:
12345
1234
123
12
1

