Assignment – 1

1. **WAP to check whether a given no is positive or negative.**

```
a=int(input("Enter a number:"))
if(a>=0):
 print("positive")
else:
 print("negative")
```

2. **WAP to check whether a given no is even or odd.**

```
a=int(input("Enter a number:"))
if(a%2==0):
        print("even")

else:
        print("odd")
```

3. **WAP to check the validity of a triangle if three sides are given.**

```
a=int(input("Enter a side 1:"))
b=int(input("Enter a side 2:"))
c=int(input("Enter a side 3:"))
if(a+b>c or a+c>b or b+c>a):
 print("Valid triangle")
else:
 print("Invalid triangle")
```

4. **Write a program, which will find distance among two points (2D).**

```
x1=int(input("Enter x cordinate of point P1:"))
y1=int(input("Enter y cordinate of point P1:"))
x2=int(input("Enter x cordinate of point P2:"))
y2=int(input("Enter y cordinate of point P2:"))
print("distance between two points is:", ((x1-x2)**2 + (y1-y2)**2)**0.5)
```

5. **Write a program that will take input as two numbers and display the maximum among them.**

```
a=int(input('Enter first number:'))
b=int(input('Enter second number:'))
if a>b:
 print(a," is greater")
elif b>a:
 print(b," is greater")
else:
 print("both are equal")
```

6. **A commercial bank has introduced an incentive policy of giving bonuses to all its deposit holders. The police are as follows:**
   A bonus of 5 percent of the balance is given to everyone, irrespective of their balance, and 10 percent is given to female account holders if their balance is more than Rs: 10,000
   Write a program that solves the above problem.

```
gender=input("Enter gender(m/f):")
balance=float(input("Enter the balance:"))
balance+=balance*0.05
```

```
if gender=="f" and balance>10000:
 balance+=balance*0.1
print("The total balance after bonous is:", balance)
```

7. Average mark of a student is given as input. The grading is done according to the following rules.

	Average Mark	**Grade**
i.	**>=90**	**O grade**
ii.	**80 – 89**	**E grade**
iii.	**70 -79**	**A grade**
iv.	**60-69**	**B grade**
v.	**50- 59**	**C grade**
vi	**<50**	**F grade**

Write a program that solves the above problem.

```
avg=float(input("Enter the average mark:"))
if(avg>=90):
 grade="O"
elif(avg>=80 and avg<90):
 grade="E"
elif(avg>=70 and avg<80):
 grade="A"
elif(avg>=60 and avg<70):
 grade="B"
elif(avg>=50 and avg<60):
 grade="C"
else:
 grade="F"
print("The grade is:",grade)
```

8 An electricity board charges the following rates for the use of electric city.
For the first 200 units Rs:1 per unit
For the next 100 unit Rs: 2 per unit
Beyond three hundred units it charges Rs 3 per unit.
All the users are charging a minimum of Rs 100 as a meter charge. If the total amount is more than 600 then an additional surcharge of 15% of the total amount is charged.
WAP to read the consumer number and number of units consumed and print the charges with consumer number.

```
Cnumber=input("Enter the customer number:")
units=int(input("Enter the units consumed:")
if units<=200:
 charge=units
if units>200:
 charge=200
 units-=200
 if units<=300:
 charge+=units*2
 else:
charge+=200
 units-=100
```

```
 charge+=units*3
if charge<100:
 charge=100
elif charge>600:
 charge+=charge*0.15
print("The total charge is ",charge," for the customer with customer number ",Cnumber)
```

9 WAP to check whether a given year is leap year or not.

```
year=int(input("Enter a year:"))
if year%4==0 or (year%100==0 and year%400==0):
 print("It is a leap year")
else:
 print("It is not a leap year")
```

10 A set of linear equations with two unknown x1 & x2 is given below.
a x 1 +b x 2 =m, c x 1 +d x 2 =n
The set has unique solutions:
x 1 = (md – bn) / (ad -cb) & x 2 = (na – mc) / (ad - cb)
Provided the denominator (ad- cb) is not equal to zero.
WAP that will read the values of constants a, b, c, d, m, n and compute the values of x 1 & x 2.
An appropriate message is printed if (ad – cb) =0.

```
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=int(input("Enter the value of d: "))
m=int(input("Enter the value of m: "))
n=int(input("Enter the value of n: "))
denominator=a*d- c*b
if denominator==0:
        print("can not compute the result as denominator is zero")
else:
        x1=(m*d - b*n) / (a*d - c*b)
        x2=(n*a - m*c) / (a*d - c*b)
        print("value of x1=",x1)
         print("value of x2=",x2)
```

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Assignment – 2

1. Write a Python program to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 (both included).

```
print("The numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 are:")
for i in range(1500,2701):
        if(i%2==0 and i%5==0):
                print(i,end=" ")
```

2. Write a Python program to guess a number between 1 to 9 Note: User is prompted to enter a guess. If the user guesses wrong then the prompt appears again until the guess is correct, on successful guess, user will get a "Well guessed!" message, and the program will exit.

```
x=3
g=-1
while True:
        g=int(input("Enter your guess:"))
                if g==x:
                        print("Well guessed!")
                        break
         print("guess again")
```

3. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6.

```
for i in range(0,7):
        if i==3 or i==6:
                continue
        print(i,end=" ")
```

4. Write a Python program to get the Fibonacci series between 0 to 50.
Note: The Fibonacci Sequence is the series of numbers :
0, 1, 1, 2, 3, 5, 8, 13, 21, .

```
x1=0
x2=1
while(x1<50):
        print(x1,end=" ")
                x3=x1+x2
                x1=x2
                x2=x3
```

5. Write a Python program which iterates the integers from 1 to 50. For multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz".

```
for i in range(1,51):
        if i%3==0 and i%5==0:
                print("FizzBuzz",end=" ")
```

```
        elif i%3==0:
                print("Fizz",end=" ")
        elif i%5==0:
                print("Buzz",end=" ")
        else:
```

6. Write a Python program which accepts a sequence of comma separated 4-digit binary numbers as its input and print the numbers that are divisible by 5 in a comma separated sequence.

```
a,b,c,d=input("Enter 4 numbers of comma separated 4 digit binary numbers: ").split(",")
print("The numbers divisible by 5 are:")
prev=False
num=0
i=3
for letter in a:
 if letter=="1":
 num+=2**i
 i-=1
if num%5==0:
 print(a,end=" ")
 prev=True
num=0
i=3
for letter in b:
 if letter=="1":
 num+=2**i
 i-=1
if num%5==0:
 if prev: print(",",end=" ")
 print(b,end=" ")
 prev=True
num=0
i=3
for letter in c:
 if letter=="1":
 num+=2**i
 i-=1
if num%5==0:
 if prev: print(",",end=" ")
 print(c,end=" ")
 prev=True
num=0
i=3
for letter in d:
 if letter=="1":
 num+=2**i
 i-=1
if num%5==0:
```

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```
 if prev: print(",",end=" ")
 print(d,end=" ")
 prev=True
```

1. Given a range of first 10 numbers, iterate from start number to the end number and print the sum of the current number and previous number.

```
for i in range(1,11):
 print("sum for number ",i," is",(i+i-1))
```

2. Given a string, display only those characters which are present at an even index number.

```
str=input("Enter a string: ")
print(str[1::2])
```

3. Given a string and an integer number n, remove characters from a string starting from zero up to n and return a new string.

```
str=input("Enter a string: ")
n=int(input("Enter number to remove:"))
newstr=str[n:]
print(newstr)
```

4. Given a list of numbers, return True if the first and last number of a list is same.

```
List=[1,43,53,6,4,3,12,1,14,76,1]
if List.pop()==List.pop(0):
 print("True")
else:
 print("False")
```

5. Given a list of numbers, iterate it and print only those numbers which are divisible of 5.

```
List=[1,43,50,6,45,3,12,1,14,76,1,5,2,7,45,20,90,35,100,865]
for i in List:
 if i%5==0:
 print(i,end=" ")
```

6. Return the total count of sub-string appears in the given string.

```
str=input("Enter a string: ")
sub=input("Enter the sub-string: ")
print(str.count(sub))
```

7. Print the following pattern

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

```
for i in range(5):
```

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

8. Reverse a given number and return true if it is the same as the original number.

```
num =input("Enter a number: ")
if(num==num[::-1]):
7
 print("True")
else:
 print("False")
```

9. Given a two list of numbers create a new list such that the new list should contain only odd numbers from the first list and even numbers from the second list.

```
List1=[1,43,53,6,4,3,12,1,14,76,1]
List2=[1,43,50,6,45,3,12,1,14,76,1,5,2,7,45,20,90,35,100,865]
# List3=[]
List3=list()
for i in List1:
 if(i%2==1):
 List3.append(i)
for i in List2:
 if(i%2==0):
 List3.append(i)
print(List3)
```

10. Write a code to extract each digit from an integer, in the reverse order.

```
num =input("Enter a number: ")
print(num[::-1])
```

11. Given a list iterate it and display numbers which are divisible by 5 and if you find number greater than 150 stop the loop iteration.

```
List=[1,43,50,6,45,3,12,1,14,76,1,5,2,7,45,20,90,35,100,865]
for i in List:
 if i>150:
 print("\nGreater than 150 number encountered")
 break
 if i%5==0:
 print(i,end=" ")
```

12. Python program to display all the prime numbers within a range.

```
n=int(input("Enter a range: "))
for i in range(2,n):
 prime=True
 for j in range(2,(i//2+1)):
 if i%j==0:
 prime=False
```

```
 break
 if prime:
 print(i,end=" ")
```

13. Use a loop to display elements from a given list which are present at even positions.

```
List=[1,43,50,6,45,3,12,1,14,76,1,5,2,7,45,20,90,35,100,865]
print(List[1::2])
```

14. Find the sum of the series 2 +22 + 222 + 2222 + ... + n terms.

```
n=int(input("Enter a number: "))
num=sum=0
for i in range(n):
 num=num*10+2
 sum+=num
print("the sum is",sum)
```

15. Given a two list. Create a third list by picking an odd-index element from the first list and even index elements from the second.

```
List1=[1,43,53,6,4,3,12,1,14,76,1]
List2=[1,43,50,6,45,3,12,1,14,76,1,5,2,7,45,20,90,35,100,865]
List3=List1[1::2]+List2[::2]
print(List3)
```

16. Given an input list removes the element at index 4 and adds it to the 2nd position and also, at the end of the list.

```
List=[1,43,53,6,4,3,12,1,14,76,1]
print(List)
num=List.pop(4)
List.insert(1,num)
List.append(num)
print(List)
```

17. Given a list slice it into 3 equal chunks and reverse each list.

```
List=[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16]
size=len(List)//3
List1=List[:size][::-1]
List2=List[size:2*size][::-1]
List3=List[2*size:][::-1]
print(List1)
print(List2)
print(List3)
```

18. Given a two list of equal size create a set such that it shows the element from both lists in the pair.

```
List1=[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16]
List2=[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16]
List3=list()
```

```
for i in range(len(List1)):
 List3.append("("+str(List1[i])+","+str(List2[i])+")")
print(List3)
```

19. Given a string of odd length greater 7, return a string made of the middle three chars of a given String.

```
str=input("Enter a strign of odd length greater 7: ")
print(str[len(str)//2:len(str)//2+3])
```

20. Given 2 strings, s1 and s2, create a new string by appending s2 in the middle of s1.

```
s1=input("Enter sting1: ")
s2=input("Enter sting2: ")
s3=s1[:len(s1)//2]+s2+s1[len(s1)//2:]
print(s3)
```

21. Given 2 strings, s1, and s2 return a new string made of the first, middle and last character of each input string.

```
s1=input("Enter sting1: ")
s2=input("Enter sting2: ")
s3=s1[:1]+s1[len(s1)//2:len(s1)//2+1]+s1[len(s1)-1:]+s2[:1]+s2[len(s2)//2:len(s2)//2+1]+s2[len(s2)-
1:]
print(s3)
```

22. Arrange string characters such that lowercase letters should come first.

```
str=input("Enter sting: ")
s=""
for i in range(len(str)-1):
 if str[i] >= "a" and str[i] <= "z":
 s+=str[i]
for i in range(len(str)-1):
 if str[i] >= "A" and str[i] <= "Z":
 s+=str[i]
print(s)
```

23. Count all lower case, upper case, digits, and special symbols from a given string.

```
str=input("Enter sting: ")
lower_case=0
upper_case=0
digits=0
special_symbols=0
for i in range(len(str)):
 if str[i].islower():
 lower_case+=1
 elif str[i].isupper():
 upper_case+=1
 elif str[i].isdigit():
 digits+=1
```

```
 else:
 special_symbols+=1
print("lower case =",lower_case)
print("upper case =",upper_case)
print("digits =",digits)
print("special symbols =",special_symbols)
```

24. Given a string, return the sum and average of the digits that appear in the string, ignoring all other characters.

```
str=input("Enter sting: ")
sum=0
count=0
for i in range(len(str)):
 if str[i].isdigit():
 sum+=int(str[i])
 count+=1
print("sum is =",sum)
print("avg is =",sum/count)
```

25. Print the following pattern.

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
n=int(input("Entee the value of to print *: "))
for i in range(1, n + 1):
 print('* ' * i)
 for i in range(n - 1, 0, -1):
 print('* ' * i)
```

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Assignment – 4

1. Swap the following two tuples

Input: tuple1 = (11, 22)
tuple2 = (99, 88)
Output: tuple1 = (99, 88)
tuple2 = (11, 22)

```
tuple1 = (11, 22)
tuple2 = (99, 88)
tuple3=tuple1
tuple1=tuple2
tuple2=tuple3
print("tuple1 = ",tuple1)
print("tuple2 = ",tuple2)
```

2. Copy element 44 and 55 from the following tuple into a new tuple

Input: tuple1 = (11, 22, 33, 44, 55, 66)
Output: tuple2: (44, 55)

```
tuple1 = (11, 22, 33, 44, 55, 66)
tuple2=tuple1[3:5]
print("new tuple is ",tuple2)
```

3. Modify the first item (22) of a list inside a following tuple to 222

Input: tuple1 = (11, [22, 33], 44, 55)
Output: tuple1: (11, [222, 33], 44, 55)

```
tuple1 = (11, [22, 33], 44, 55)
List = list(tuple1)
List[1][0]=222
tuple1=tuple(List)
print(tuple1)
```

4. Counts the number of occurrences of item 50 from a tuple

Input: tuple1 = (50, 10, 60, 70, 50)
Output:2

```
tuple1 = (50, 10, 60, 70, 50)
print(tuple1.count(50))
```

5. Check if all items in the following tuple are the same

```
tuple1 = (50, 50, 50, 520, 50)
if tuple1.count(tuple1[0])==len(tuple1):
 print("All items are same.")
else:
 print("All items are not same.")
```

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