1.   Write a program in Python to accept an integer value in variable N from the user and display its content in the following patterns.
Sample output:

Enter Integer: 5		
1	**54321**	**1**
12	**4321**	**121**
123	**321**	**12321**
1234	**21**	**1234321**
12345	**1**	**123454321**

```
# ------------------------------------------------------------#
# List-Program No        : L3-01
# Developed By        : Shesh Shiromani
# Date                : 28-Aug-2023
# ------------------------------------------------------------#
```

(a)   Solution:
```
n = int(input("Enter a number "))
for i in range(1,n+1):
  for j in range(1,i+1):
    print(j,end=" ")
  print()
```
   Output:
```
5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(b)   Solution:
```
n = int(input("Enter a number "))
for i in range(n,0,-1):
  for j in range(i,0,-1):
    print(j,end=" ")
  print()
```
Output:
```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
5
```

(c)   Solution:
```
n = int(input("Enter a number
     "))
for i in range(1,n+1):
  print(" "*(n-i),end="")
  for j in range(1,i+1):
    print(j,end="")
  for k in range(i-1,0,-1):
    print(k,end="")
```
```
    print()
```
Output:
```
        1
       121
      12321
     1234321
    123454321
```

2.   Write a program in Python to accept an integer value in variable N from the user and display its content in the following patterns.

Sample output:

Enter Integer: 5		
1	1	1
22	22	222
333	333	33333
4444	4444	4444444
55555	55555	555555555

```
# ------------------------------------------------------------#
# List-Program No          : L3-P02
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# ------------------------------------------------------------#
```

(a)   Solution:
```
n = int(input("Enter a number "))
for i in range(1,n+1):
  print(str(i)*i)
```
Output:
```
5
1
22
333
4444
55555
```

(b)   Solution:
```
n = int(input("Enter a number "))
for i in range(1,i+1):
  print(" "*(n-i),end="")
  print(str(i)*i)
```

Output:
```
    1
   22
  333
 4444
55555
```

(c)   Solution:
```
n=int(input("Enter a number "))
for i in range(1,i+1):
  print(" "*(n-i),end="")
  print(str(i)*(1+(i-1)*2))
```
Output:
```
    1
   222
  33333
 4444444
555555555
```

3.   Write a program in Python to accept a string from a user and display its content in the following patterns.

Sample output:

Enter String: GOGREEN **G** **GO** **GOG** **GOGR** **GOGRE** **GOGREE** **GOGREEN**	**GOGREEN** **GOGREE** **GOGRE** **GOGR** **GOG** **GO** **G**	**G** **GO** **GOG** **GOGR** **GOGRE** **GOGREE** **GOGREEN**

Solutions:

```
# ------------------------------------------------------------------#
# List-Program No         : L3-P03
# Developed By            : Shesh Shiromani
# Date                    : 28-Aug-2023
# ------------------------------------------------------------------#
s = input("Enter a word ")
for i in range(len(s)):
  print(" "*(i),end="")
  print(s[i])
s=input("Enter a word ")
for i in range(len(s)-1,-1,-1):
  print(" "*(i),end="")
  print(s[i])
s=input("Enter a word ")
for i in range(len(s)):
  print(" "*(i),end="")
  print(s[i],end="")
  print(" "*(1+((len(s)-i-2)*2)),end="")
  if i!=len(s)-1:
    print(s[i])
  else:
    print()
```

Output:
```
Enter a word GOGREEN                          GOGR
G                                             GOG
GO                                            GO
GOG                                           G
GOGR                              Enter a word GOGREEN
GOGRE                                             G
GOGREE                                           GO
GOGREEN                                         GOG
                                               GOGR
Enter a word GOGREEN                          GOGRE
GOGREEN                                       GOGREE
GOGREE                                       GOGREEN
GOGRE
```

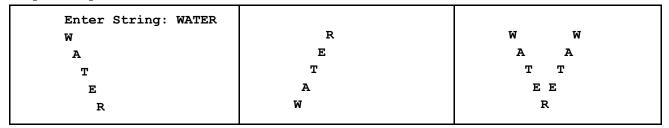4.   Write a program in Python to accept a string from a user and display its content in the following patterns.

Sample output:

| Enter String: WATER
W
 A
  T
   E
    R | R
  E
 T
 A
W | W W
 A A
  T T
   E E
    R |

Solution:
```
# ----------------------------------------------------------------#
# List-Program No          : L3-P04
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# ----------------------------------------------------------------#
s = input("Enter a word ")
for i in range(len(s)):
  print(" "*(i),end="")
  print(s[i])

s=input("Enter a word ")
for i in range(len(s)-1,-1,-1):
  print(" "*(i),end="")
  print(s[i])

s=input("Enter a word ")
for i in range(len(s)):
  print(" "*(i),end="")
  print(s[i],end="")
  print(" "*(1+((len(s)-i-2)*2)),end="")
  if i!=len(s)-1:
    print(s[i])
  else:
    print()
```

Output:
```
WATER                                    T
W                                         A
 A                                       W
  T
   E                                     WATER
    R                                    W       W
                                          A     A
WATER                                      T   T
    R                                       E E
   E                                         R
```

5.   Write a program in Python to accept a string from the user and show only non vowels (display underscore _ symbol in place of vowel).

Sample output:

Enter String: WATER W_T_R	Enter String: PEACE P_ _C_

Solution:
```
# ----------------------------------------------------------------#
# List-Program No          : L3-P05
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# ----------------------------------------------------------------#
s = input("Enter a word to replace the vowels ")
a = ""
for i in range(len(s)):
  if s[i].upper() in 'AEIOU':
    a+='_'
  else:
    a+=s[i]
print(a)
```


Output:

```
Enter a word to replace the vowels abcdefg
_bcd_fg
```

6.   Write a program in Python to accept a word WRD and a sentence STC as strings from the user. Find the presence or absence of the word WRD in the sentence STC (Without using **if WRD in STC**).

Sample output:
Sentence: A small box in the big box
Word: box
Status: Found

Solution:

```
# --------------------------------------------------------------#
# List-Program No          : L3-P06
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# --------------------------------------------------------------#


stc = input("Enter a sentence to check whether is has a word in it or not ")
wrd = input("Enter the word ")
if (" " + stc + " ").find((" " + wrd + " "))==-1:
  print("Not found")
else:
  print("Found")
```

Output:

```
Enter a sentence to check whether is has a word in it or not NASA is very dangerous
Enter the word NASA
Found
```

7.   Write a program in Python to accept a sentence as a string from the user. Find the total number of words present in the string (Without using **in** operator with **if**)

Sample output:

Sentence: A small box in the big box
   Total Number of Words: 7

Solution:

```
# --------------------------------------------------------------#
# List-Program No          : L3-P07
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# --------------------------------------------------------------#
stc = input("Enter a sentence to count the number of words present in it ")
stc = stc.title()
count = 0
for i in stc:
  if i>='A' and i<="Z":
    count+=1
print('The number of words are', count)
```

Output:

```
Enter a sentence to count the number of words present in it python is very ez
The number of words are 4
```

8.   Write a program in Python to accept a word WRD and a sentence STC as strings from the user. Find the positions of each occurrence of word WRD in the sentence STC. (Can use split() function)

Sample output:
Sentence: A small box in the big box
Word: box
Positions: 8, 23,

Solution:
```
# ----------------------------------------------------------------#
# List-Program No         : L3-P08
# Developed By            : Shesh Shiromani
# Date                    : 28-Aug-2023
# ----------------------------------------------------------------#

stc= input("Sentence: ")
wrd= input("Word: ")

positions = ""
pos = 0
while True:
    pos = stc.find(wrd, pos)
    if pos == -1:
        break
    positions += str(pos) + ", "
    pos += len(wrd)
print("Positions:", positions)
```

Output:
```
Sentence: spotify and youtube have too many advertisements
Word: many
Positions: 29,
```

9.   Write a program in Python to accept a string S from a user and display an encoded content of S containing the reverse of the first 3 characters and last 3 characters.

Sample output:

Enter S: HALF OF THE TEAM **Coded S: LAHEAM**	**Enter S: MOHAN'S TEAM SCORED 345** **Coded S: HOM345**

Solution:

```
# ----------------------------------------------------------------#
# List-Program No            : L3-P9
# Developed By          : Shesh Shiromani
# Date                  : 28-Aug-2023
# ----------------------------------------------------------------#
S = input("Enter S: ")
f = S[:3][::-1]
l = S[-3:][::-1]
Coded_S = f + S[3:-3] + l
print("Coded S:", Coded_S)
```

Output:

```
pythonisveryez
Coded S: yrezey
```

10.   Write a program in Python to accept a string S from a user and display an
encoded content of S containing the reverse of characters of first half of S and
original order of characters of second half of the S.

Sample output:

Enter S: ABCDEFGHI	Enter S: ABCDEFGH
Coded S: EFGHIDCBA	Coded S: EFGHDCBA

Solution:
```
# ----------------------------------------------------------------#
# List-Program No          : L3-P10
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# ----------------------------------------------------------------#
S = input("Enter S: ")

mid = len(S) // 2

first_half_reversed = S[:mid][::-1]

second_half = S[mid:]
coded_S = first_half_reversed + second_half

print("Coded S:", coded_S)
```
Output:

Enter S: theglaskepthereisupsidedown
Coded S: ehtpeksalgehtreisupsidedown

11.   Write a program in Python to accept a string from a user and display the count of occurrence of vowels, digits and consonants in it.

Sample output:

Enter Message: SAVE WATER	Enter Message: 10 HAFTE 10 BAJE
VOWELS: 4	VOWELS: 4
CONSONANTS: 5	CONSONANTS: 5
DIGITS: 0	DIGITS: 4

Solution:
```
# ---------------------------------------------------------------#
# List-Program No          : L3-P11
# Developed By          : Shesh Shiromani
# Date                  : 28-Aug-2023
# ---------------------------------------------------------------#
s = input("Count the number of Vowels, Consonants")
vow = 0
cons = 0
dig = 0
for i in s:
  if i.upper() in 'AEIOU':
    vow+=1
  else:
    if i in '0123456789':
      dig+=1
    else:
      cons+=1
print('Consonants: ', cons)
print('Vowels: ', vow)
print('Digits: ', dig)
```

Output:

```
aebdfd123
Consonants: 4
Vowels: 2
Digits: 3
```

12.   Write a program in Python to accept a string from a user and check if it is Palindrome or not.

Sample output:

Enter String: NITIN It is a PALINDROME	Enter String: DELHI It is not a PALINDROME

```
# ----------------------------------------------------------------#
# List-Program No          : L3-P12
# Developed By             : Shesh Shiromani
# Date                     : 28-Aug-2023
# ----------------------------------------------------------------#
s = input().upper()
if s == s[::-1]:
  print('It is a palindrome')
else:
  print("It is not a palindrome")


Output:
NITIN
It is a palindrome
```

13.   Write a Python code to create a two player word guessing game with the help of following steps.

1. Accept a string **Str** from USer1 [accept only those strings, which are less than 10 alphabets]
2. Scroll the screen with the help of print statements to hide the User1's string.
3. Display the content of string by showing consonants' position as underscore _ and vowels as it is. Name it as **GuessedStr**
4. Accept a single alphabet from User2
5. If alphabet entered by the User2 matches with one of the alphabets of User1's string, re-display the GuessStr with the alphabet at appropriate place
6. Repeat steps 4 and 5 till the user consumes his 10 chances of guessing all the correct letters of **Str**.
7. At the end display score as 20 - No. of attempts by User2. Deduct 2 points for every re-input of the same alphabet again.

Sample output:
User1 String: WATER CONSERVATION
Re-Enter [Not more than 10 letters]
User1 String: WATER
:
:
Hint: _A_E_
User2 Guess [1]: U
**** U not matching with any**
User2 Guess [2]: W
Hint: WA_E_
User2 Guess [3]: K
**** K not matching with any**
User2 Guess [4]: W
**** You lose 2 points for re-entering the same letter**
User2 Guess [5]: R
Hint: WA_ER
User2 Guess [6]: T
Great - Well done, you guessed right, it is WATER
Your Score: 12
[i.e. Full score 20 - Penalty 2 - Number of Times 6]

Solution:

```python
while True:
    S = input("User1 String: ").upper()
    if len(S) <= 10:
        valid = True
        for C in S:
            if not ('A' <= C <= 'Z'):
                valid = False
                break
        if valid:
            break



for i in range(100):
    print()

G = ""
for C in S:
    if C in "AEIOU":
```

```
            G += C
        else:
            G += "_"
A = 0
P = 20
U = ""
while A < 10:
    print("Hint:", G)
    Gs = input("User2 Guess [" + str(A + 1) + "]: ").upper()

    if Gs in U:
        print("** You lose 2 points for re-entering the same letter")
        P -= 2
    else:
        U += Gs
        if Gs in S:
            NG = ""
            for i in range(len(S)):
                if S[i] == Gs:
                    NG += Gs
                else:
                    NG += G[i]
            G = NG
        else:
            print("**", Gs, "not matching with any")

    if G == S:
        print("Great - Well done, you guessed right, it is", S)
        break

    A += 1

print("Your Score:", P - A)
```

Output:

```
User1 String: trick
Hint: __I__
User2 Guess [1]: t
Hint: T_I__
User2 Guess [2]: r
Hint: TRI__
User2 Guess [3]: k
Hint: TRI_K
User2 Guess [4]: c
Great - Well done, you guessed right, it is TRICK
Your Score: 17
```