In [1]:
```
ch=input()
if ch=='a' or ch=='e' or ch=="i" or ch=="o" or ch=="u":
    print("Vowel")
else:
    print("Consonant")
```

```
k
Consonant
```

In [2]:
```
ch = input()
# 10 comparisions
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(ch, "is a Vowel")
else:
    print(ch, "is a Consonant")
```

```
I
I is a Vowel
```

In [5]:
```
vowels="aeiouAEIOU"
ch=input()
# membership operators,
if ch in vowels:
    print("Vowel")
else:
    print('Consonant')
```

```
Vowel
```

Iterating Statements

- looping statements
- Statements to be iterated/repeated for multiple times
- **for**
  - syntax:
    - for iterator in iterable:
      - statements
    - for iterator in range(len(iterable)):
      - statements
- **while**

In [3]:
```
# program to print "welcome to python" 10 times
''' welcome to python
welcome to python
welcome to python
.....
welcome to python '''
for num in range(11,21):
    print("welcome to python") # single statement
```

```
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
welcome to python
```

range()

- pre-defined function in Python
- range of values/data
- [1,11]:1,2,3,4,5,6,7,8,9,10,11(exclusive)
- range(upper bound/stop)
  - starts from 0 by default
- range(lower bound,upper bound)
  - upper bound is exclusive
- [start:stop:step_count] #
  - [1:11:2] :

In [4]:
```
rn=range(30,45) # 14 values
# print the numbers present in range(30 to 45)
print(30) # printing the numbers
print(31)
print(33)
print(45)

```

```
30
31
33
45
```

In [5]:
```
for num in rn:
    print(num)

```

```
30
```

In [6]:
```
r=range(21) # starts from 0
#print the numbers from 0 to 20 in a line
for num in r:
    print(num) # "\n"
```

```
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

In [7]:
```
for num in r:
    print(num,end=" ") # space
```

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
```

In [8]:
```
# write a python program to print the even no.s present in a range
# num%2=0(remainder)
lw=int(input("lower bound:"))
up=int(input("upper bound:"))
for num in range(lw,up+1): # exclusive
    if num%2==0:
        print(num,end=" ")6
```

```
lower bound:10
upper bound:50
10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
```

In [9]:
```
# dif=2
# skip=1
for num in range(lw,up+1,2): #
    print(num,end=" ")
```

```
10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
```

In [10]:
```
# print the multiples of 3 in a range
''' 3,6,9,12,15,18---mutliples of 3
```

```
    factors of 12:1,2,3,4,6,12 (<12)
        multiples of 12:12,24,36,48,60 ..(>12) '''


for num in range(lw,up+1):
    if num%3==0:
        print(num,end=" ")

```

```
12 15 18 21 24 27 30 33 36 39 42 45 48
```

In [11]:
```
for num in range(2,21,3): # 2 to 20
    print(num,end=" ")
```

```
2 5 8 11 14 17 20
```

In [12]:
```
for num in range(0,65,4):
    print(num,end=" ")
```

```
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64
```

for loop in reverse order

- for num in range(up,lw,-1)
  - statements

In [13]:
```
# print the numbers from 1 to 10 in reverse order
# print the numbers from 10 to 1
for num in range(10,0,-1):
    print(num,end=" ")
```

```
10 9 8 7 6 5 4 3 2 1
```

In [15]:
```
# print the multiples of 6 in a range in reverse order
# 100 to 1:multiples of 6
up,lw=int(input("Upper bound:")),int(input("Lower bound:"))
for num in range(up,lw,-6):
    print(num,end=" ")
```

```
Upper bound:96
Lower bound:0
96 90 84 78 72 66 60 54 48 42 36 30 24 18 12 6
```

In [16]:
```
# write a python program to print the characters from A to K
ord('A') # ASCII value of character
for num in range(65,76):
    print(chr(num),end=" ")
```

```
A B C D E F G H I J K
```

In [18]:
```
chr(65)# converts integer into char
# corresponding ascii character of perticular
```

Out[18]: 'A'

In [19]:
```
ord("K") #
```

Out[19]: 75

In [20]:
```
ord("k")
```

Out[20]: 107

In [21]:
```
ord("a")
```

Out[21]: 97

In [22]:
```
for num in range(ord('A'),ord('L')):  # numbers
    print(num,end=" ")
    print(chr(num),end=" ") #
```

```
65 A 66 B 67 C 68 D 69 E 70 F 71 G 72 H 73 I 74 J 75 K
```

In [23]:
```
# write a program to find the factors of a number
'''' 10:1,2,5,10
1 to 10)1,2,3,4,5,6,7,8,9,10---(0):factors
30:1,2,3,5,6,10,15,30

factors:1 to n/2,n '''
# write a python program to print multiplication table
''' 9x1=9
9x2=18
9x3=27
...
9x20=180 '''
n=int(input("Enter the value:"))
print("Multiplication table of",n,end="\n")
for num in range(1,11):
    print(n,"x",num,'=',n*num)
```

```
Enter the value:7
Multiplication table of 7
7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
7 x 5 = 35
7 x 6 = 42
7 x 7 = 49
7 x 8 = 56
7 x 9 = 63
7 x 10 = 70
```

In [24]:
```
# print the multiplication table of n in reverse order
for num in range(11,1,-1):
    print(n,'x',num,"=",n*num)
```

```
7 x 11 = 77
7 x 10 = 70
7 x 9 = 63
7 x 8 = 56
7 x 7 = 49
7 x 6 = 42
7 x 5 = 35
7 x 4 = 28
7 x 3 = 21
7 x 2 = 14
```

In [26]:
```
# factorial vlaue of n
#n!=n*n-1*n-2*n-3..*n-(n-1)
#5!=5*4*3*2*1=120
fact=1
x=int(input("Enter number:"))
for num in range(x,0,-1):
    fact=fact*num # assignment operator
print("factorial of ",x,"is",fact)
```

```
Enter number:5
factorial of  5 is 120
```

In [27]:
```
f=int(input())
fact=1
for num in range(1,f+1):
    fact*=num # assignment operator
print(fact)
```

```
5
120
```

In [ ]:
```

```