In [1]:
```
n=5
for i in range(n):
    for j in range(i+1):
        print("*",end=" ")
    print(" ")
```

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

In [2]:
```
n=5
for i in range(n):
    for j in range(i,n):
        print("*",end=" ")
    print(" ")
```

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

In [3]:
```
n=5
for i in range(n):
    for j in range(i+1):
        print(" ",end=" ")
    for j in range(i,n-1):
        print("*",end=" ")
    for j in range(i,n):
        print("*",end=" ")
    print(" ")
```

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

In [5]:
```
n=5
for i in range(n):
    for j in range(i,n):
        print(" ",end=" ")
    for j in range(i):
        print("*",end=" ")
    for j in range(i+1):
        print("*",end=" ")
    print(" ")
```

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

In [6]:
```
n=5
for i in range(n):
    for j in range(i,n):
        print(" ",end=" ")
    for j in range(i):
        print("*",end=" ")
    for j in range(i+1):
        print("*",end=" ")
    print(" ")
for i in range(n):
    for j in range(i+1):
        print(" ",end=" ")
    for j in range(i,n-1):
        print("*",end=" ")
    for j in range(i,n):
        print("*",end=" ")
    print(" ")
```

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

In [2]:
```
old_list=[[1,2,3],[4,5,6],[7,8,'a']]
new_list=old_list
print('Old list: ',old_list)
print('ID of old list: ',id(old_list))
print('new list: ',new_list)
print('ID of new list: ',id(new_list))
new_list[2][2]=9
print('Old list: ',old_list)
print('ID of old list: ',id(old_list))
print('new list: ',new_list)
print('ID of new list: ',id(new_list))
```

```
Old list:  [[1, 2, 3], [4, 5, 6], [7, 8, 'a']]
ID of old list:  2529362680768
new list:  [[1, 2, 3], [4, 5, 6], [7, 8, 'a']]
ID of new list:  2529362680768
Old list:  [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
ID of old list:  2529362680768
new list:  [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
ID of new list:  2529362680768
```

In [1]:
```
old_list=[[1,2,3],[4,5,6],[7,8,'a']]
new_list=copy.copy(old_list)
print('Old list: ',old_list)
print('ID of old list: ',id(old_list))
print('new list: ',new_list)
print('ID of new list: ',id(new_list))
new_list[2][2]=9
print('Old list: ',old_list)
print('ID of old list: ',id(old_list))
print('new list: ',new_list)
print('ID of new list: ',id(new_list))
```

```
---------------------------------------------------------------------------
-
NameError                                 Traceback (most recent call las
t)
Cell In[1], line 2
      1 old_list=[[1,2,3],[4,5,6],[7,8,'a']]
----> 2 new_list=copy.copy(old_list)
      3 print('Old list: ',old_list)
      4 print('ID of old list: ',id(old_list))

NameError: name 'copy' is not defined
```

In [7]:
```
x=10
y=x;
print(x,y)
print(id(x),id(y))
x=11;
print(x,y)
print(id(x),id(y))
```

```
10 10
140704161109064 140704161109064
11 10
140704161109096 140704161109064
```

In [1]:
```
i=240
j=1200.33333
print("Total students : %3d, Boys : %.2f" % (i,j))#formatted output,%10d fo
```

```
Total students : 240, Boys : 1200.33
```

In [3]:
```
c=7//3
print("{:.2f}".format(c))
print("c=",round(c,2))
```

```
2.00
c= 2
```

In [5]:
```
def fact(n):
    f=1
    for i in range(1,n+1,1):
        f=f*i
    return f
m=5
x=fact(m)
print(x)
```

```
120
```

In [6]:
```
x=10
y=5
x,y=y,x
print(x,y)
```

```
5 10
```

In [4]:
```
s="this is abinaya's laptop"
#s='this is abinaya's laptop'
s='''this
is a
abinaya
laptop''
```

In [ ]:
```
```

In [7]:
```
s="this is abinaya's laptop"
#s='this is abinaya's laptop'
s='''this
is a
abinaya
laptop'''
print(s)
```

```
this
is a
abinaya
laptop
```

In [9]:
```
#array index
s='awesome'
print(s)
print(s[0])
print(s[1])
print(s[-1])
print(s[-10])
```

```
awesome
a
w
e

---------------------------------------------------------------------------
-
IndexError                                Traceback (most recent call las
t)
Cell In[9], line 6
      4 print(s[1])
      5 print(s[-1])
----> 6 print(s[-10])

IndexError: string index out of range
```

In [10]:
```
#concatenation
s="this is "
t="awesome"
print(s+t)
```

```
this is awesome
```

In [13]:
```
#repetition
s="abinaya\n"
print(s*3)
```

```
abinaya
abinaya
abinaya
```

In [14]:
```
for i in range(1,6,1):
    s="* "
    x=s*i
    print(x)
```

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

In [16]:
```
#slice operator
s="abinaya is good"
print(len(s))
s2=s[0:5:1]
print(s2)
```

```
15
abina
```

In [17]:
```
s="I am good"
print(s[-45:55:1])
print(s[1:5:9])
```

```
I am good
```

In [23]:
```
s="life is awesome"
c=0;
for i in s:
    if (i=='a' or i=='e' or i=='i' or i=='o' or i=='u')or (i=='A' or i=='E'
        c=c+1;
print(c)
```

```
7
```

In [32]:
```
#split
s="life is awesome because it is awesome"
c=0
l=s.split("some")
print(len(l)-1)
```

```
2
```

In [3]:
```
l=[3.34,5.66,78.5674,6.903]
s=list(map(round,l,range(1,7)))
r=list(map(round,l,[2,2,2,2]))
print(s)
```

```
[3.3, 5.66, 78.567, 6.903]
```

In [7]:
```
#Map
n=['a','b','c']
u=[1,2,3]
nl=list(zip(n,u))
n2l=list(map(lambda x,y:(x,y),n,u)) #the function takes two values so two p
print(nl)
print(n2l)
```

```
[('a', 1), ('b', 2), ('c', 3)]
[('a', 1), ('b', 2), ('c', 3)]
```

In [1]:
```
#Filter
def is_mar(m1):
    return m1>75
m=[55,98,99,100]
l=list(filter(is_mar,m))
print(l)
```

```
[98, 99, 100]
```

In [5]:
```
#filter  example
l=("madam","hi")
nl=list(filter(lambda word: word == word[::-1],l))
print(l)
```

```
('madam', 'hi')
```

In [6]:
```
#reduce function(will return single value) mostly used in factorial
from functools import reduce
l=[1,2,3,4,5]
def sum(first,last):
    return first+last
r=reduce(sum,l)
print(r)
```

```
15
```

In [8]:
```
#string functions
str=input()
nl=list(str.lower().replace(',','').replace('\n','').replace('.','').split(
s=''
for i in nl:
    s=s+i+' '
print(s)
```

```
i am good at python,java.\n
i am good at pythonjava\n
```

In [9]:
```
#strip(will compress the string from front and back)
s="hello, this is abinaya"
l=s.strip(",h")
print(l)
```

```
ello, this is abinaya
```

In [1]:
```
#ascii(used in cryptography for decoding and encoding)
n=ord('a')
print(n)
x=chr(n)
print(x)
```

```
97
a
```

In [9]:
```
#captilise
txt="hello "
print(txt.capitalize())
print(txt.upper())
print(txt.casefold())
print(txt.isnumeric())
```

```
Hello
HELLO
hello
False
```

In [11]:
```
l=[5,4,8,1,9,6]
print(l.sort())
print(l.reverse())
```

```
None
None
```

In [5]:
```
n=list(input())
length=len(n)
n.pop()
n.pop(0)
print(n)
```

```
12345
['2', '3', '4']
```

In [18]:
```
n=input()
s=""
for i in n:
    if i!='3':
        s=s+i
print(s)
```

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

In [ ]:

In [ ]: