Pattern printing Using Python

1. Star Patterns

1.1 Right-Angled Triangle (Left-Aligned)

In [3]:
```python
n = 10

for i in range (1, n+1):
    print ("*" * i)
```

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

1.2 Right-Angled Triangle (Right-Aligned)

In [41]:
```python
n = 10

for i in range (1, n+1):
    print("  " * (n-i) + "* " * i )
```

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

1.3 Pyramid Pattern (Centered)

In [42]:
```python
n = 10

for i in range (1, n+1):
    print(" " * (n-i) + "* " * i )
```

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

1.4 Inverted Pyramid

In [49]:
```python
n = 10

for i in range (n , 0 , -1):
    print(" " * (n-i) + "* " * i )
```

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

1.5 Diamond Pattern

In [52]:
```python
n = 10

for i in range (1, n+1):
    print(" " * (n-i) + "* " * i )
for i in range (n-1 , 0, -1):
    print(" " * (n-i) + "* " * i )
```

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

1.6 Square Pattern

```python
n = 10

for i in range(1, n+1):
    print ("* " *n )
```

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

2. Number Patterns

2.1 Increasing Triangle of Numbers

```python
n = 10

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

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

2.2 Repeated Numbers in Rows

In [66]:
```python
n = 5


for i in range (1, n+1):
    print((str(i)+ " ") *i)
```

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

2.3 Floyd's Triangle

In [88]:
```python
num = 1
n = 8

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

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31 32 33 34 35 36
```

2.4 Reverse Number Triangle

In [93]:
```python
n =10

for i in range (n , 0, -1):
    for j in range (1 , i+1):
        print(j, end=" ")
    print()
```

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

3. Alphabet Patterns

3.1 Alphabet Triangle

In [1]:
```python
n = 5
for i in range(n):
    for j in range(i+1):
        print(chr(65 + j), end=' ')
    print()
```

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

3.2 Repeating Alphabet Triangle

In [3]:
```python
n = 5

for i in range (n):
    print((chr(65 + i ) * (i + 1)))
```

```
A
BB
CCC
DDDD
EEEEE
```

3.3 Alphabet Pyramid

In [5]:
```python
n = 5
for i in range(n):
    print(' ' * (n - i - 1), end='')
    for j in range(i + 1):
        print(chr(65 + j), end=' ')
    print()
```

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

4. Miscellaneous Patterns

4.1 Butterfly Pattern

```
In [16]: n = 5

for i in range (1, n+1):
    print("* " * i + " "    * (n-i) *2 + "* " *i )
```

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

4.3 Hollow Square

```
In [22]: n = 10

for i in range(n):
    for j in range(n):
        if i in [0, n-1] or j in [0, n-1]:
            print('*', end=' ')
        else:
            print(' ', end=' ')
    print()
```

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

5. Advanced Patterns

```
In [48]: n = 10
for i in range(3):
    for j in range(1, n+1):
        if ((i + j) % 4 == 0) or (i == 1 and j % 4 == 0):
            print("*", end=" ")
        else:
```

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

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

In [53]:
```
n = 10

for i in range (n , 0 , -1):
    print(" " * (n-i) + "* " * i )
for i in range (2 ,n+1):
    print(" " * (n-i) + "* " * i )
```

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