

Pattern Printing - 2

(i) *
* *
* * *
* * * *
* * * * *

(i) row = 1

(ii) row <= 5

(iii) Print '*' row times

(iv) row = row + 1

(i) col = 1

(ii) col <= row

(iii) Print '*'

(iv) col = col + 1

~~Method 2~~

```
for (row = 1; row <= 5; row = row + 1)
{
```

```
    for (col = 1; col <= row; col = col + 1)
    {
```

```
        cout << "*" << " ";
```

```
    }
    cout << endl;
}
```

~~Method 3~~

(ii) 1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

(i) row = 1

(ii) row <= 5

(iii) Print 1 to row

(iv) row = row + 1

```
for (row = 1; row <= 5; row++)
```

(i) col = 1

(ii) col <= row

(iii) Print col

(iv) col = col + 1

```
{
    for (col = 1; col <= row; col++)
```

```
    {
        cout << col << " ";
```

```
    }
    cout << endl;
}
```


iii

```

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

i row = 1

ii row <= 5

iii Print row, row times

iv row = row + 1

```

for (row = 1; row <= 5; row = row + 1)
{
    for (col = 1; col <= row; col++)
    {
        cout << row << " ";
    }
    cout << endl;
}
    
```

iv

```

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

i row = 1

ii row <= 5

iii Print row to 1

iv row = row + 1

```

for (row = 1; row <= 5; row = row + 1)
{
    for (col = row; col >= 1; col = col - 1)
    {
        cout << col << " ";
    }
    cout << endl;
}
    
```


(v)

a
b b
c c c
d d d d
e e e e e

(i) row = 1

(ii) row <= 5

(iii) print name row times

(iv) row = row + 1

row

1 → a

2 → b

3 → c

⋮

(i) col = 1

(ii) col <= row

(iii) name = 'a' + (row - 1)

(iv) print name

(v) col = col + 1;

for (row = 1; row <= 5; row++)

{ char name = 'a' + (row - 1);

for (col = 1; col <= row; col++)

{

~~char name = 'a' + (row - 1);~~

cout << name << " ";

}

cout << endl;

}

↓ col

(vi) row
1 → * * * * * 5
2 → * * * * 4
3 → * * * 3
4 → * * 2
5 → * 1

(i) row = 1

(ii) row <= 5

(iii) print '*' (5 - (row + 1)) times

(iv) row = row + 1;

5 - (row - 1)

or
5 - row + 1

for (row = 1; row <= 5; row = row + 1)

{ for (col = 1; col <= 5 - row + 1; col = col + 1)

{

cout << "*" << " ";

}

cout << endl;

}

vii) 1 2 3 4 5

1 2 3 4

1 2 3

1 2

1

i) row = 1

ii) row <= 5

iii) print 1 to 5-(row-1)

iv) row = row + 1

```
for (row = 1; row <= 5; row = row + 1)
```

```
{
```

```
for (col = 1; col <= 5 - (row - 1); col = col + 1)
```

```
{
```

```
cout << col << " ";
```

```
}
```

```
cout << endl;
```

```
}
```

viii)

5

5 4

5 4 3

5 4 3 2

5 4 3 2 1

i) row = 1

ii) row <= 5

iii) print 5 to 5-(row-1)

iv) row = row + 1

1 → 5
2 → 5-1
3 → 5-2

```
for (row = 1; row <= 5; row = row + 1)
```

```
{
```

```
for (col = 5; col >= 5 - row + 1; col--)
```

```
{
```

```
cout << col << " ";
```

```
}
```

```
cout << endl;
```

```
}
```