

Star Pattern Cheat Sheet (Capgemini Interview)

1. Right-angled Triangle

Logic:
- Outer loop → rows
- Inner loop → print stars equal to row number

Python:

```
rows = 5
for i in range(1, rows+1):
    for j in range(i):
        print("*", end=" ")
    print()
```

Java:

```
for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= i; j++) {
        System.out.print("* ");
    }
    System.out.println();
```

2. Pyramid

Logic:
- Outer loop → rows
- First inner loop → spaces
- Second inner loop → stars

Python:

```
rows = 5
for i in range(1, rows+1):
    print(" " * (rows-i) + "* " * i)
```

Java:

```
for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= rows - i; j++) {
        System.out.print(" ");
    }
    for (int k = 1; k <= i; k++) {
        System.out.print("* ");
    }
    System.out.println();
```

3. Inverted Triangle

Logic:
- Outer loop → rows
- Inner loop → stars decreasing

Python:

```
rows = 5
for i in range(rows, 0, -1):
    for j in range(i):
        print("*", end=" ")
    print()
```

Java:

```
for (int i = rows; i >= 1; i--) {
    for (int j = 1; j <= i; j++) {
        System.out.print("* ");
    }
    System.out.println();
```

4. Diamond

Logic:
- Combine pyramid + inverted pyramid

Python:

```
rows = 5
for i in range(1, rows+1):
    print(" " * (rows-i) + "* " * i)
for i in range(rows-1, 0, -1):
    print(" " * (rows-i) + "* " * i)
```

Java:

```
for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= rows - i; j++) {
        System.out.print(" ");
    }
    for (int k = 1; k <= i; k++) {
        System.out.print("* ");
    }
    System.out.println();
}
for (int i = rows-1; i >= 1; i--) {
    for (int j = 1; j <= rows - i; j++) {
        System.out.print(" ");
    }
    for (int k = 1; k <= i; k++) {
        System.out.print("* ");
    }
    System.out.println();
}
```

5. Number Pyramid

Logic:
- Outer loop → rows
- Inner loop → print numbers increasing

Python:

```
rows = 5
for i in range(1, rows+1):
    for j in range(1, i+1):
        print(j, end=" ")
    print()
```

Java:

```
for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= i; j++) {
        System.out.print(j + " ");
    }
    System.out.println();
}
```