20 Pattern Programming Examples with Solutions

✅ 1. Solid Rectangle

```
* * * * *

* * * * *

* * * * *
```

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=5; j++){
      System.out.print("* ");
   }
   System.out.println();
}
```

✅ 2. Hollow Rectangle

```
* * * * *

*     *

* * * * *
```

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=5; j++){
      if(i==1 || i==3 || j==1 || j==5){
         System.out.print("* ");
      } else {
         System.out.print("  ");
      }
   }
```

```
    System.out.println();
}
```

✅ 3. Right-Angled Triangle

```
*
* *
* * *
* * * *
for(int i=1; i<=4; i++){
    for(int j=1; j<=i; j++){
        System.out.print("* ");
    }
    System.out.println();
}
```

✅ 4. Inverted Triangle

```
* * * *
* * *
* *
*
for(int i=4; i>=1; i--){
    for(int j=1; j<=i; j++){
        System.out.print("* ");
    }
    System.out.println();
```

```
}
```

✅ 5. Right-Aligned Triangle

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

```
for(int i=1; i<=4; i++){
   for(int j=1; j<=4-i; j++) System.out.print("  ");
   for(int k=1; k<=i; k++) System.out.print("* ");
   System.out.println();
}
```

✅ 6. Half Pyramid with Numbers

```
1
1 2
1 2 3
```

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=i; j++){
      System.out.print(j + " ");
   }
   System.out.println();
}
```

✅ 7. Inverted Half Pyramid with Numbers

1 2 3

1 2

1

```
for(int i=3; i>=1; i--){
   for(int j=1; j<=i; j++){
      System.out.print(j + " ");
   }
   System.out.println();
}
```

✅ 8. Floyd's Triangle

1

2 3

4 5 6

```
int num = 1;
for(int i=1; i<=3; i++){
   for(int j=1; j<=i; j++){
      System.out.print(num++ + " ");
   }
   System.out.println();
}
```

✅ 9. 0-1 Triangle

```
1

0 1

1 0 1
```

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=i; j++){
      if((i+j)%2 == 0)
         System.out.print("1 ");
      else
         System.out.print("0 ");
   }
   System.out.println();
}
```

✅ 10. Butterfly Pattern

```
*     *

* *   * *

* * * * *

* *   * *

*     *
```

```
int n = 3;
// upper
for(int i=1; i<=n; i++){
   for(int j=1; j<=i; j++) System.out.print("* ");
   for(int j=1; j<=2*(n-i); j++) System.out.print("  ");
```

```
    for(int j=1; j<=i; j++) System.out.print("* ");
    System.out.println();
}
// lower
for(int i=n; i>=1; i--){
    for(int j=1; j<=i; j++) System.out.print("* ");
    for(int j=1; j<=2*(n-i); j++) System.out.print("  ");
    for(int j=1; j<=i; j++) System.out.print("* ");
    System.out.println();
}
```

✅ 11. Solid Rhombus

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

```
for(int i=1; i<=4; i++){
    for(int j=1; j<=4-i; j++) System.out.print(" ");
    for(int j=1; j<=4; j++) System.out.print("* ");
    System.out.println();
}
```

✅ 12. Number Pyramid

```
  1
 1 2
```

```
 1 2 3
```

```
for(int i=1; i<=3; i++){
    for(int j=1; j<=3-i; j++) System.out.print(" ");
    for(int j=1; j<=i; j++) System.out.print(j + " ");
    System.out.println();
}
```

✅ 13. Palindromic Pattern

```
   1
  2 1 2
 3 2 1 2 3
```

```
int n = 3;
for(int i=1; i<=n; i++){
    for(int j=1; j<=n-i; j++) System.out.print(" ");
    for(int j=i; j>=1; j--) System.out.print(j);
    for(int j=2; j<=i; j++) System.out.print(j);
    System.out.println();
}
```

✅ 14. Diamond Pattern

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

```
int n = 3;
for(int i=1; i<=n; i++){
   for(int j=1; j<=n-i; j++) System.out.print(" ");
   for(int j=1; j<=2*i-1; j++) System.out.print("*");
   System.out.println();
}
for(int i=n-1; i>=1; i--){
   for(int j=1; j<=n-i; j++) System.out.print(" ");
   for(int j=1; j<=2*i-1; j++) System.out.print("*");
   System.out.println();
}
```

✅ 15. Number Pattern

```
1 2 3
1 2
1
for(int i=3; i>=1; i--){
   for(int j=1; j<=i; j++){
      System.out.print(j + " ");
   }
   System.out.println();
}
```

✅ 16. Continuous Number Pattern

```
1 2 3
```

4 5 6

7 8 9

```
int num = 1;
for(int i=1; i<=3; i++){
   for(int j=1; j<=3; j++){
      System.out.print(num++ + " ");
   }
   System.out.println();
}
```

✅ 17. Alternating Rows

1 1 1

2 2 2

3 3 3

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=3; j++){
      System.out.print(i + " ");
   }
   System.out.println();
}
```

✅ 18. Reverse Number Pyramid

3 3 3

2 2 2

1 1 1

```
for(int i=3; i>=1; i--){
   for(int j=1; j<=3; j++){
      System.out.print(i + " ");
   }
   System.out.println();
}
```

✅ 19. Star Pyramid

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

```
for(int i=1; i<=3; i++){
   for(int j=1; j<=3-i; j++) System.out.print(" ");
   for(int k=1; k<=i; k++) System.out.print("* ");
   System.out.println();
}
```

✅ 20. Square with Diagonal

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

```
int n = 4;
for(int i=1; i<=n; i++){
   for(int j=1; j<=n; j++){
```

```
        if(i==1 || i==n || j==1 || j==n || i==j || j==n-i+1)
            System.out.print("* ");
        else
            System.out.print("  ");
    }
    System.out.println();
}
```