

1.Pattern1

```
package patterns;
import java.util.*;

public class pattern1 {
    public static void printPattern(int n)
    {
        int i, j;
        for (i = 0; i < n; i++) {
            for (j = 0; j < n; j++) {
                if (i == 0 || j == 0 || i == n - 1
                    || j == n - 1) {
                    System.out.print("*");
                }
                else {
                    System.out.print(" ");
                }
            }
            System.out.println();
        }
    }
}
```

```
package patterns;

public class patternapp1 {

    public static void main(String args[])
    {
        pattern1 p=new pattern1();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

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

2.Pattern2

```
package patterns;
import java.util.*;

public class pattern2 {
    public static void printPattern(int n)
    {
        int i, j;

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

```
package patterns;

public class patternapp2 {
    public static void main(String args[])
    {
        pattern2 p=new pattern2();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

```
<terminated> patternapp
 1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
6 6 6 6 6 6
```

3.Pattern3

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern3 {
5
6
7     public static void printPattern(int n)
8     {
9         int i, j;
10
11         for (i = 1; i <= n; i++) {
12             for (j = 1; j <= i; j++) {
13                 System.out.print(j + " ");
14             }
15             System.out.println();
16         }
17     }
18 }
```

```
1 package patterns;
2
3 public class pattern3app {
4     public static void main(String args[])
5     {
6         pattern3 p=new pattern3();
7         int n = 6;
8         p.printPattern(n);
9     }
10
11 }
12
```

Output:

```
<terminated> pattern3app [jav
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
```

4.Pattern4

```
pattern4.java ^ patternapp4.java
1 package patterns;
2 import java.util.*;
3
4 public class pattern4 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = n; i >= 1; i--) {
9             for (j = 1; j <= i; j++) {
10
11                 System.out.print(j + " ");
12             }
13             System.out.println();
14         }
15     }
16 }
17
```

```
1 package patterns;
2
3 public class patternapp4 {
4
5     public static void main(String args[])
6     {
7         pattern4 p=new pattern4();
8         int n = 6;
9         p.printPattern(n);
10    }
11 }
12
```

Output:

```
<terminated> patternapp4
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

5.Pattern5

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern5 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         int num = 1;
9         for (i = 1; i <= n; i++) {
10             for (j = 1; j <= i; j++) {
11                 System.out.print(num + " ");
12                 num++;
13             }
14             System.out.println();
15         }
16     }
17 }
18
```

```
package patterns;

public class pattern5app {
    public static void main(String[] args)
    {
        pattern5 p=new pattern5();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
```

6.Pattern6

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern6 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 1; i <= n; i++) {
9             for (j = 1; j <= i; j++) {
10                 if ((i + j) % 2 == 0) {
11                     System.out.print(1 + " ");
12                 }
13                 else {
14                     System.out.print(0 + " ");
15                 }
16             }
17             System.out.println();
18         }
19     }
20 }
```

```
1 package patterns;
2
3 public class pattern6app {
4     public static void main(String args[])
5     {
6         pattern6 p=new pattern6();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
1
2
```

Output:

```
terminated: pattern
1
0 1
1 0 1
0 1 0 1
1 0 1 0 1
0 1 0 1 0 1
```

7.Pattern7

```
pattern7.java  patternapp.java  pattern.java  patternapp.java  pattern.java  p
1 package patterns;
2 patterns/src/patterns/pattern4.java
3 public class pattern7 {
4     public static void printPattern(int n)
5     {
6         int i, j;
7         for (i = 1; i <= n; i++) {
8             for (j = 1; j <= 2 * (n - i); j++) {
9                 System.out.print(" ");
0             }
1             for (j = i; j >= 1; j--) {
2                 System.out.print(j + " ");
3             }
4             for (j = 2; j <= i; j++) {
5                 System.out.print(j + " ");
6             }
7             System.out.println();
8         }
9     }
0 }
1
```

```
pattern7.java  patternapp.java  pattern.java  pattern
1 package patterns;
2
3 public class pattern7app {
4     public static void main(String args[])
5     {
6         pattern7 p=new pattern7();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
```

Output:

```
<terminated> pattern7app [Java Application] C:\Users
      1
     2 1 2
    3 2 1 2 3
   4 3 2 1 2 3 4
  5 4 3 2 1 2 3 4 5
 6 5 4 3 2 1 2 3 4 5 6
```

8.Pattern8

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern8 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         int num = 1;
9         for (i = 1; i <= n; i++) {
10             for (j = 1; j <= n - i; j++) {
11                 System.out.print(" ");
12             }
13             for (j = 1; j <= n; j++) {
14                 System.out.print("*");
15             }
16             System.out.println();
17         }
18     }
19 }
20
21
```

```
1 package patterns;
2
3 public class pattern8app {
4     public static void main(String args[])
5     {
6         pattern8 p=new pattern8();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
1
2
```

Output:

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


9.Pattern9

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern9 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         int num = 1;
9         for (i = 1; i <= n; i++) {
10             for (j = 1; j <= n - i; j++) {
11                 System.out.print(" ");
12             }
13             for (j = 1; j <= 2 * i - 1; j++) {
14                 System.out.print("*");
15             }
16             System.out.println();
17         }
18         for (i = n-1; i >= 1; i--) {
19             for (j = 1; j <= n - i; j++) {
20                 System.out.print(" ");
21             }
22             for (j = 1; j <= 2 * i - 1; j++) {
23                 System.out.print("*");
24             }
25             System.out.println();
26         }
27     }
28 }
29
```

```
package patterns/src/patterns/pattern8.java

public class pattern9app {
    public static void main(String args[])
    {
        pattern9 p=new pattern9();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

```
<terminated> pattern9a
*****
 *****
  *****
   *****
    *****
     ***
      *
```

10.Pattern10

```
package patterns;
import java.util.*;

public class pattern10 {
    public static void printPattern(int n)
    {
        int i, j;
        int num = 1;
        for (i = 1; i <= n; i++) {
            for (j = 1; j <= i; j++) {
                System.out.print("*");
            }
            int spaces = 2 * (n - i);
            for (j = 1; j <= spaces; j++) {
                System.out.print(" ");
            }
            for (j = 1; j <= i; j++) {
                System.out.print("*");
            }

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

```

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

            System.out.println();
        }
    }
}

```

```

1 package patterns;
2
3 public class pattern10app {
4     public static void main(String args[])
5     {
6         pattern10 p=new pattern10();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
12

```

```

*****
*****  *****
*****  *****
***      ***
**        **
*          *

```

11.Pattern11

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern11 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 0; i <= n; i++) {
9             for (j = 0; j <= n; j++) {
10                 System.out.print("*");
11             }
12             System.out.println();
13         }
14     }
15 }
```

```
package patterns;

public class pattern11app {
    public static void main(String args[])
    {
        pattern11 p=new pattern11();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

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

12.Pattern12

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern12 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 1; i <= n; i++) {
9             for (j = 1; j <= i; j++) {
10                 System.out.print("*");
11             }
12             System.out.println();
13         }
14     }
15 }
16
```

```
1 package patterns;
2
3 public class pattern12app {
4     public static void main(String args[])
5     {
6         pattern12 p=new pattern12();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
```

Output:

```
minated> pattern12app [Java]
```

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

13.Pattern 13

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern13 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = n; i >= 1; i--) {
9             for (j = 1; j <= i; j++) {
10                 System.out.print("*");
11             }
12             System.out.println();
13         }
14     }
15 }
16
```

```
1 package patterns;
2
3 public class pattern13app {
4
5     public static void main(String args[])
6     {
7         pattern13 p=new pattern13();
8         int n = 6;
9         p.printPattern(n);
10    }
11 }
12
13
14
```

Output:

```
<terminated> patten
*****
*****
****
***
**
*
```

14.Pattern 14

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern14 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = n; i >= 1; i--) {
9             for (j = 1; j < i; j++) {
10                 System.out.print(" ");
11             }
12             for (j = 0; j <= n - i; j++) {
13                 System.out.print("*");
14             }
15             System.out.println();
16         }
17     }
18 }
```

```
1 package patterns;
2
3 public class pattern14app {
4     public static void main(String args[])
5     {
6         pattern14 p=new pattern14();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
```

Output:

```
<terminated> pattern1.
    *
   **
  ***
 ****
*****
*****
*****
```

15. Pattern 15

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern15 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         int num = 2 * n - 2;
9         for (i = n; i > 0; i--) {
10             for (j = 0; j < n - i; j++) {
11                 System.out.print(" ");
12             }
13             num = num - 2;
14             for (j = 0; j < i; j++) {
15                 System.out.print("*");
16             }
17             System.out.println();
18         }
19     }
20 }
21
22
23
```

```
1 package patterns;
2
3 public class pattern15app {
4     public static void main(String args[])
5     {
6         pattern15 p=new pattern15();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
12
```

Output:

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


16.Pattern16

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern16 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 0; i < n; i++) {
9             for (j = n - i; j > 1; j--) {
10                 System.out.print(" ");
11             }
12             for (j = 0; j <= i; j++) {
13                 System.out.print("* ");
14             }
15             System.out.println();
16         }
17     }
18 }
```

```
1 package patterns;
2
3 public class pattern16app {
4     public static void main(String args[])
5     {
6         pattern16 p=new pattern16();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
```

Output:

```
<terminated> pattern16ap
      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * * *
```

17.Pattern17

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern17 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 1; i <= n; i++) {
9             for (j = 1; j < i; j++) {
10                 System.out.print(" ");
11             }
12             for (j = i; j <= n; j++) {
13                 System.out.print(j + " ");
14             }
15             System.out.println();
16         }
17     }
18 }
19
20
```

```
1 package patterns;
2
3 public class pattern17app {
4     public static void main(String args[])
5     {
6         pattern17 p=new pattern17();
7         int n=6;
8         p.printPattern(n);
9     }
10 }
11
```

Output:

```
<terminated> pattern17a
1 2 3 4 5 6
 2 3 4 5 6
   3 4 5 6
    4 5 6
     5 6
      6
```

18.Pattern18

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern18 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 1; i <= n; i++) {
9             for (j = 1; j < i; j++) {
10                 System.out.print(" ");
11             }
12             for (j = i; j <= n; j++) {
13                 System.out.print(j + " ");
14             }
15             System.out.println();
16         }
17         for (i = n - 1; i >= 1; i--) {
18             for (j = 1; j < i; j++) {
19                 System.out.print(" ");
20             }
21             for (j = i; j <= n; j++) {
22                 System.out.print(j + " ");
23             }
24             System.out.println();
25         }
26     }
27 }
28
```

```
1 package patterns;
2
3 public class pattern18app {
4     public static void main(String args[])
5     {
6         pattern18 p=new pattern18();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
12
13
14
```

Output:

```
1 2 3 4 5 6
2 3 4 5 6
3 4 5 6
4 5 6
5 6
6
5 6
4 5 6
3 4 5 6
2 3 4 5 6
1 2 3 4 5 6
```

19.Pattern19

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern19 {
5     public static void printPattern(int n)
6     {
7         int i, j, k;
8         for (i = 1; i <= n; i++) {
9             for (j = i; j < n; j++) {
10                 System.out.print(" ");
11             }
12
13             for (k = 1; k <= (2 * i - 1); k++) {
14                 if (k == 1 || i == n || k == (2 * i - 1)) {
15                     System.out.print("*");
16                 }
17                 else {
18                     System.out.print(" ");
19                 }
20             }
21
22             System.out.println("");
23         }
24     }
25 }
```

```
package patterns;
public class pattern19app {
    public static void main(String args[])
    {
        pattern19 p=new pattern19();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

```

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

20.Pattern20

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern20 {
5     public static void printPattern(int n)
6     {
7         int i, j, k;
8         for (i = n; i >= 1; i--) {
9             for (j = i; j < n; j++) {
10                 System.out.print(" ");
11             }
12             for (k = 1; k <= (2 * i - 1); k++) {
13                 if (k == 1 || i == n || k == (2 * i - 1)) {
14                     System.out.print("*");
15                 }
16                 else {
17                     System.out.print(" ");
18                 }
19             }
20             System.out.println("");
21         }
22     }
23 }
```

```
package patterns:
patterns/src/patterns/pattern20.java
public class pattern20app {
    public static void main(String args[])
    {
        pattern20 p=new pattern20();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

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

21. Pattern21

```
package patterns;

public class pattern21 {
    public static void printPattern(int n)
    {
        int i, j;
        int num = 1;
        for (i = 1; i <= n; i++) {
            for (j = 1; j <= n - i; j++) {
                System.out.print(" ");
            }
            for (j = 1; j <= 2 * i - 1; j++) {
                if (j == 1 || j == 2*i-1)
                    System.out.print("*");
                else
                    System.out.print(" ");
            }
            System.out.println();
        }
        for (i = n-1; i >= 1; i--) {
            for (j = 1; j <= n - i; j++) {
                System.out.print(" ");
            }
            for (j = 1; j <= 2 * i - 1; j++) {
                if (j == 1 || j == 2*i-1)
                    System.out.print("*");
                else
                    System.out.print(" ");
            }
            System.out.println();
        }
    }
}
```

```
package patterns;

public class pattern21lapp {
    public static void main(String args[])
    {
        pattern21 p=new pattern21();
        int n = 6;
        p.printPattern(n);
    }
}
```

Output:

<terminated> pattern

22.Pattern22

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern22 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = 1; i <= n; i++) {
9             for (j = 1; j < i; j++) {
10                 System.out.print(" ");
11             }
12             for (j = i; j <= n; j++) {
13                 if (j==i || j==n || i==1)
14                     System.out.print("* ");
15                 else
16                     System.out.print(" ");
17             }
18             System.out.println();
19         }
20         for (i = n - 1; i >= 1; i--) {
21             for (j = 1; j < i; j++) {
22                 System.out.print(" ");
23             }
24             for (j = i; j <= n; j++) {
25                 if (j==i || j==n || i==1)
26                     System.out.print("* ");
27                 else
28                     System.out.print(" ");
29             }
30             System.out.println();
31         }
32     }
33 }
```

```
pattern22.java  pattern22app.java  pattern22.java
1 package patterns;
2
3 public class pattern22app {
4     public static void main(String args[])
5     {
6         pattern22 p=new pattern22();
7         int n = 6;
8         p.printPattern(n);
9     }
10 }
11
```

Output:

```
<terminated> pattern22app.java App
* * * * *
*   *
*   *
*   *
*   *
*   *
*   *
*   *
*   *
*   *
*   *
* * * * *
```

23.Patern23

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern23 {
5     public static void printPascal(int n)
6     {
7         for (int i = 1; i <= n; i++) {
8             for (int j = 0; j <= n - i; j++) {
9                 System.out.print(" ");
10            }
11            int x = 1;
12            for (int k = 1; k <= i; k++) {
13                System.out.print(x + " ");
14                x = x * (i - k) / k;
15            }
16            System.out.println();
17        }
18    }
19 }
20
21 }
```

```
package patterns;

public class pattern23app {
    public static void main(String[] args)
    {
        pattern23 p=new pattern23();
        int n = 4;
        p.printPascal(n);
    }
}
```

Output:

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


24.Pattern24

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern24 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         int num = 1;
9         for (i = 1; i <= n; i++) {
10             for (j = 1; j <= i; j++) {
11                 System.out.print("* ");
12             }
13
14             System.out.println();
15         }
16         for (i = n-1; i >= 1; i--) {
17             for (j = 1; j <= i; j++) {
18                 System.out.print("* ");
19             }
20
21             System.out.println();
22         }
23     }
24 }
```

```
package patterns;
patterns/src/patterns/pattern22.java
public class pattern24app {
    public static void main(String args[])
    {
        pattern24 p=new pattern24();
        int n = 4;
        p.printPattern(n);
    }
}
```

Output:

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

25.Pattern25

```
1 package patterns;
2 import java.util.*;
3
4 public class pattern25 {
5     public static void printPattern(int n)
6     {
7         int i, j;
8         for (i = n; i >= 1; i--) {
9             for (j = 1; j <= i; j++) {
10                 System.out.print("*");
11             }
12             System.out.println();
13         }
14         for (i = 2; i <= n; i++) {
15             for (j = 1; j <= i; j++) {
16                 System.out.print("*");
17             }
18             System.out.println();
19         }
20     }
21 }
22
23
24 package patterns,
25
26 public class pattern25app {
27     public static void main(String args[])
28     {
29         pattern25 p=new pattern25();
30         int n = 6;
31         p.printPattern(n);
32     }
33 }
```

Output:

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