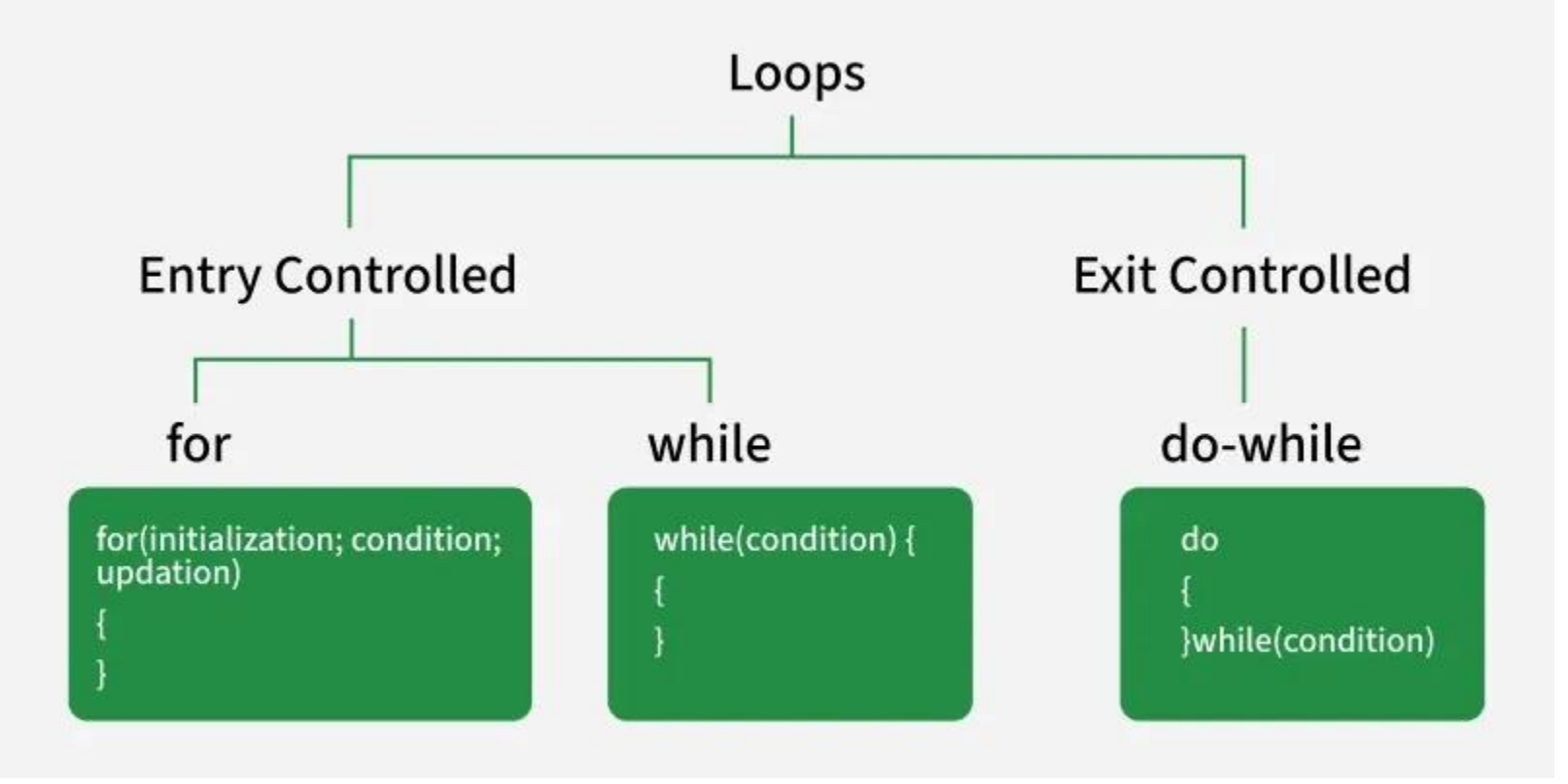
LOOPS

- **Tho loops hum basically ek hi kaam ko baar baar karne ke liye karte h**



1. FOR LOOP SYNTAX:-

```
for ( initialization ; condition ; updation ) {
    // body of for loop
}
```

2. WHILE LOOP SYNTAX:-

```
while ( condition ) {
   // Body of the loop
}
```

3. DO WHILE LOOP SYNTAX:-

```
do {
   // Body of the loop
} while ( condition );
```

Nested loop: matlab loop ke andar loop

```
for ( int i = 0 ; i < 3 ; i++ )
{
        for ( int j = 0 ;  j < 2 ; j++ )
        {
      printf("i = %d, j = %d\n", i, j);
    }
  }
```

LOOP Control Statements

Name	Description
break	The break statement is used to terminate the loop statement.
continue	When encountered, the continue statement skips the remaining body and jumps to the next iteration of the loop.
goto	goto statement transfers the control to the labeled statement.

```
#include <stdio.h>
int main() {
    for (int i = 0; i < 5; i++) {
        if (i == 3) {
            // Exit the loop when i equals 3
            break;
        }
        printf("%d ", i);
    }
    printf("\n");
```

Poore loop ke bahar phenk dega break use karne se aage ka loop nhi chalega

```
    for (int i = 0; i < 5; i++) {
        if (i == 3) {
            // Skip the current iteration
            // when i equals 3
            continue;
        }
        printf("%d ", i);
    }
    printf("\n");
    for (int i = 0; i < 5; i++) {
        if (i == 3) {
            // Jump to the skip label when
            // i equals 3
            goto skip;
        }
        printf("%d ", i);
    }
skip:
    printf("\nJumped to the 'skip' label %s",
    "when i equals 3.");

    return 0;
}
```

Continue me aisa hota tho h ki woh direct agle iteration me pahuncha deta rest of code skip kar deta h us iterationa ka

Goto se yeh hoga ki jo aage skip label banaya h who uspe pahucha dega baaki code ko skip karke direct

Output

```
0 1 2
0 1 2 4
0 1 2
Jumped to the 'skip' label when i
equals 3.
```

31 Write a program to print your name 5 times using while statement
32 Write a program to display integer numbers from 1 to n using while statement
33 Write a program to print all even numbers from 1 to n using while statement
34 Write a program to print sum of numbers from 1 to n using while statement
35 Write a program to find the sum of all odd numbers from 1 to n using while statement
36 Write a program to generate table of a given number using while statement
37 Write a program to find factorial of a number using while statement
38 Write a program to find whether a given number is prime
39 Write a program to print your name n times using for statement
40 Write a program to find sum of even numbers from 1 to n using for statement
41 Write a program to generate table of given number using for statement
42 Write a program to find factorial of a given number using for statement
43 Write a program to find factorial of a given number using do while statement
44 Write a program to explain the working of do while statement
45 Write a program to show working of for and while loop
46 Write a program to show working of nested for loop
47 Write a program to find first and last digit in a number using while statement
48 Write a program to generate table of a number using goto statement
49 WAP to find factorial of given number using goto
50 WAP a program to print addition, subtraction, multiplication, division of 2 numbers as per user choice using goto statement

31. Print your name 5 times using while loop

```
// Algorithm:
// 1. Start
// 2. Initialize counter i = 1
// 3. Use while loop until i ≤ 5
// 4. Print name, increment i
// 5. Stop

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 1;
    clrscr();
    while(i <= 5) {
        printf("Satyam Singh\n");
        i++;
    }
    getch();
}
```

Output:

```
Satyam Singh
Satyam Singh
Satyam Singh
Satyam Singh
Satyam Singh
```

32. Display numbers from 1 to n using while

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Initialize i = 1
// 4. Loop while i ≤ n, print i
// 5. Increment i
// 6. Stop

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 1, n;
    clrscr();
    printf("Enter n: ");
    scanf("%d", &n);

    while(i <= n) {
        printf("%d ", i);
        i++;
    }
    getch();
}
```

Output (for n = 5):

```
1 2 3 4 5
```

33. Print all even numbers from 1 to n using while

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Initialize i = 2
// 4. Loop while i ≤ n, print i
// 5. Increment i by 2
// 6. Stop

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 2, n;
    clrscr();
    printf("Enter n: ");
    scanf("%d", &n);

    while(i <= n) {
        printf("%d ", i);
        i += 2;
    }
    getch();
}
```

Output (for n = 10):

```
2 4 6 8 10
```

34. Print sum of numbers from 1 to n using while

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Initialize i=1, sum=0
// 4. Add i to sum in loop
// 5. Increment i
// 6. Stop

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 1, n, sum = 0;
    clrscr();
    printf("Enter n: ");
    scanf("%d", &n);

    while(i <= n) {
        sum += i;
        i++;
    }
    printf("Sum = %d", sum);
    getch();
}
```

Output (for n = 5):

```
Sum = 15
```

35. Print sum of odd numbers from 1 to n using while

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Initialize i = 1, sum = 0
// 4. Add i to sum, increment i by 2
// 5. Stop when i > n

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 1, n, sum = 0;
    clrscr();
    printf("Enter n: ");
    scanf("%d", &n);

    while(i <= n) {
        sum += i;
        i += 2;
    }
    printf("Sum of odd numbers = %d", sum);
    getch();
}
```

Output (for n = 9):

```
Sum of odd numbers = 25
```

36. Generate table of a number using while

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Initialize i=1
// 4. Multiply and print num*i
// 5. Loop till i ≤ 10

#include <stdio.h>
#include <conio.h>

void main() {
    int num, i = 1;
    clrscr();
    printf("Enter number: ");
    scanf("%d", &num);

    while(i <= 10) {
        printf("%d x %d = %d\n", num, i, num * i);
        i++;
    }
    getch();
}
```

Output (for num = 5):

```
5 x 1 = 5
5 x 2 = 10
...
5 x 10 = 50
```

37. Find factorial of a number using while

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Initialize fact=1, i=1
// 4. Multiply fact *= i, i++
// 5. Loop till i ≤ n

#include <stdio.h>
#include <conio.h>
void main() {
    int n, i = 1, fact = 1;
    clrscr();
    printf("Enter a number: ");
    scanf("%d", &n);
    while(i <= n) {
        fact *= i;
        i++;
    }
    printf("Factorial = %d",
fact);
    getch();
}
```

Output (for n = 5):

```
Factorial = 120
```

38. Check whether a number is prime

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Check divisibility from 2
to n/2
// 4. If divisible, not prime
// 5. Else prime

#include <stdio.h>
#include <conio.h>
void main() {
    int n, i = 2, flag = 0;
    clrscr();
    printf("Enter a number: ");
    scanf("%d", &n);
    if(n <= 1) flag = 1;
    while(i <= n/2) {
        if(n % i == 0) {
            flag = 1;
            break;
        }
        i++;
    }
    if(flag == 0)
        printf("%d is a Prime
Number", n);
    else
        printf("%d is Not a Prime
Number", n);
    getch();
}
```

Output (for n = 7):

```
7 is a Prime Number
```

39. Print name n times using for loop

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Use for loop from 1 to n
// 4. Print name

#include <stdio.h>
#include <conio.h>
void main() {
    int i, n;
    clrscr();
    printf("Enter how many times
to print name: ");
    scanf("%d", &n);
    for(i = 1; i <= n; i++) {
        printf("Satyam Singh\n");
    }
    getch();
}
```

Output (for n = 3):

```
Satyam Singh
Satyam Singh
Satyam Singh
```

40. Sum of even numbers from 1 to n using for

```
// Algorithm:
// 1. Start
// 2. Input n
// 3. Use for loop i=2 to n, step
2
// 4. Add i to sum
// 5. Print result

#include <stdio.h>
#include <conio.h>
void main() {
    int i, n, sum = 0;
    clrscr();
    printf("Enter n: ");
    scanf("%d", &n);
    for(i = 2; i <= n; i += 2) {
        sum += i;
    }
    printf("Sum of even numbers =
%d", sum);
    getch();
}
```

Output (for n = 10):

```
Sum of even numbers = 30
```

41. Generate table using for loop

```
// Algorithm:
// 1. Start
// 2. Input a number
// 3. Use for loop from i = 1 to
10
// 4. Print num × i
// 5. Stop

#include <stdio.h>
#include <conio.h>
void main() {
    int num, i;
    clrscr();
    printf("Enter a number: ");
    scanf("%d", &num);
    for(i = 1; i <= 10; i++) {
        printf("%d x %d = %d\n",
num, i, num * i);
    }
    getch();
}
```

Output (for num = 3):

```
3 x 1 = 3
3 x 2 = 6
...
3 x 10 = 30
```

42. Factorial using for loop

```
// Algorithm:
// 1. Start
// 2. Input a number
// 3. Initialize fact = 1
// 4. Loop i = 1 to n
// 5. Multiply fact *= i
// 6. Print fact

#include <stdio.h>
#include <conio.h>

void main() {
    int n, i, fact = 1;
    clrscr();
    printf("Enter a number: ");
    scanf("%d", &n);

    for(i = 1; i <= n; i++) {
        fact *= i;
    }
    printf("Factorial = %d",
fact);
    getch();
}
```

Output (for n = 4):

```
Factorial = 24
```

43. Factorial using do while loop

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Initialize i=1, fact=1
// 4. Multiply fact *= i
// 5. Increment i
// 6. Continue till i ≤ n

#include <stdio.h>
#include <conio.h>
void main() {
    int n, i = 1, fact = 1;
    clrscr();
    printf("Enter a number:
");
    scanf("%d", &n);
    do {
        fact *= i;
        i++;
    } while(i <= n);
    printf("Factorial = %d",
fact);
    getch();
}
```

Output (for n = 5):

```
Factorial = 120
```

44. Working of do while loop

```
// Algorithm:
// 1. Start
// 2. Initialize i=1
// 3. Print i, increment i
// 4. Continue while i ≤ 5

#include <stdio.h>
#include <conio.h>
void main() {
    int i = 1;
    clrscr();
    do {
        printf("%d\n", i);
        i++;
    } while(i <= 5);
    getch();
}
```

Output:

```
1
2
3
4
5
```

45. Show working of for and while loop

```
// Algorithm:
// 1. Start
// 2. Print 1-5 using for loop
// 3. Print 6-10 using while
loop

#include <stdio.h>
#include <conio.h>
void main() {
    int i;
    clrscr();
    printf("Using for
loop:\n");
    for(i = 1; i <= 5; i++) {
        printf("%d ", i);
    }
    i = 6;
    printf("\nUsing while
loop:\n");
    while(i <= 10) {
        printf("%d ", i);
        i++;
    }
    getch();
}
```

Output:

```
Using for loop:
1 2 3 4 5
Using while loop:
6 7 8 9 10
```

46. Working of nested for loop

```
// Algorithm:
// 1. Start
// 2. Use nested loop to print
pattern
// 3. Outer i from 1 to 3
// 4. Inner j from 1 to 3

#include <stdio.h>
#include <conio.h>
void main() {
    int i, j;
    clrscr();
    for(i = 1; i <= 3; i++) {
        for(j = 1; j <= 3;
j++) {
            printf("* ");
        }
        printf("\n");
    }
    getch();
}
```

Output:

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

47. Find first and last digit using while

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Get last digit = num %
10
// 4. Use while loop to divide
num by 10 until num < 10
// 5. num will be first digit

#include <stdio.h>
#include <conio.h>
void main() {
    int num, first, last;
    clrscr();
    printf("Enter a number:
");
    scanf("%d", &num);
    last = num % 10;
    while(num >= 10) {
        num = num / 10;
    }
    first = num;
    printf("First digit =
%d\n", first);
    printf("Last digit = %d",
last);
    getch();
}
```

Output (for num = 12345):

```
First digit = 1
Last digit = 5
```

48. Generate table using goto

```
// Algorithm:
// 1. Start
// 2. Input number
// 3. Use goto label to loop
from i=1 to 10
// 4. Multiply and print

#include <stdio.h>
#include <conio.h>
void main() {
    int num, i = 1;
    clrscr();
    printf("Enter a number:
");
    scanf("%d", &num);
    label:
        if(i <= 10) {
            printf("%d x %d =
%d\n", num, i, num * i);
            i++;
            goto label;
        }
    getch();
}
```

Output (for num = 2):

```
2 x 1 = 2
...
2 x 10 = 20
```

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <= 7; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
    output
    * * * * * * * *
    * * * * * * * *
    * * * * * * * *
    * * * * * * * *
    * * * * * * * *
    * * * * * * * *
    * * * * * * * *
    for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
output
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
```

```
char count='a';
    for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <= i; j++)
        {
            printf("%c ",count);
            count++;
        }
        printf("\n");
    }
}
output
a
b c
d e f
g h i j
k l m n o
p q r s t u
v w x y z { |
} ~  Ç ü é â ä
```

```
 for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >=i; j--)
        {
            printf("* ");
        }
        printf("\n");
    }
}
output
* * * * * * * * *
* * * * * * *
* * * * *
* * * *
* * *
* *
*

for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }

    output
              *
            * *
          * * *
        * * * *
      * * * * *
    * * * * * *
  * * * * * * *
* * * * * * * *

      for (int i = 0; i <= 7; i++) {
        for (int j = 0; j <= i; j++)
            printf("  ");  // Left stars

        for (int j = 7; j > i; j--)
            printf("* ");  // Left spaces
        printf("\n");
      }
}
output
 * * * * * * * *
   * * * * * *
     * * * * *
       * * * *
         * * *
           * *
             *
```

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >i; j--)
        {
            printf("  ");

        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        for (int j = 1; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
}
```

output

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

```
for (int i = 0; i <= 7; i++) {

        for (int j = 0; j <= i; j++)
            printf("  ");

        for (int j = 7; j > i; j--)
            printf("* ");
        for (int j = 7; j >=i; j--)
            printf("* ") ;
        printf("\n");
      }
}
```

output

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

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        for (int j = 1; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
for (int i = 1; i <= 7; i++) {
        for (int j = 1; j <= i; j++)
            printf("  ");

        for (int j = 7; j > i; j--)
            printf("* ");
        for (int j = 7; j >=i; j--)
            printf("* ") ;
        printf("\n");
      }
}
```

output

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

```
for (int i = 1; i <= 7; i++) {
            for (int j = 1; j <= i; j++)
                printf("  ");

            for (int j = 7; j > i; j--)
                printf("* ");
            for (int j = 7; j >=i; j--)
                printf("* ") ;
            printf("\n");
          }
    for(int i = 1 ; i <=7 ; i++ )
        {
            for (int j = 7; j >i; j--)
            {
                printf("  ");
            }
            for (int j = 0; j <= i; j++)
            {
                printf("* ");
            }
            for (int j = 1; j <= i; j++)
            {
                printf("* ");
            }
            printf("\n");
        }
    }
 output
  * * * * * * * * * * * * * *
    * * * * * * * * * * * *
      * * * * * * * * * *
        * * * * * * * *
          * * * * * *
            * * *
              *
            * * *
          * * * * *
        * * * * * * *
      * * * * * * * * *
    * * * * * * * * * * *
  * * * * * * * * * * * * *
* * * * * * * * * * * * * * *
```

```
for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
       for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
         for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
    }
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("  ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j >i; j--)
        {
            printf("* ");
        }
        printf("\n");
    }
```

output

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

```
     for(int i = 0 ; i <=7 ; i++ )
        {
                for (int j = 0; j <= i;
j++)
                {
            printf("* ");
        }
```

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
       for (int j = 7; j >=i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("  ");
        }
        printf("\n");
    }
for(int i = 0 ; i <=7 ; i++ )
    {

         for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
         for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        for (int j = 0; j < i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j >=i; j--)
        {
            printf("* ");
        }
        printf("\n");
    }
}
```

output

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

```
for(int i = 0 ; i <=7 ; i++ )
    {

        for (int j = 0; j < i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j >=i; j--)
        {
                printf("* ");
            }
         for (int j = 7; j >i; j--)
        {
                printf("  ");
        }
         for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
            printf("\n");
        }

    for(int i = 0 ; i <=7 ; i++ )
        {
               for (int j = 7; j >=i; j--)
                {
                    printf("* ");
                }
                for (int j = 0; j < i; j++)
                {
                    printf("  ");
                }
            for (int j = 0; j <= i; j++)
            {
                printf("* ");
            }
            for (int j = 7; j >i; j--)
            {
                printf("  ");
            }
            printf("\n");
        }
}
```

output

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

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >=i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j < i; j++)
        {
            printf("  ");
        }
        for (int j = 0; j < i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j >=i; j--)
        {
            printf("* ");
        }
        printf("\n");
    }
for (int i = 1; i <= 7; i++) {
        for (int j = 0; j <= i; j++)
            printf("* ");
        for (int j = 7; j > i; j--)
            printf("  ");
        for (int j = 7; j >i; j--)
            printf("  ") ;
          for (int j = 0; j <=i; j++)
             printf("* ");

       printf("\n");
      }
}

// output
```

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

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <=i; j++)
        {
            printf("  ");
        }
        for (int j = 77; j > i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j <= 7; j++)
        {
            printf("* ");
        }
        printf("\n");
}
}
output
```

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

```
for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 0; j <=i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j > i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j <= i; j++)
        {
            printf("* ");
        }
        printf("\n");
}}
output
```

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

```
for(int i = 0 ; i <=7 ; i++ )
{
        for (int j = 0; j <= i;
j++)
        {
            printf("* ");
        }
        for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
       for (int j = 7; j >i; j--)
        {
            printf("  ");
        }
         for (int j = 0; j < i;
j++)
        {
            printf("* ");
        }
        printf("\n");
    }
 for(int i = 0 ; i <=7 ; i++ )
    {
        for (int j = 7; j >i; j--)
        {
            printf("* ");
        }
        for (int j = 0; j <= i;
j++)
        {
            printf("  ");
        }
        for (int j = 0; j < i; j++)
        {
            printf("  ");
        }
        for (int j = 7; j >i; j--)
        {
            printf("* ");
        }
        printf("\n");
    }
}
```

output

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

```
for(int i=1;i<=5;i++){
    for (int j=1;j<=5;j++ )
{
    (i==1||i==5||j==1||j==5)?printf
("* "):printf("  ");
}printf("\n");
}
```

output

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