break , Continue

```
for ( i = 0 ; i < 10 ; i++)
{

    if ( i == 4)
        break;           → it will break
                           the loop inside
                           which it is present
}

i = 0, 1, 2, 3, 4
```

```
for ( i = 0 ; i < 10 ; i++)
{
    if ( i == 4)
    continue ;
    printf (" Hello");

    }

i = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
                   ↓
                  skip          9 times
```

WAP to print table of a number given by the user.

$$2 \times 1 = 2$$
$$2 \times 2 = 4$$
$$2 \times 3 = 6$$
$$\vdots$$
$$\vdots$$

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

```c
for ( i = 0 ; i < 5 ; i++)
{
    for ( j = 0 ; j <= 4-i ; j++)
        Printf (" *");
        Printf ("\n");
}
```

j=0   1   2   3   4   5   6   7   8

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

i=0 $\left(4-i <= j\right)$ && $\left(j <= 4+i\right)$
=1
=2
=3
=4

i = 0   j = 4
i = 1   j = 3,4,5
i = 2   j = 2,3,4,5,6
i = 3   j = 1,2,3,4,5,6,7
i = 4   j = 0,1,2,3,4,5,6,7,8

```c
for( i = 0 ; i < 5 ; i++)
{
    for( j = 0 ;   j <= 4+i ; j++)
    {
        if ( 4-i <= j)
            printf(" * ");
        else printf("   ");
    }   printf("\n");
}
```

$j = 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9$

```
*  *  *  *  *  *  *  *  *  *     i = 0
*  *  *  *        *  *  *  *       = 1
*  *  *              *  *  *       = 2
*  *                    *  *       = 3
*                          *       = 4
```

$i = 0 \quad , \quad j = (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)$

$i = 1 \quad , \quad j = (0, 1, 2, 3) \qquad (6, 7, 8, 9)$

$i = 2 \quad , \quad j = (0, 1, 2) \qquad (7, 8, 9)$

$i = 3 \quad , \quad j = (0, 1) \qquad (8, 9)$

$i = 4 \quad , \quad j = (0) \qquad (9)$

```
for (i = 0; i <= 4; i++)
{
    for (j = 0; j <= 9; j++)
    {
        if ((j <= 4-i) || (j >= 5+i))
            printf(" * ");
        else
            printf("  ");
    }
}
```

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```
j=0  1 2 3  4   5   6
          1               i=0
        1 2 1             =1
      1 2 3 2 1           =2
    1 2 3 4 3 2 1         =3
```

$i = 0$, $j = 3$

$i = 1$, $j = 2, 3, 4$

$i = 2$, $j = 1, 2, 3, 4, 5$

$i = 3$, $j = 0, 1, 2, 3, 4, 5, 6$

$(3-i <= j) \&\& (j <= 3+i)$

<div style="color:blue">

int c = 1

```c
for (i=0 ; i <= 3 ; i++)
{
    for (j=0, c=1; j <= 3+i ; j++)
    {
        if (3 - i <= j)
        {
            printf("%d", c);
            if (j < 3)
                c++;
            else
                c--;
        }
        else  printf(" ");
    }
}
```

</div>

```
j = 0  1   2   3   4
  *                      i = 0
  *   *                    = 1
  *       *                = 2
  *           *            = 3
  *   *   *   *   *        = 4


i = 0,    j = 0
i = 1,    j = 0, 1
i = 2,    j = 0, 2
i = 3,    j = 0, 3
i = 4,    j = 0, 1, 2, 3, 4
```

```c
for (i = 0 ; i <= 4 ; i++)
{
    for (j = 0 ; j <= 4 ; j++)
    {
        if (j == 0 || j == i || i == 4)
            printf (" *");
        else
            print ("  ");
    }
    printf (" \n");
}
```

Switch case:-

int/char

```
switch (    )
{
    case 1 :

                break;
    case 2 :

                break;
    case 3 :

                break;
    default :

}
```

1. Default get executed when you don't have matching case.

2. we can't use continue in switch case.

Goto Label:

```
int main()
{
    L: printf("Hello");

    goto L;
}
```