

## C-43 → Need of Nested Loops in C

### Need of Nested loop:-

\* When we want to print 5 stars?

```
printf("*");  
printf("*");  
printf("*");  
printf("*");  
printf("*");
```

O/P ⇒ \* \* \* \* \*

\* But when we want to print 100 stars we can simply write this for 100 lines.

\* Instead we can use nested loops.

\* But we can print using for loop; which repeats...

```
for(i=1; i<=5; i++)  
{  
    printf("*");  
}
```

O/P ⇒ \* \* \* \* \*

\* When we want to print 5 stars in 5 lines; for every line we can't write every time the same for loop.

1st line for(i=1; i<=5; i++)  
{  
 printf("\*");  
}

2nd line for(i=1; i<=5; i++)  
{  
 printf("\*");  
}

5th line " " " " " "

O/P ⇒

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

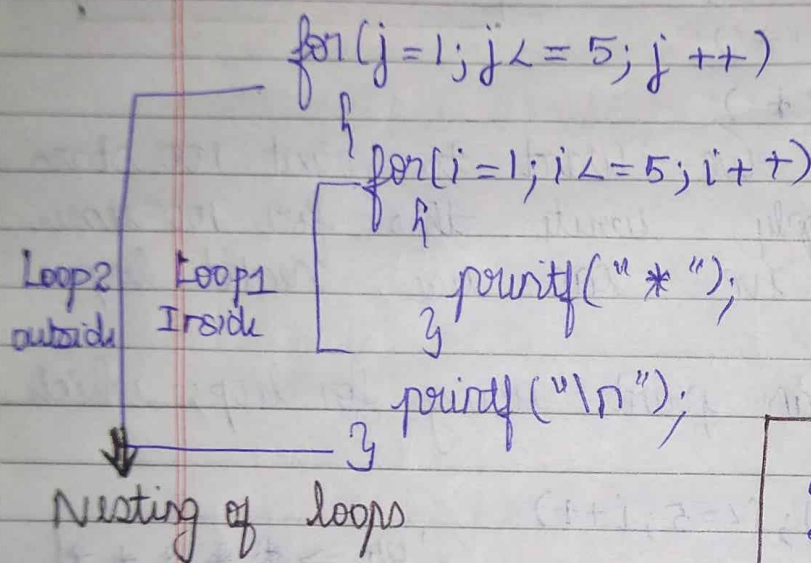
↓ P ↓ R 7 8 4 9 6

\* Instead of writing like this; we can use nested for loop;

\* That is we are going to repeat the first line for 5 times; using nested for.

Nested for:

O/P



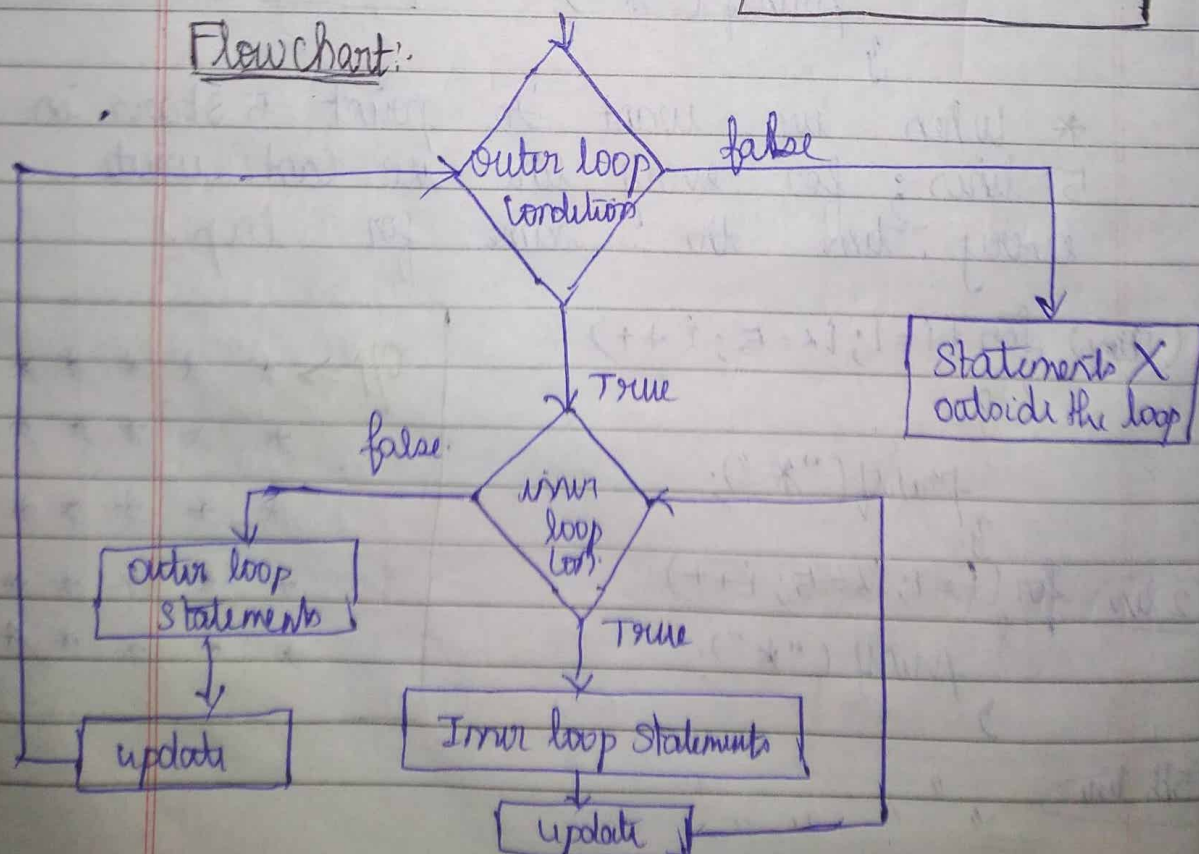
```

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

```

j=1   i=1 to 5
j=2   i=1 to 5
j=3   " " "
j=4   " " "
j=5   " " "
  
```

Flowchart:



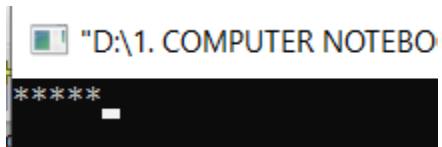
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\* Nesting of loops can be done at many levels.

\* Not only for loop is nested inside another for loop; we can also nest while loop or do while loop inside for loop

## CODE 1:

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  /* 1 - nested for loop */
4  // To print * 5 times //
5  /* int main()
6  {
7      printf("*");
8      printf("*");
9      printf("*");
10     printf("*");
11     printf("*");
12     printf("*");
13     getch();
14 } */
15 void main()
16 {
17     int i;
18     for(i=1;i<=5;i++)
19         printf("*");
20     getch();
21 }
```



## CODE 2:

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  /* 1 - nested for loop */
4  // To print * 5 times in 5 lines//
5  void main()
6  {
7      int i,j;
8      for(i=1;i<=5;i++)
9      {
10         for(j=1;j<=5;j++) // inner for loop
11         {
12             printf("*");
13         }
14         printf("\n");
15     }
16     getch();
17 }
18
```



