C++ NESTED LOOPS

A loop can be nested inside of another loop. C++ allows at least 256 levels of nesting.

Syntax:

The syntax for a **nested for loop** statement in C++ is as follows:

```cpp
for ( init; condition; increment )
{
   for ( init; condition; increment )
   {
      statement(s);
   }
   statement(s); // you can put more statements.
}
```

The syntax for a **nested while loop** statement in C++ is as follows:

```cpp
while(condition)
{
   while(condition)
   {
      statement(s);
   }
   statement(s); // you can put more statements.
}
```

The syntax for a **nested do...while loop** statement in C++ is as follows:

```cpp
do
{
   statement(s); // you can put more statements.
   do
   {
      statement(s);
   }while( condition );

}while( condition );
```

Example:

The following program uses a nested for loop to find the prime numbers from 2 to 100:

```cpp
#include <iostream>
using namespace std;

int main ()
{
   int i, j;

   for(i=2; i<100; i++) {
      for(j=2; j <= (i/j); j++)
        if(!(i%j)) break; // if factor found, not prime
        if(j > (i/j)) cout << i << " is prime\n";
   }
   return 0;
}
```

This would produce the following result:

```
2 is prime
```

```
3 is prime
5 is prime
7 is prime
11 is prime
13 is prime
17 is prime
19 is prime
23 is prime
29 is prime
31 is prime
37 is prime
41 is prime
43 is prime
47 is prime
53 is prime
59 is prime
61 is prime
67 is prime
71 is prime
73 is prime
79 is prime
83 is prime
89 is prime
97 is prime
```