|  |  |
| --- | --- |
| **Name** |  |
| **CMS ID** |  |
| **Marks** |  |
| **Date** |  |

**Objective:** To become familiar Nested loop in C/C++

1. **One selection of standalone if statement**
   1. **The syntax for a nested for loop statement in C++:**

for ( init; condition; increment )

{

for ( init; condition; increment )

{

statement(s);

}

statement(s); // you can put more statements.

}

* 1. **The syntax for a nested while loop statement in C++**

**while(condition)**

**{**

**while(condition)**

**{**

**statement(s);**

**}**

**statement(s); // you can put more statements.**

**}**

* 1. **The syntax for a nested do...while loop statement in C++**

do {

statement(s); // you can put more statements.

do {

statement(s);

}

while( condition );

}

while( condition );

1. **Nested loops (loop in loop)**

|  |  |
| --- | --- |
| **Code** | **Output** |
| **int a=4;**  **for(int i = a; i>=1; i--)**  **{**  **for(int j = a; j>i; j--)**  **{**  **cout<<' ';**  **}**  **for(int k = 1;k<=i; k++)**  **{**  **cout<<'\*';**  **}**  **cout<<endl;**  **}** | **\*\*\*\***  **\*\*\***  **\*\***  **\*** |
| **int a,b;**  **cin >> a >> b;**  **for (int i = 0; i < a; i++)**  **{**  **for (int j=0; j<b; j++)**  **{**  **cout << “\*”;**  **}**  **cout << endl;**  **}** | **\*\*\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*\*\*\*** |
| **int a,b;**  **cin >> a>>b;**  **for (int i = 0; i < a; i++)**  **{**  **for (int j=0; j<b; j++)**  **{**  **if (j > i)**  **break;**  **cout << “\*”;**  **}**  **cout << endl;**  **}** | **\***  **\*\***  **\*\*\***  **\*\*\*\***  b  a |
| **int a,b;**  **cin >> a >> b;**  **for (int i = 0; i < a; i++)**  **{**  **for (int j=0; j<b; j++)**  **{**  **if (j < i)**  **cout << “ ”;**  **else**  **cout << “\*”;**  **}**  **cout << endl;**  **}** | b  **\*\*\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\***  a |

1. **Write a program in C++ that prints a tables**

**Starting from 1** 🡺**12.**

**1 2 3 4 5 6 7 8 9 10 11 12**

**2 4 6 8 10 12 14 16 18 20 22 24**

**3 6 9 12 15 18 21 24 27 30 33 36**

**4 8 12 16 20 24 28 32 36 40 44 48**

**5 10 15 20 25 30 35 40 45 50 55 60**

**6 12 18 24 30 36 42 48 54 60 66 72**

**7 14 21 28 35 42 49 56 63 70 77 84**

**8 16 24 32 40 48 56 64 72 80 88 96**

**9 18 27 36 45 54 63 72 81 90 99 108**

**10 20 30 40 50 60 70 80 90 100 110 120**

**11 22 33 44 55 66 77 88 99 110 121 132**

**12 24 36 48 60 72 84 96 108 120 132 144**

**Source code**

**#include<iostream>**

**#include<conio.h>**

**#include<iomanip>**

**using namespace std;**

**int main()**

**{**

**for(int i=1;i<=12;i++)**

**{**

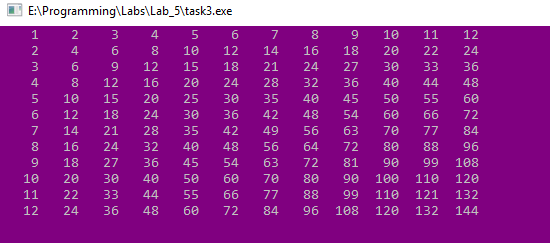
**for(int j=1;j<=12;j++)**

**cout<<setw(5)<<i\*j;**

**cout<<endl;**

**}**

**}**



1. **Develop a code in C++ that generate the following series .Use nested while loop!**

**Series**

**No. 1 No. 2 No. 3**

1

2 3

4 5 6

7 8 9 10

1

2 2

3 3 3

4 4 4 4

1

1 2

1 2 3

1 2 3 4

No 1

**#include<iostream>**

**#include<conio.h>**

**using namespace std;**

**int main()**

**{**

**for(int i=1;i<=3;i++)**

**{**

**for(int j=1;j<=i;j++)**

**cout<<j;**

**cout<<endl;**

**}**

**}**



No 2

**#include<iostream>**

**#include<conio.h>**

**using namespace std;**

**int main()**

**{**

**for(int i=1;i<=4;i++)**

**{**

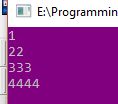
**for(int j=1;j<=i;j++)**

**cout<<i;**

**cout<<endl;**

**}**

**}**



No 3

**#include<iostream>**

**#include<conio.h>**

**using namespace std;**

**int main()**

**{**

**int count=1;**

**for(int i=1;i<=4;i++)**

**{**

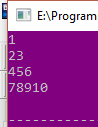
**for(int j=1;j<=i;j++)**

**cout<<count++;**

**cout<<endl;**

**}**

**}**



1. **Develop a code in C++ that generate the following patterns. Use nested while loop!**

\*

\*\*\*

\*\*\*\*\*

\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*

1010101  
 10101   
  101    
   1

\*

\*\*

\* \*

\* \*

\*\*\*\*\*

No1

#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

for(int i=1;i<=5;i++)

{

for(int j=1;j<=i;j++)

{

if(i==3 && j==2)

cout<<" ";

else if(i==4 && j==2)

cout<<" ";

else if(i==4 && j==3)

cout<<" ";

else

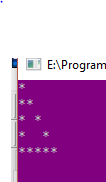
cout<<"\*";

}

cout<<endl;

}

}



No2

#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

for(int i=1;i<=5;i++)

{

{

for(int j=2;j<=i;j++)

cout<<" ";

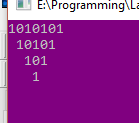
}

for(int k=7;k>=2\*i-1;k--)

cout<<k%2;

cout<<endl;

}}



No3

#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

for(int i=1;i<=5;i++)

{

{

for(int j=5;j>=i;j--)

cout<<" ";

}

for(int k=1;k<=2\*i-1;k++)

cout<<"\*";

cout<<endl;

}}

