



# Displaying *Geometric* *Shapes* on *Console* in *C++*

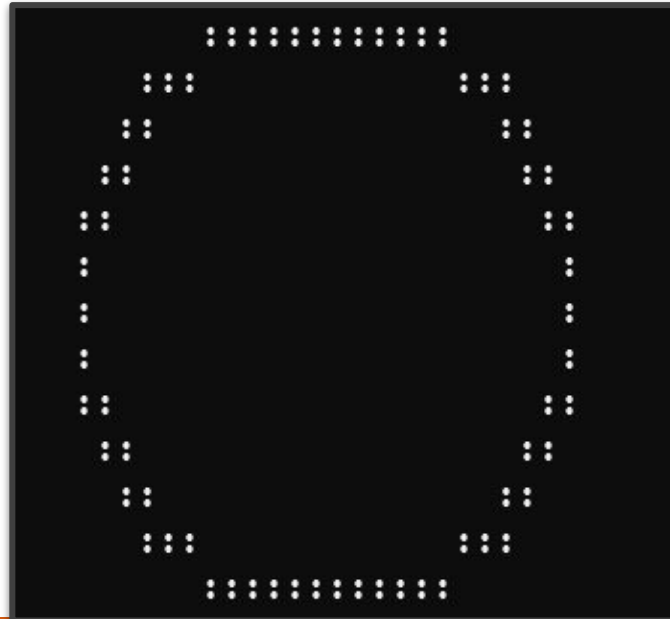


اَللّٰهُمَّ ارْزُقْنِيْ عِلْمًا نَّافِعًا وَاسِعًا عَمِيْقًا

اَللّٰهُمَّ ارْزُقْنِيْ رِزْقًا وَّاسِعًا حَلَالًا طَيِّبًا  
مُّبَارَكًا مِنْ عِنْدِكَ

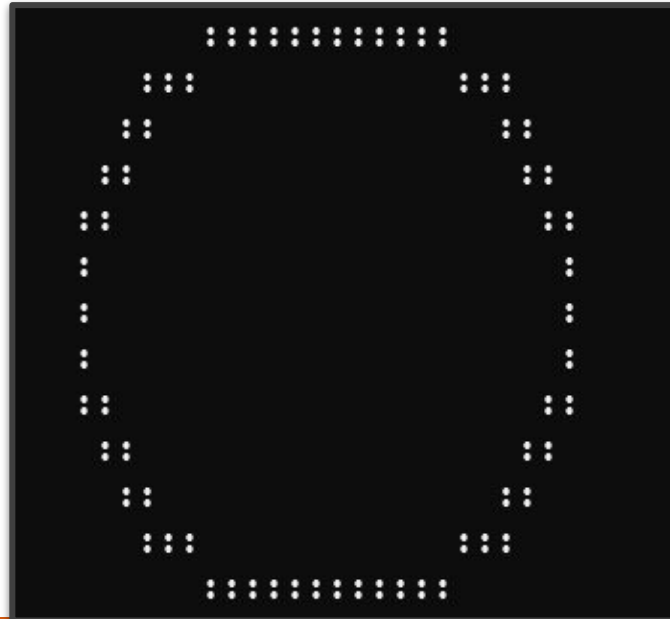
# | Print Geometric Shapes on Console

In the Lab, you were given the task to print geometric Shapes like a Circle on the Console.



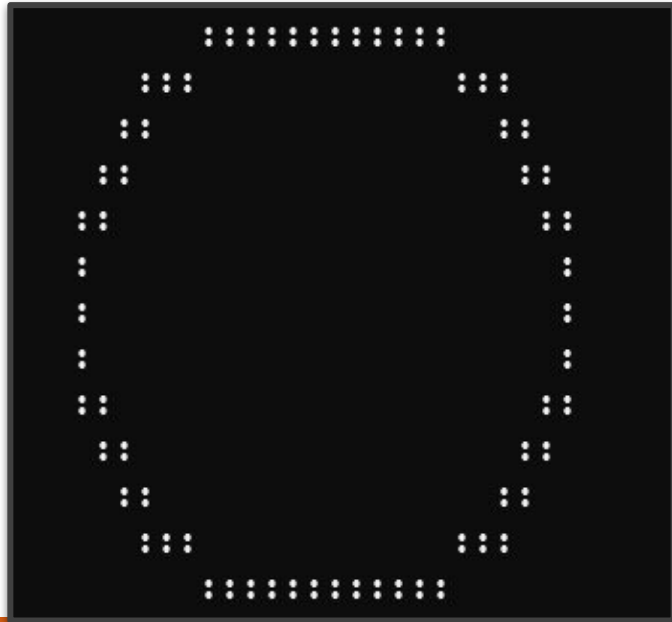
# | Print Geometric Shapes on Console

Looking at the output we know that we have to use `cout` statement and `endl` statement.



# | Print Geometric Shapes on Console

Lets see how we can do that.



# Print Geometric Shapes on Console

This is the C++ structure that we must write in the notepad before writing any cout or endl commands.

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

main()
{

}
```

# Print Geometric Shapes on Console

Lets just write the code for a single line first.

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

main()
{
    cout << "          " << endl;
}
```



Space is given in double quotes of cout statement as this space will be represented on the console.

```
#include<iostream>

using namespace std;

main()
{
    cout << "          ::::::::::          " << endl;

}
```

# Print Geometric Shapes on Console

Now lets see after compiling and executing the program what will be displayed on the Console.

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

main()
{
    cout << "          ::::::::::          " << endl;
}
```

# Print Geometric Shapes on Console

Now lets see after compiling and executing the program what will be displayed on the Console.

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

main()
{
    cout << "          ::::::::::          " << endl;
}
```

# Print Geometric Shapes on Console

Now let's keep on adding the code and see what is being displayed on the console after each line of code.

```
#include<iostream>

using namespace std;

main()
{
    cout << "          " << endl;
}
```

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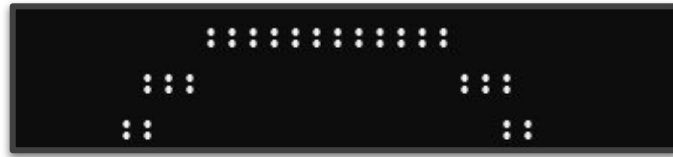
# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "          :::                      :::          " << endl;
}
```



# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                      :::          " << endl;
    cout << "      ::                        ::          " << endl;
}
```



# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                      :::          " << endl;
    cout << "    ::                        ::          " << endl;
    cout << "  ::                          ::          " << endl;
}
```



# Print Geometric Shapes on Console

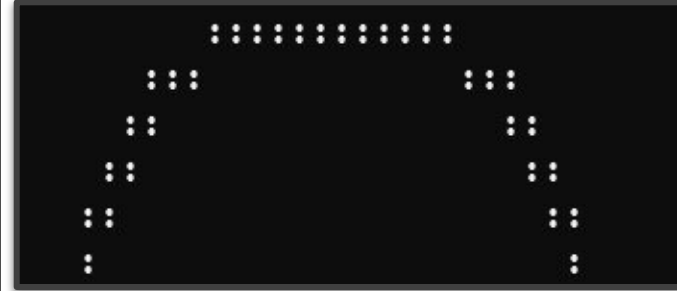
```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "    ::                  ::          " << endl;
    cout << "  ::                    ::          " << endl;
    cout << " ::                     ::          " << endl;
}
```





# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "    ::                  ::            " << endl;
    cout << "  ::                   ::             " << endl;
    cout << " ::                    ::              " << endl;
    cout << " :                     :               " << endl;
}
```



# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::      " << endl;
    cout << "    ::                  ::      " << endl;
    cout << "  ::                    ::      " << endl;
    cout << " ::                     ::      " << endl;
    cout << " :                       :      " << endl;
    cout << " :                       :      " << endl;
}
```



# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::      " << endl;
    cout << "    ::                  ::          " << endl;
    cout << "  ::                    ::          " << endl;
    cout << " ::                     ::          " << endl;
    cout << " :                       :          " << endl;
    cout << " :                       :          " << endl;
    cout << " :                       :          " << endl;
}
```



# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "      ::                  ::          " << endl;
    cout << "      ::                  ::          " << endl;
    cout << "      :                   :          " << endl;
    cout << "      :                   :          " << endl;
    cout << "      :                   :          " << endl;
    cout << "      :                   :          " << endl;
    cout << "      ::                  ::          " << endl;
}
```



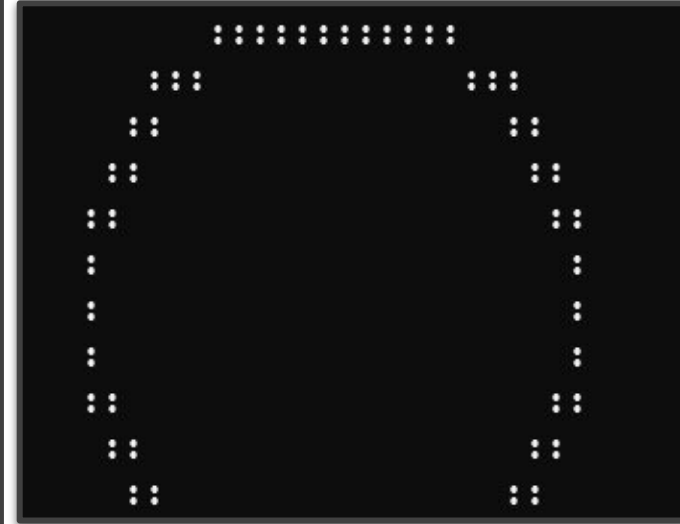
# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::      " << endl;
    cout << "    ::                  ::      " << endl;
    cout << "  ::                    ::      " << endl;
    cout << " ::                     ::      " << endl;
    cout << " :                       :      " << endl;
    cout << " :                       :      " << endl;
    cout << " :                       :      " << endl;
    cout << " ::                     ::      " << endl;
    cout << "  ::                    ::      " << endl;
}
```



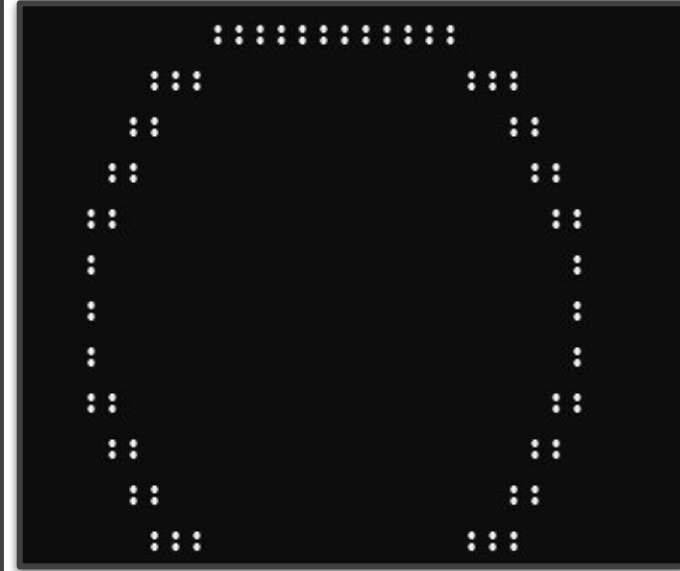
# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      :                   :        " << endl;
    cout << "      :                   :        " << endl;
    cout << "      :                   :        " << endl;
    cout << "      :                   :        " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                  ::      " << endl;
}
```



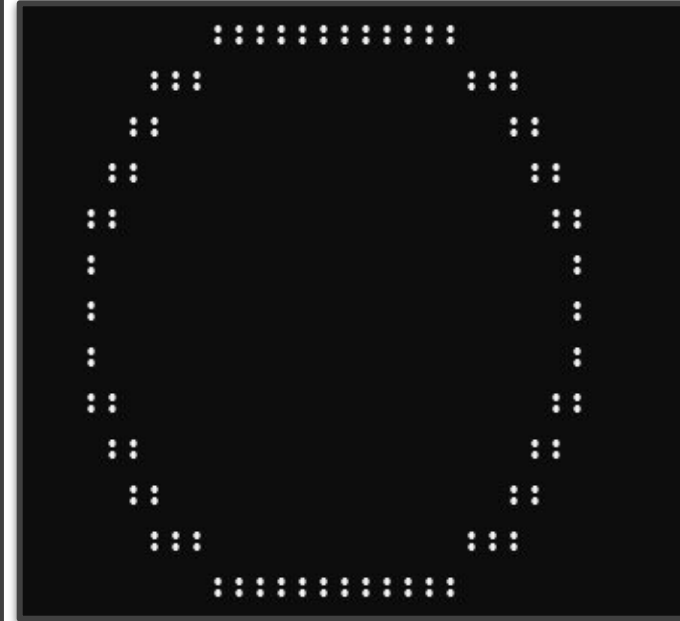
# Print Geometric Shapes on Console

```
#include<iostream>
using namespace std;
main()
{
    cout << "          ::::::::::: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      :                : " << endl;
    cout << "      :                : " << endl;
    cout << "      :                : " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "      ::                :: " << endl;
}
```



# Print Geometric Shapes on Console

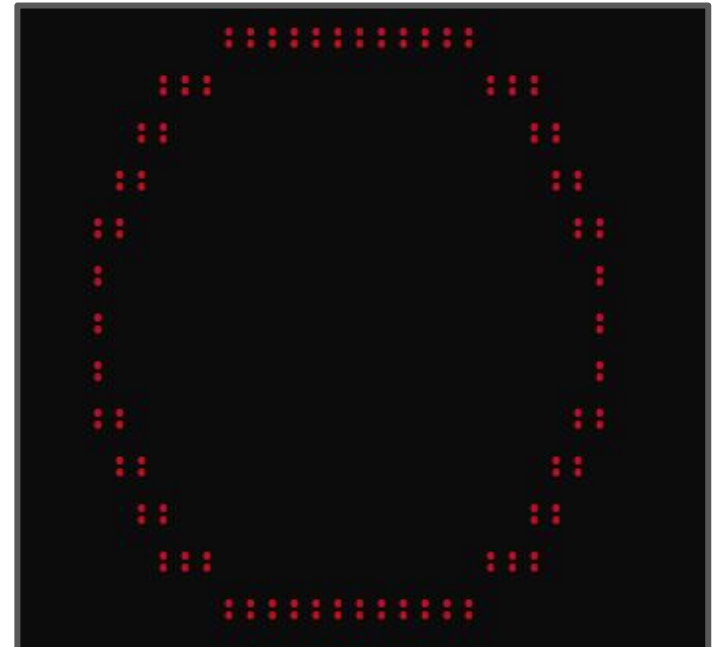
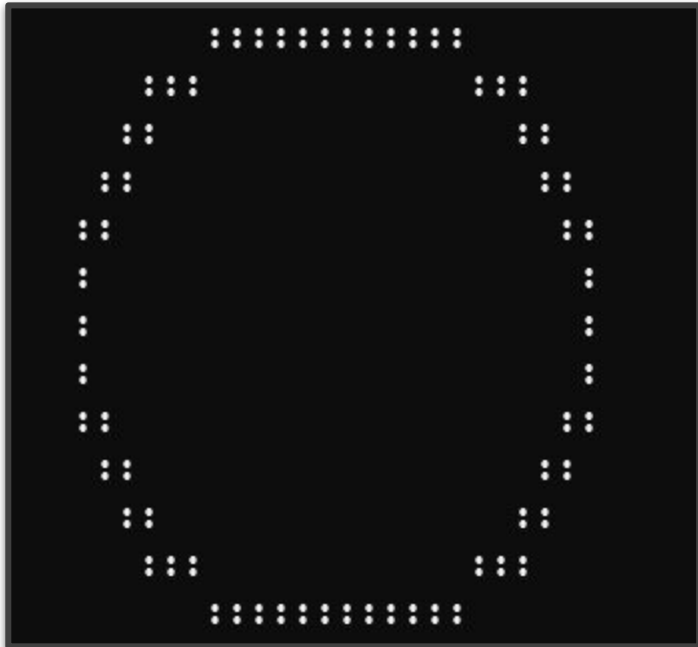
```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      :                   :       " << endl;
    cout << "      :                   :       " << endl;
    cout << "      :                   :       " << endl;
    cout << "      :                   :       " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                  ::      " << endl;
    cout << "      ::                :::      " << endl;
    cout << "          :::::::::::          " << endl;
}
```





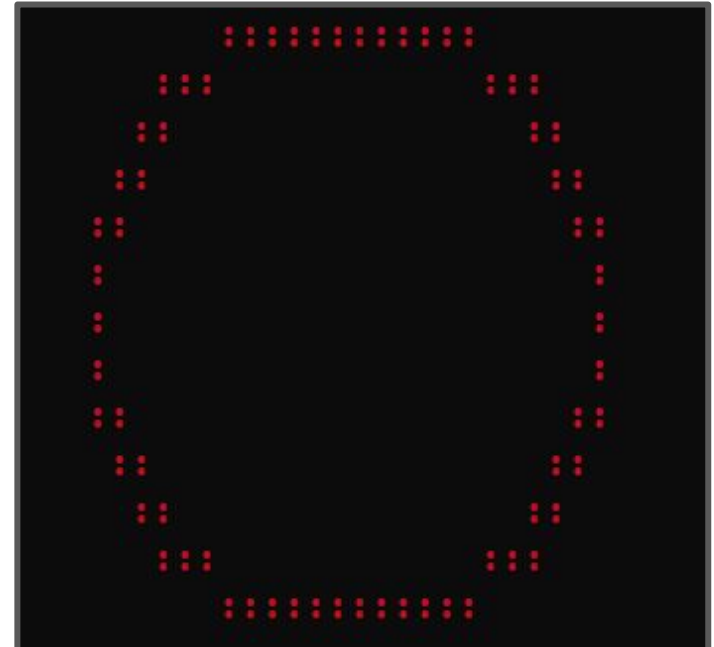
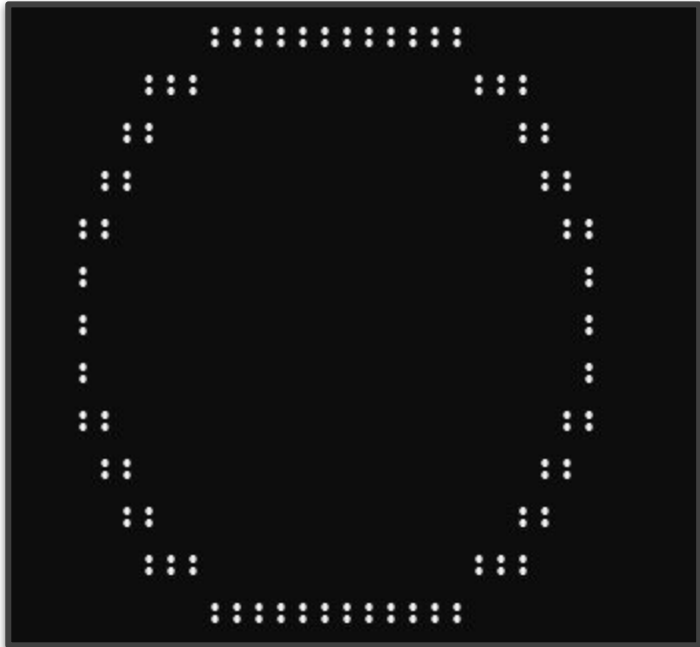
# Print Colored Shapes on Console

Now we want to change the color of the circle from white to red.



# | Print Colored Shapes on Console

How can we do that?



# | Print Colored Shapes on Console

To change the color of the text on the console, we have a command

```
system("Color XY");
```

# Print Colored Shapes on Console

To change the color of the text on the console, we have a command

```
system("Color XY");
```



Value of X will specify the background Color

# Print Colored Shapes on Console

To change the color of the text on the console, we have a command

```
system("Color XY");
```



Value of Y will specify the foreground Text Color.

# Print Colored Shapes on Console

Following are the Possible Values for X and Y.

Color id	Color
1	Blue
2	Green
3	Aqua
4	Red
5	Purple

Color id	Color
6	Yellow
7	White
8	Gray
9	Light Blue
0	Black

Color id	Color
A	Light Green
B	Light Aqua
C	Light Red
D	Light Purple
E	Light Yellow
F	Bright White

# Print Colored Shapes on Console

For the current problem we want to choose background color (X) of Black and Foreground colour (Y) of Red

Color id	Color
1	Blue
2	Green
3	Aqua
4	Red
5	Purple

Color id	Color
6	Yellow
7	White
8	Gray
9	Light Blue
0	Black

Color id	Color
A	Light Green
B	Light Aqua
C	Light Red
D	Light Purple
E	Light Yellow
F	Bright White

# Print Colored Shapes on Console

This makes our instruction equal to:

```
system("Color 04");
```

Color id	Color
1	Blue
2	Green
3	Aqua
4	Red
5	Purple

Color id	Color
6	Yellow
7	White
8	Gray
9	Light Blue
0	Black

Color id	Color
A	Light Green
B	Light Aqua
C	Light Red
D	Light Purple
E	Light Yellow
F	Bright White



# Print Colored Shapes on Console

Now, where we have to write the instruction in our previous Code?

```
system("Color 04");
```

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "          :::::::::::          " << endl;
}
```

# Print Colored Shapes on Console

We will write it before printing anything on the console.



```
system("Color 04");
```

```
#include<iostream>
using namespace std;
main()
{
    cout << "          :::::::::::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      :                    :          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      ::                    ::          " << endl;
    cout << "      :::                :::          " << endl;
    cout << "          :::::::::::          " << endl;
}
```

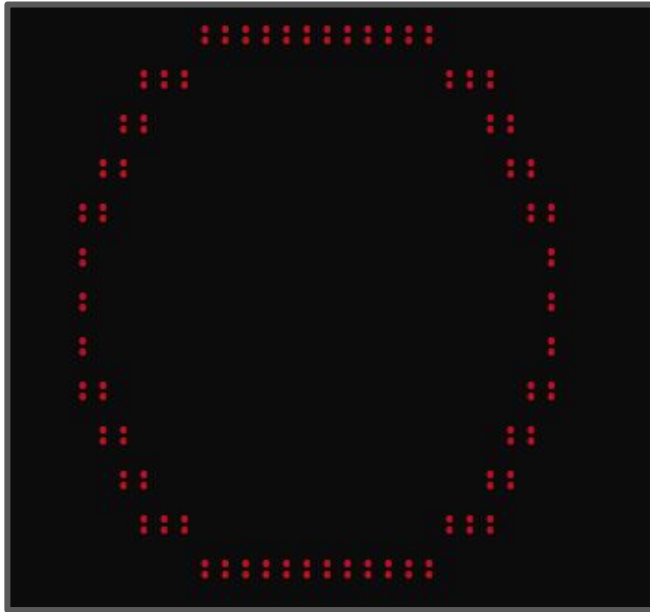
# Print Colored Shapes on Console

Now, our code becomes:

```
#include<iostream>
using namespace std;
main()
{
    system("Color 04");
    cout << "          ::::::::::: " << endl;
    cout << "      :::                " << endl;
    cout << "    ::                    " << endl;
    cout << "  ::                      " << endl;
    cout << " ::                        " << endl;
    cout << " :                          " << endl;
    cout << " :                          " << endl;
    cout << " :                          " << endl;
    cout << " ::                         " << endl;
    cout << "  ::                        " << endl;
    cout << "    ::                      " << endl;
    cout << "      ::                    " << endl;
    cout << "    :::                      " << endl;
    cout << "          ::::::::::: " << endl;
}
```

# Print Colored Shapes on Console

And the output is:



```
#include<iostream>
using namespace std;
main()
{
    system("Color 04");
    cout << "          ::::::::::: " << endl;
    cout << "      ::                :: " << endl;
    cout << "    ::                  :: " << endl;
    cout << "  ::                    :: " << endl;
    cout << " ::                      :: " << endl;
    cout << " :                        : " << endl;
    cout << " :                        : " << endl;
    cout << " :                        : " << endl;
    cout << " :                        : " << endl;
    cout << " ::                      :: " << endl;
    cout << "  ::                    :: " << endl;
    cout << "    ::                  :: " << endl;
    cout << "      ::                :: " << endl;
    cout << "          ::::::::::: " << endl;
}
```

# Learning Objective

Students should be able to use **special directives** to control output on the screen.



# Conclusion

- In C++, to display the numeric and textual output on the monitor screen (console), the available command is **cout**.
- To end the line, we use the **endl** keyword.
- To add color to the Console we have the following command

```
system("Color XY");
```

Here **X** specifies the Background Color and **Y** Specifies the Foreground Color.



# Self Assessment

- What command will be used to change the color of the background to **Light Green** and foreground color to **Purple**?
- Write the C++ program to make a Triangle with background color of **Light Red** and Foreground Color of **Light Aqua**.
- Write the C++ program to make a Parallelogram with background color of **Light Yellow** and Foreground Color of **Black**.

