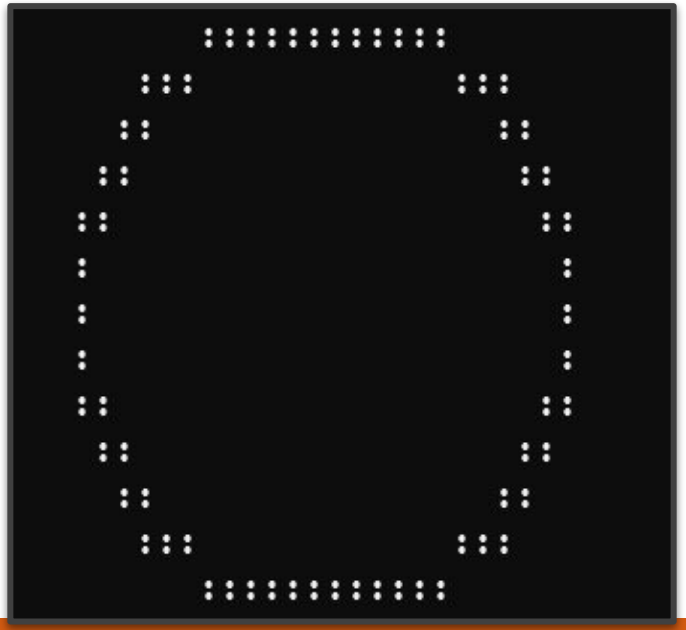
# Displaying Geometric Shapes on Console in C++

اَللّٰهُمَّ اُرْزُقْنِى عِلْمًا نَافِعًا وَاسِعًا عَمِيْقًا

اَللّٰهُمَّ اُرْزُقْنِى رِزْقًا وَاسِعًا حَلَالًا طَيِّبًا
مُبَارَكًا مِنْ عِنْدِكَ

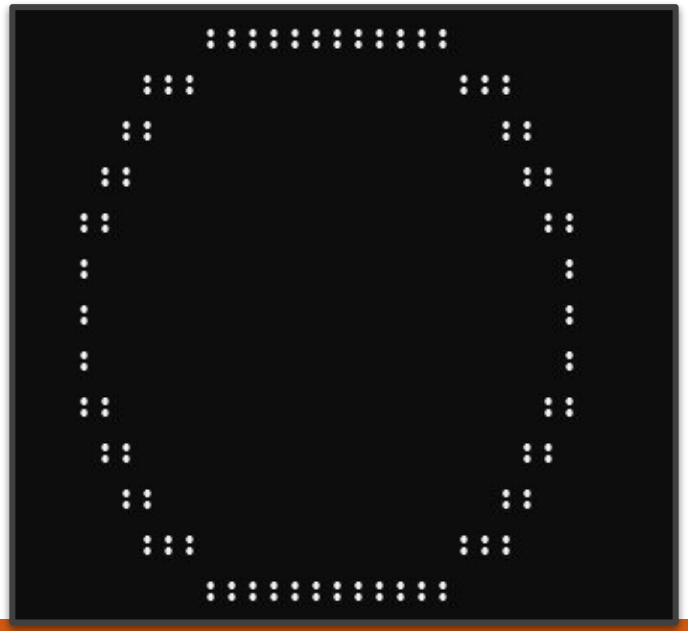
# Print Geometric Shapes on Console

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



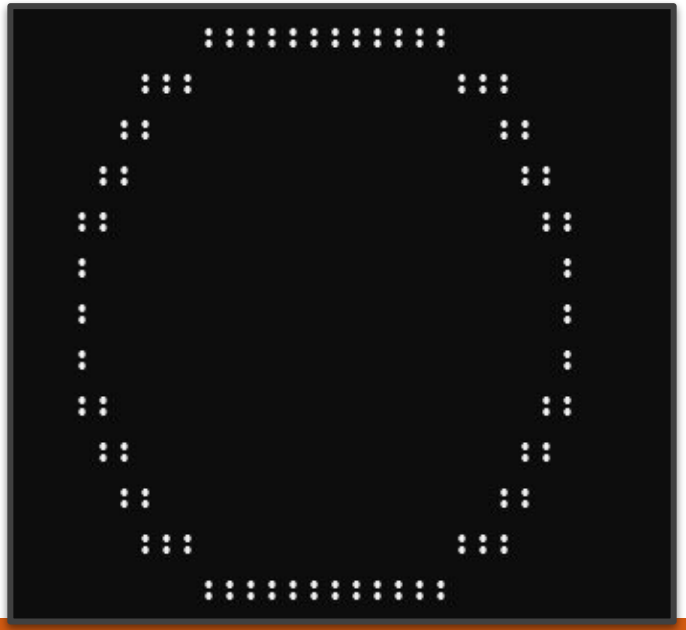
# Print Geometric Shapes on Console

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;

}
```

# Print Geometric Shapes on Console

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;


}
```

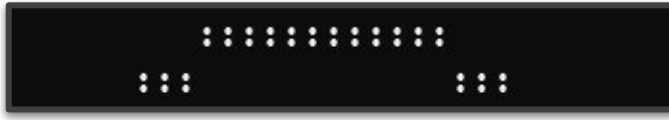
# Print Geometric Shapes on Console

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;

}
```

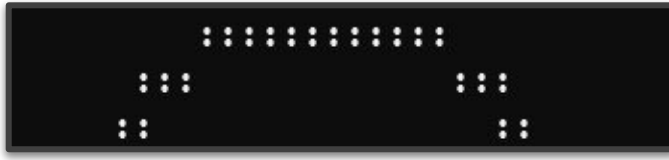
# Print Geometric Shapes on Console

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

}
```



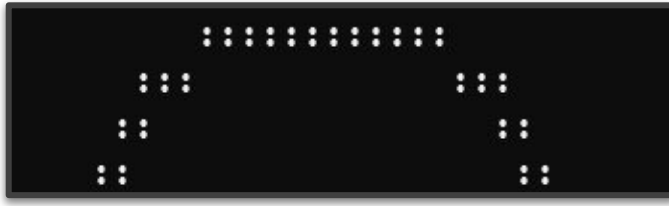
# Print Geometric Shapes on Console

```
#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;
    cout << "   :                          :  " << endl;

}
```

# Print Geometric Shapes on Console

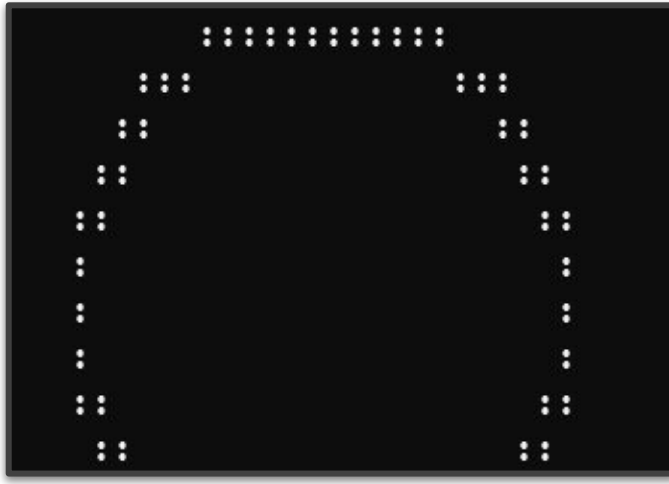
```
#include<iostream>
using namespace std;
main()
{
    cout << "          ::::::::::::          " << endl;
    cout << "       :::              :::      " << endl;
    cout << "      ::                  ::     " << endl;
    cout << "     ::                    ::    " << endl;
    cout << "    :: 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

}
```

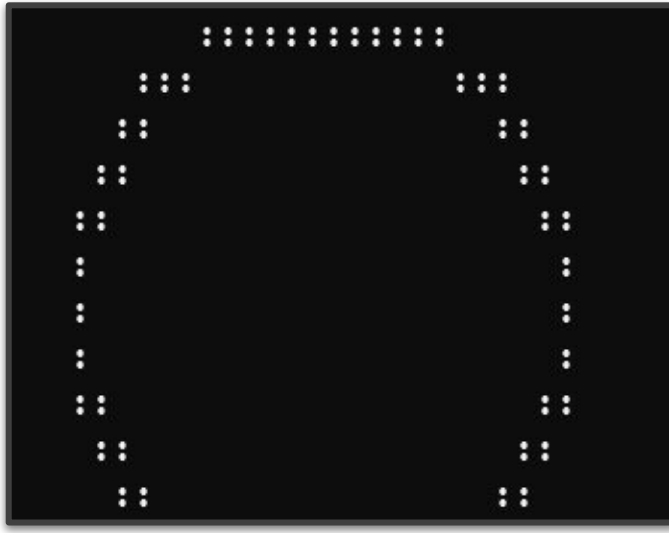
# Print Geometric Shapes on Console

```
#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;

}
```



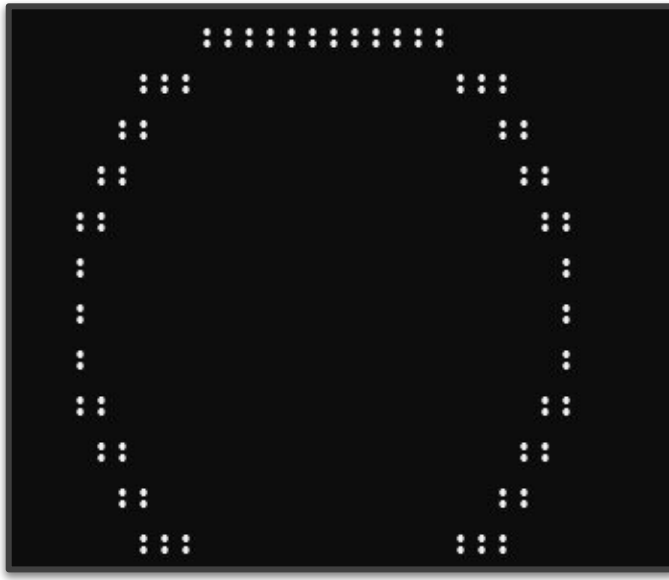
# Print Geometric Shapes on Console

```
#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;
    cout << "      ::                  ::     " << endl;

}
```



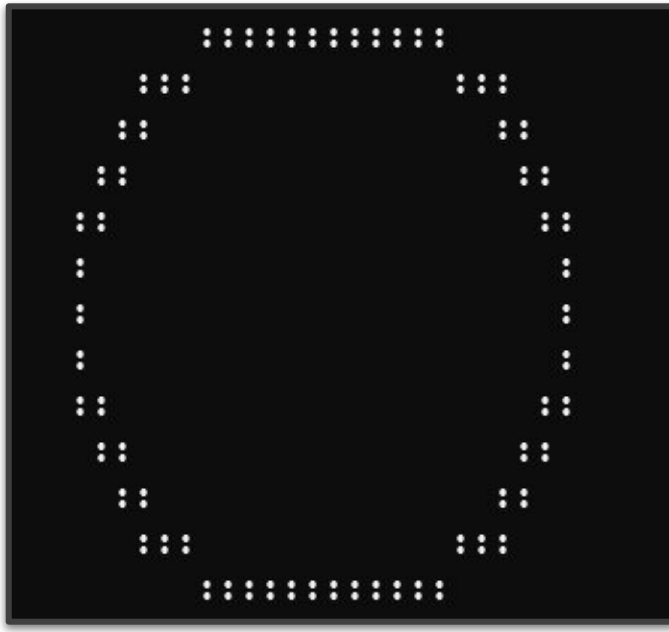
# Print Geometric Shapes on Console

```
#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;

}
```



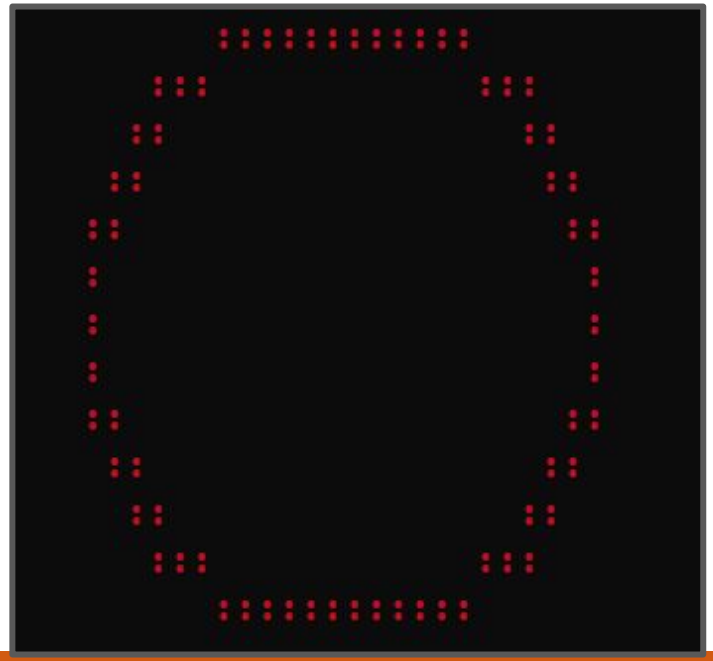
# Print Geometric Shapes on Console

```
#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;
    cout << "          ::::::::::::          " << endl;
}
```



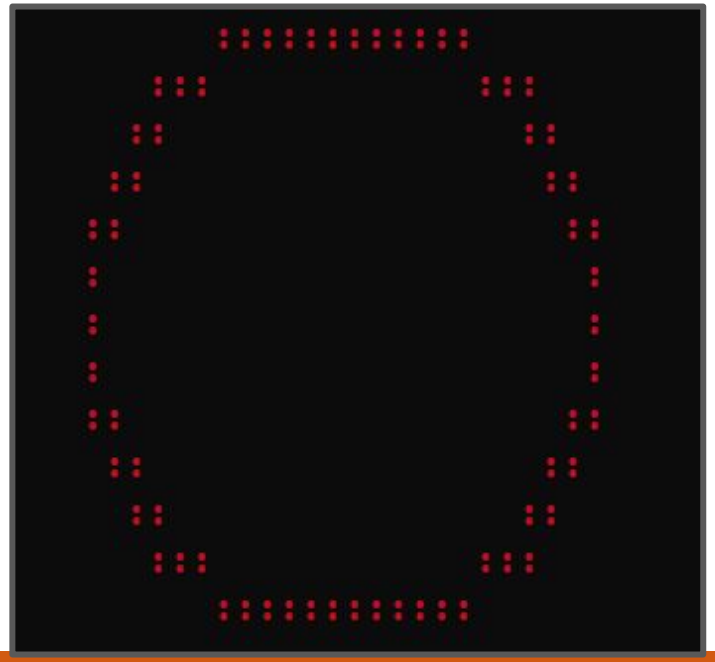
# Print Colored Shapes on Console

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

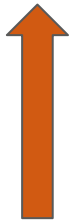
To change the color of the text on the console, we have a command

```
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");
```

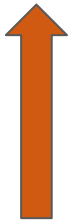


Value of X will specify the background Color

# 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;
}
```

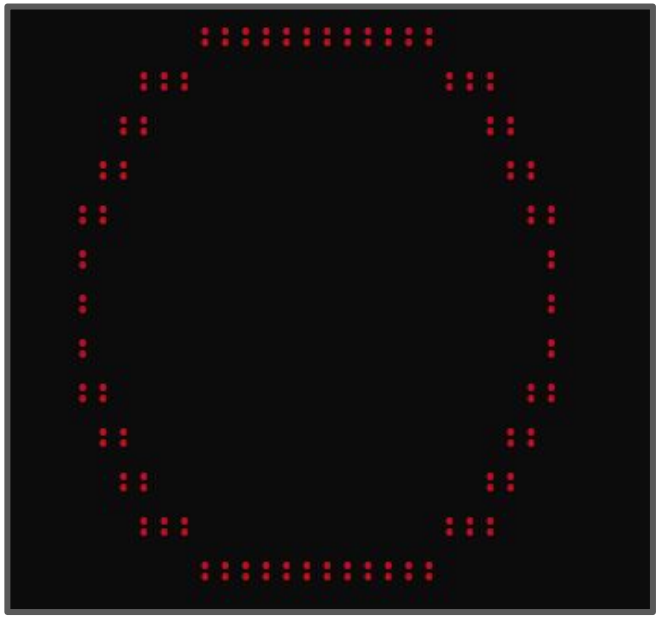
# Print Colored Shapes on Console

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;
}
```

# 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;
}
```

# 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.