```cpp
 1    /*
 2    ------------------------------------------------------------------------------
 3    Laboratory  : labo_01
 4    File        : circle.h
 5    Author(s)   : Emmanuelle Comte et David Gallay
 6    Date        : 20.02.2020
 7
 8    Purpose     : Declare class Circle and functions useful for it
 9    Remark(s)   :
10
11                  There is the github repository:
12                  https://github.com/dgheig/Ba2-labo01
13
14    Compiler    : MinGW-g++ 6.3.0 and g++ 7.4.0
15    ------------------------------------------------------------------------------*/
16
17    #ifndef CIRCLE_H
18    #define CIRCLE_H
19
20    #include <iostream>
21    #include "color.h"
22
23    class Circle {
24
25        public:
26            /**
27             * @brief Create a circle with color and radius, a radius or with nothing
28             * @param radius default value 0
29             * @param color  default value Color()
30             */
31            Circle(double radius = 0, const Color& color = Color());
32
33            /**
34             * @brief Create a circle with an object color
35             * @param color
36             */
37            Circle(const Color& color);
38
39            /**
40             * @brief Create a circle with a color by a color code (enum)
41             * @param code
42             */
43            Circle(Color::Code code);
44
45            /**
46             * @brief  Change the radius of the circle
47             * @param  radius
48             * @return The circle
49             */
50            Circle& setRadius(double radius);
51
52            /**
53             * @brief  Change the color of the circle with an object color
54             * @param  color
55             * @return The circle
56             */
57            Circle& setColor(const Color& color);
58
59            /**
60             * @brief  Change the color of the circle with a color code (enum)
61             * @param  color
62             * @return The circle
63             */
64            Circle& setColor(Color::Code color);
65
66            /**
67             * @brief  Get the radius of the circle
68             * @return The radius of the circle
69             */
70            double getRadius() const;
71
```

```
 72              /**
 73               * @brief  Calculate the surface of the circle
 74               * @return The surface of the circle
 75               */
 76              double getSurface() const;
 77
 78              /**
 79               * @brief  Get the color of the circle
 80               * @return The color of the circle
 81               */
 82              Color getColor() const;
 83
 84              /**
 85               * @brief  Display a circle
 86               * @param  stream  default valut cout
 87               * @return The stream
 88               */
 89              std::ostream& display(std::ostream& stream = std::cout) const;
 90
 91          private:
 92              double mRadius;
 93              Color  mColor;
 94
 95      };
 96
 97      /**
 98       * @brief  Overload of the output stream to display a circle
 99       * @param  stream
100       * @param  circle
101       * @return The stream
102       */
103      std::ostream& operator<<(std::ostream& stream, const Circle& circle);
104
105      #endif // CIRCLE_H
106
```