Question 1
Write a program to draw the image below. Exact positions and dimensions are not important, as long as the connections are there, the shapes and lines are correct, the colours are similar, and it is obviously close to the original diagram.

The colours are as follows:
- Rectangle: red
- Triangle: yellow
- Diagonal line: blue
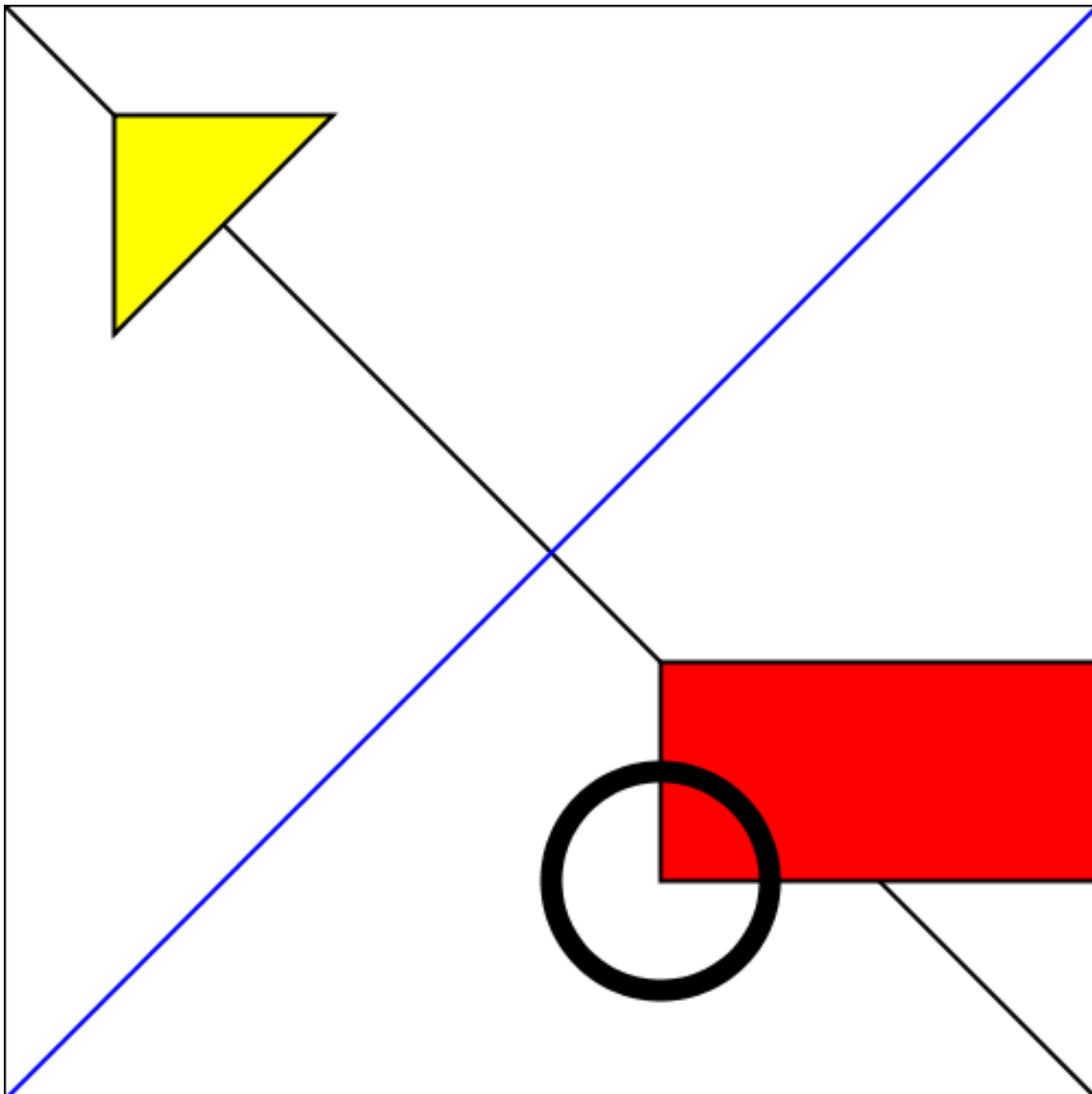
Question 2

Write a program that performs the following tasks:
- Create a canvas with a width and height of 450, and a black background.
- Create 3 random numbers between 10 and 75.
- Use the 3 random numbers as the radii for three circles:
  - The first circle is positioned in the centre of the canvas.
  - The second circle is positioned to the left of the first circle.
  - The third circle is positioned to the right of the first circle.
- Calculate the cumulative diameter (for all three circles) and display it as shown in the example below.

Note:
- Your program should use variables and expressions to achieve the tasks above, do not hard code values into your coordinate calculations or cumulative diameter calculation.
- Your program should display something similar to the image below.
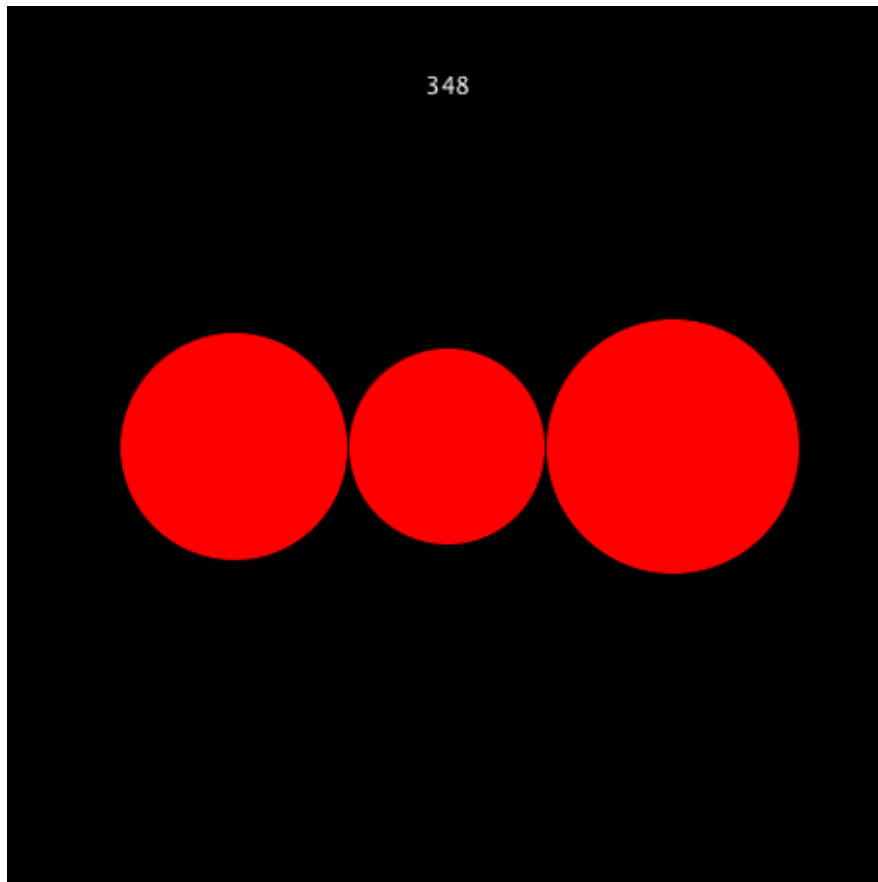
Question 3

Write a program that performs the following tasks using the data in the table below:
- Create a canvas with a width and height of 500, and a white background.
- Create an integer variable named **stock** that has a random value between -100 and 600.
- Draw a square at the coordinates (300,300) with the correct *fill colour* (see table).
- Display the value of **stock** and the **Stock Level Code** to the left of the square (e.g. **220 – Medium**).
- If the stock level does not fit into one of the categories below display an error message to the console, and display nothing on the canvas.

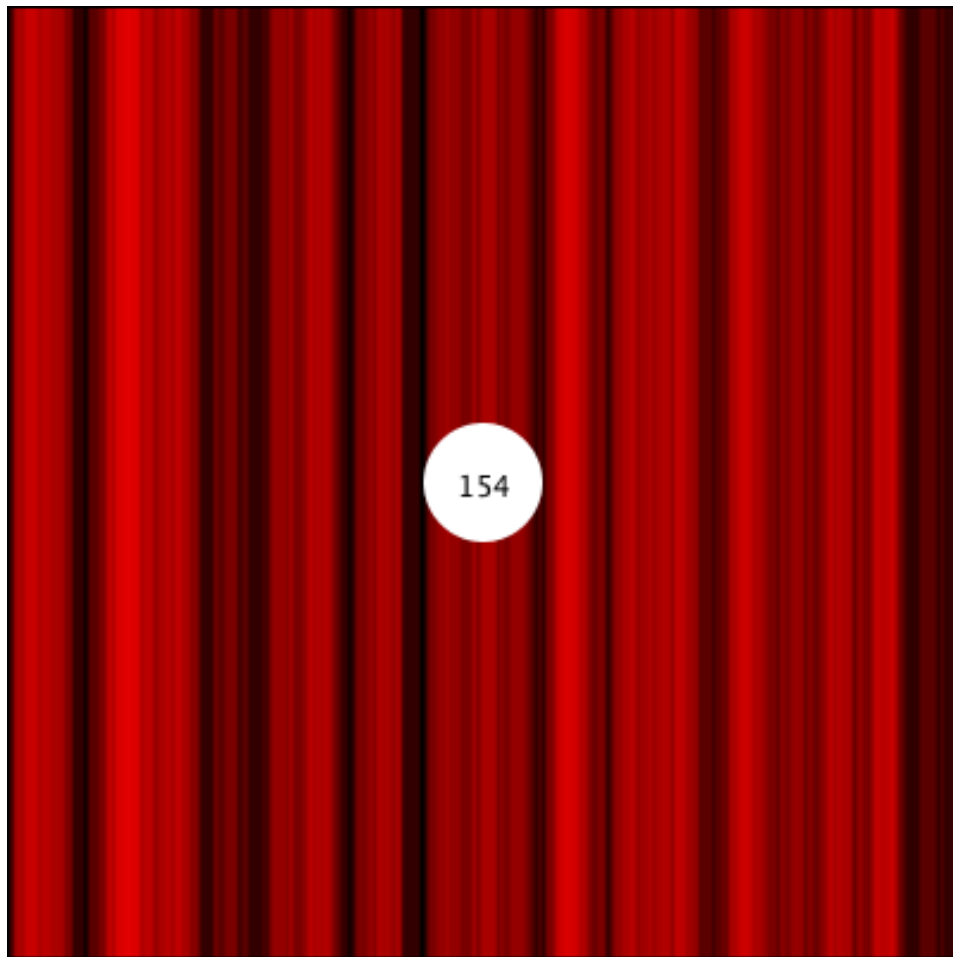| Stock	Fill Colour	Stock Level Code
0-100	Red	Critical
101-200	Yellow	Low
201-300	Green	Medium
301-400	Blue	Medium High
401-500	Purple	High

Question 4

Create a sketch with a width of 400 and a height of 400. The background for the sketch should be black.

Using a loop, populate an integer array of length 20 with the following pattern **1, 4, 9, 16, 25, etc**.

Using a second loop, calculate the average of all the elements in the array that are even. Use a variable called **average** to store this value.

Using a third loop, draw **average** number of vertical lines. Each line should have a random x-location, be red, have a weight of 10 and have an opacity of 50.

Draw a white circle in the centre of the screen and display the **average** in the centre of that circle.

End of Exam Questions