```
1  using System;
2
3  namespace QuadraticEquationSolver
4  {
5      internal class Program
6      {
7          static void Main(string[] args)
8          {
9              Console.ForegroundColor = ConsoleColor.Blue;
10             Console.WriteLine
                 ("========================================");
11             Console.WriteLine("Hi, This program was written by Mohamad
                 Saleh Hajkarami");
12             Console.WriteLine("This program solves the quadratic equation:
                 x^2");
13             Console.WriteLine
                 ("========================================");
14             Console.ResetColor();
15
16             while (true)
17             {
18                 try
19                 {
20                     Console.WriteLine("Please enter the value of a:");
21                     string inputA = Console.ReadLine();
22                     double a = double.Parse(inputA);
23
24                     if (a == 0)
25                     {
26                         throw new Exception("The coefficient 'a' cannot be
                       zero in a valid quadratic equation.");
27                     }
28
29                     Console.WriteLine("Please enter the value of b :");
30                     string inputB = Console.ReadLine();
31                     double b = double.Parse(inputB);
32
33                     Console.WriteLine("Please enter the value of c :");
34                     string inputC = Console.ReadLine();
35                     double c = double.Parse(inputC);
36
37
38                     double delta = (b * b) - (4 * a * c);
39
40                     if (delta > 0)
41                     {
42                         double x1 = (-b + Math.Sqrt(delta)) / (2 * a);
43                         double x2 = (-b - Math.Sqrt(delta)) / (2 * a);
44                         Console.ForegroundColor = ConsoleColor.Green;
```

```
45                          Console.WriteLine($"The equation has two real
                        roots: x1 = {x1} and x2 = {x2}");
46                          Console.ResetColor();
47                      }
48                      else if (delta == 0)
49                      {
50                          double x = -b / (2 * a);
51                          Console.ForegroundColor = ConsoleColor.Green;
52                          Console.WriteLine($"The equation has one real root:
                        x = {x}");
53                          Console.ResetColor();
54                      }
55                      else
56                      {
57
58                          Console.ForegroundColor = ConsoleColor.Green;
59                          Console.WriteLine(" the delta of this Equation is
                        <0 ");
60                          Console.ResetColor();
61                      }
62
63                      break;
64                  }
65                  catch (FormatException)
66                  {
67                      Console.ForegroundColor = ConsoleColor.Red;
68                      Console.WriteLine("Invalid input! Please enter valid
                        numerical values.");
69                      Console.ResetColor();
70                      Console.WriteLine("Let's try again...");
71                  }
72                  catch (Exception ex)
73                  {
74                      Console.ForegroundColor = ConsoleColor.Red;
75                      Console.WriteLine($"Error: {ex.Message}");
76                      Console.ResetColor();
77                  }
78              }
79
80              Console.ForegroundColor = ConsoleColor.Green;
81              Console.WriteLine
                  ("========================================");
82              Console.WriteLine("Thank you for using this program!");
83              Console.WriteLine
                  ("========================================");
84              Console.ResetColor();
85          }
86      }
87  }
```