

## **CECS 475**

### **Lab Assignment 1**

**Due date: Monday, September 23**

#### **40 points**

In this lab assignment, you create an application that models the ups and downs of a particular stock. The value of a stock is assumed to change by plus or minus a specified number of units after every time unit (such as one hour). A notification is generated each time a stock changes more than a specified number of units above or below its initial value. A collection of brokers who control the stock must receive this notification. The range within which the stock can change every time unit and the threshold above or below which collection of brokers who control the stock must be notified are specified when the stock is created (using its constructor).

You shall design and implement a C# application that satisfies the specification given above. This application involves .NET EventHandler events, threads, and text file processing.

When an event of this type is fired, the stock's name, initial values, current values, and the number of changes in value can be sent to the listener . The sending information is sent to the console window and a text file. You are required to use built-in .NET EventHandler delegate in your solution.

Create the class Stock with the following attributes:

- Stock name
- Stock initial value
- Maximum change (the range within a stock can change every time unit)
- Notification threshold (the threshold above or below which the collection of brokers who control the stock must be notified)

You are required to implement other members in the class Stock that are needed. When a stock object is created, a thread is started. This thread causes the stock's value to be modified every 500 milliseconds. If its value changes from its initial value by more than the specified notification threshold, an event method is invoked. This invokes the stock Event and multicasts a notification to all listeners who have registered with stock Event.

Create the class StockBroker which has fields broker name and stocks, a List of Stock. This latter field is not used in this application but could be used to obtain the stocks currently controlled by a given broker. The addStock method registers the Notify listener with the stock (in addition to adding it to the list of stocks held by the broker). This Notify method outputs to the console the name, value, and the number of changes of the stock whose value is out of the range given the stock's notification threshold.

The listing below presents a main driver class, StockApplication. (DO NOT MODIFY THE Main function).

```
static void Main(string[] args)
{
    Stock stock1 = new Stock("Technology",160, 5, 15);
    Stock stock2 = new Stock("Retail",30, 2, 6);
    Stock stock3 = new Stock("Banking", 90, 4, 10);
    Stock stock4 = new Stock("Commodity", 500, 20, 50);

    StockBroker b1 = new StockBroker("Broker 1");
    b1.AddStock(stock1);
    b1.AddStock(stock2);

    StockBroker b2 = new StockBroker("Broker 2");
    b2.AddStock(stock1);
    b2.AddStock(stock3);
    b2.AddStock(stock4);

    StockBroker b3 = new StockBroker("Broker 3");
    b3.AddStock(stock1);
    b3.AddStock(stock3);

    StockBroker b4 = new StockBroker("Broker 4");
    b4.AddStock(stock1);
    b4.AddStock(stock2);
    b4.AddStock(stock3);
    b4.AddStock(stock4);
}
```

The output sample (All the column must be left alignment):

| Broker   | Stock      | Value | Changes | Date and Time       |
|----------|------------|-------|---------|---------------------|
| Broker 2 | Banking    | 102   | 5       | 2/2/2022 1:23:25 PM |
| Broker 3 | Banking    | 102   | 5       | 2/2/2022 1:23:25 PM |
| Broker 4 | Banking    | 102   | 5       | 2/2/2022 1:23:25 PM |
| Broker 2 | Commodity  | 559   | 5       | 2/2/2022 1:23:25 PM |
| Broker 4 | Commodity  | 559   | 5       | 2/2/2022 1:23:25 PM |
| Broker 1 | Technology | 176   | 6       | 2/2/2022 1:23:25 PM |
| Broker 2 | Technology | 176   | 6       | 2/2/2022 1:23:25 PM |
| Broker 3 | Technology | 176   | 6       | 2/2/2022 1:23:25 PM |
| Broker 4 | Technology | 176   | 6       | 2/2/2022 1:23:25 PM |
| Broker 2 | Commodity  | 562   | 6       | 2/2/2022 1:23:25 PM |
| Broker 4 | Commodity  | 562   | 6       | 2/2/2022 1:23:25 PM |
| Broker 2 | Banking    | 104   | 6       | 2/2/2022 1:23:25 PM |
| Broker 3 | Banking    | 104   | 6       | 2/2/2022 1:23:25 PM |

|          |            |     |    |                     |
|----------|------------|-----|----|---------------------|
| Broker 4 | Banking    | 104 | 6  | 2/2/2022 1:23:25 PM |
| Broker 1 | Retail     | 37  | 7  | 2/2/2022 1:23:26 PM |
| Broker 4 | Retail     | 37  | 7  | 2/2/2022 1:23:26 PM |
| Broker 1 | Technology | 179 | 7  | 2/2/2022 1:23:26 PM |
| Broker 2 | Technology | 179 | 7  | 2/2/2022 1:23:26 PM |
| Broker 3 | Technology | 179 | 7  | 2/2/2022 1:23:26 PM |
| Broker 4 | Technology | 179 | 7  | 2/2/2022 1:23:26 PM |
| Broker 2 | Commodity  | 569 | 7  | 2/2/2022 1:23:26 PM |
| Broker 4 | Commodity  | 569 | 7  | 2/2/2022 1:23:26 PM |
| Broker 2 | Banking    | 105 | 7  | 2/2/2022 1:23:26 PM |
| Broker 3 | Banking    | 105 | 7  | 2/2/2022 1:23:26 PM |
| Broker 4 | Banking    | 105 | 7  | 2/2/2022 1:23:26 PM |
| Broker 1 | Retail     | 38  | 8  | 2/2/2022 1:23:26 PM |
| Broker 4 | Retail     | 38  | 8  | 2/2/2022 1:23:26 PM |
| Broker 1 | Technology | 182 | 8  | 2/2/2022 1:23:26 PM |
| Broker 2 | Technology | 182 | 8  | 2/2/2022 1:23:26 PM |
| Broker 3 | Technology | 182 | 8  | 2/2/2022 1:23:26 PM |
| Broker 4 | Technology | 182 | 8  | 2/2/2022 1:23:26 PM |
| Broker 2 | Commodity  | 571 | 8  | 2/2/2022 1:23:26 PM |
| Broker 4 | Commodity  | 571 | 8  | 2/2/2022 1:23:26 PM |
| Broker 2 | Banking    | 107 | 8  | 2/2/2022 1:23:26 PM |
| Broker 3 | Banking    | 107 | 8  | 2/2/2022 1:23:26 PM |
| Broker 4 | Banking    | 107 | 8  | 2/2/2022 1:23:26 PM |
| Broker 1 | Retail     | 39  | 9  | 2/2/2022 1:23:27 PM |
| Broker 4 | Retail     | 39  | 9  | 2/2/2022 1:23:27 PM |
| Broker 1 | Technology | 185 | 9  | 2/2/2022 1:23:27 PM |
| Broker 2 | Technology | 185 | 9  | 2/2/2022 1:23:27 PM |
| Broker 3 | Technology | 185 | 9  | 2/2/2022 1:23:27 PM |
| Broker 4 | Technology | 185 | 9  | 2/2/2022 1:23:27 PM |
| Broker 2 | Commodity  | 573 | 9  | 2/2/2022 1:23:27 PM |
| Broker 4 | Commodity  | 573 | 9  | 2/2/2022 1:23:27 PM |
| Broker 2 | Banking    | 109 | 9  | 2/2/2022 1:23:27 PM |
| Broker 3 | Banking    | 109 | 9  | 2/2/2022 1:23:27 PM |
| Broker 4 | Banking    | 109 | 9  | 2/2/2022 1:23:27 PM |
| Broker 1 | Retail     | 40  | 10 | 2/2/2022 1:23:27 PM |
| Broker 4 | Retail     | 40  | 10 | 2/2/2022 1:23:27 PM |
| Broker 1 | Technology | 188 | 10 | 2/2/2022 1:23:27 PM |
| Broker 2 | Technology | 188 | 10 | 2/2/2022 1:23:27 PM |
| Broker 3 | Technology | 188 | 10 | 2/2/2022 1:23:27 PM |
| Broker 4 | Technology | 188 | 10 | 2/2/2022 1:23:27 PM |
| Broker 2 | Commodity  | 581 | 10 | 2/2/2022 1:23:27 PM |
| Broker 4 | Commodity  | 581 | 10 | 2/2/2022 1:23:27 PM |
| Broker 2 | Banking    | 111 | 10 | 2/2/2022 1:23:27 PM |
| Broker 3 | Banking    | 111 | 10 | 2/2/2022 1:23:27 PM |
| Broker 4 | Banking    | 111 | 10 | 2/2/2022 1:23:27 PM |
| Broker 1 | Retail     | 41  | 11 | 2/2/2022 1:23:28 PM |

|          |            |     |    |                     |
|----------|------------|-----|----|---------------------|
| Broker 4 | Retail     | 41  | 11 | 2/2/2022 1:23:28 PM |
| Broker 2 | Commodity  | 587 | 11 | 2/2/2022 1:23:28 PM |
| Broker 4 | Commodity  | 587 | 11 | 2/2/2022 1:23:28 PM |
| Broker 1 | Technology | 189 | 11 | 2/2/2022 1:23:28 PM |
| Broker 2 | Technology | 189 | 11 | 2/2/2022 1:23:28 PM |
| Broker 3 | Technology | 189 | 11 | 2/2/2022 1:23:28 PM |
| Broker 4 | Technology | 189 | 11 | 2/2/2022 1:23:28 PM |
| Broker 2 | Banking    | 114 | 11 | 2/2/2022 1:23:28 PM |
| Broker 3 | Banking    | 114 | 11 | 2/2/2022 1:23:28 PM |
| Broker 4 | Banking    | 114 | 11 | 2/2/2022 1:23:28 PM |
| Broker 1 | Retail     | 42  | 12 | 2/2/2022 1:23:28 PM |
| Broker 4 | Retail     | 42  | 12 | 2/2/2022 1:23:28 PM |
| Broker 2 | Commodity  | 597 | 12 | 2/2/2022 1:23:28 PM |
| Broker 4 | Commodity  | 597 | 12 | 2/2/2022 1:23:28 PM |
| Broker 1 | Technology | 192 | 12 | 2/2/2022 1:23:28 PM |
| Broker 2 | Technology | 192 | 12 | 2/2/2022 1:23:28 PM |
| Broker 3 | Technology | 192 | 12 | 2/2/2022 1:23:28 PM |
| Broker 4 | Technology | 192 | 12 | 2/2/2022 1:23:28 PM |
| Broker 2 | Banking    | 116 | 12 | 2/2/2022 1:23:28 PM |
| Broker 3 | Banking    | 116 | 12 | 2/2/2022 1:23:28 PM |
| Broker 4 | Banking    | 116 | 12 | 2/2/2022 1:23:28 PM |
| Broker 1 | Retail     | 43  | 13 | 2/2/2022 1:23:29 PM |
| Broker 4 | Retail     | 43  | 13 | 2/2/2022 1:23:29 PM |
| Broker 2 | Commodity  | 609 | 13 | 2/2/2022 1:23:29 PM |
| Broker 4 | Commodity  | 609 | 13 | 2/2/2022 1:23:29 PM |
| Broker 1 | Technology | 196 | 13 | 2/2/2022 1:23:29 PM |
| Broker 2 | Technology | 196 | 13 | 2/2/2022 1:23:29 PM |
| Broker 3 | Technology | 196 | 13 | 2/2/2022 1:23:29 PM |
| Broker 4 | Technology | 196 | 13 | 2/2/2022 1:23:29 PM |
| Broker 2 | Banking    | 117 | 13 | 2/2/2022 1:23:29 PM |
| Broker 3 | Banking    | 117 | 13 | 2/2/2022 1:23:29 PM |
| Broker 4 | Banking    | 117 | 13 | 2/2/2022 1:23:29 PM |
| Broker 1 | Retail     | 44  | 14 | 2/2/2022 1:23:29 PM |
| Broker 4 | Retail     | 44  | 14 | 2/2/2022 1:23:30 PM |
| Broker 1 | Technology | 200 | 14 | 2/2/2022 1:23:30 PM |
| Broker 2 | Technology | 200 | 14 | 2/2/2022 1:23:30 PM |
| Broker 3 | Technology | 200 | 14 | 2/2/2022 1:23:30 PM |
| Broker 4 | Technology | 200 | 14 | 2/2/2022 1:23:30 PM |
| Broker 2 | Commodity  | 626 | 14 | 2/2/2022 1:23:30 PM |
| Broker 4 | Commodity  | 626 | 14 | 2/2/2022 1:23:30 PM |
| Broker 2 | Banking    | 120 | 14 | 2/2/2022 1:23:30 PM |
| Broker 3 | Banking    | 120 | 14 | 2/2/2022 1:23:30 PM |
| Broker 4 | Banking    | 120 | 14 | 2/2/2022 1:23:30 PM |
| Broker 1 | Retail     | 45  | 15 | 2/2/2022 1:23:31 PM |
| Broker 4 | Retail     | 45  | 15 | 2/2/2022 1:23:31 PM |
| Broker 2 | Commodity  | 639 | 15 | 2/2/2022 1:23:31 PM |

|          |            |     |    |                     |
|----------|------------|-----|----|---------------------|
| Broker 4 | Commodity  | 639 | 15 | 2/2/2022 1:23:31 PM |
| Broker 1 | Technology | 203 | 15 | 2/2/2022 1:23:31 PM |
| Broker 2 | Technology | 203 | 15 | 2/2/2022 1:23:31 PM |
| Broker 3 | Technology | 203 | 15 | 2/2/2022 1:23:31 PM |
| Broker 4 | Technology | 203 | 15 | 2/2/2022 1:23:31 PM |
| Broker 2 | Banking    | 122 | 15 | 2/2/2022 1:23:31 PM |
| Broker 3 | Banking    | 122 | 15 | 2/2/2022 1:23:31 PM |
| Broker 4 | Banking    | 122 | 15 | 2/2/2022 1:23:31 PM |
| Broker 1 | Retail     | 46  | 16 | 2/2/2022 1:23:31 PM |
| Broker 4 | Retail     | 46  | 16 | 2/2/2022 1:23:31 PM |
| Broker 2 | Commodity  | 651 | 16 | 2/2/2022 1:23:31 PM |
| Broker 4 | Commodity  | 651 | 16 | 2/2/2022 1:23:31 PM |
| Broker 1 | Technology | 206 | 16 | 2/2/2022 1:23:31 PM |
| Broker 2 | Technology | 206 | 16 | 2/2/2022 1:23:31 PM |
| Broker 3 | Technology | 206 | 16 | 2/2/2022 1:23:31 PM |
| Broker 4 | Technology | 206 | 16 | 2/2/2022 1:23:31 PM |
| Broker 2 | Banking    | 123 | 16 | 2/2/2022 1:23:31 PM |
| Broker 3 | Banking    | 123 | 16 | 2/2/2022 1:23:31 PM |
| Broker 4 | Banking    | 123 | 16 | 2/2/2022 1:23:31 PM |
| Broker 2 | Commodity  | 663 | 17 | 2/2/2022 1:23:32 PM |
| Broker 4 | Commodity  | 663 | 17 | 2/2/2022 1:23:40 PM |
| Broker 1 | Technology | 210 | 17 | 2/2/2022 1:23:40 PM |
| Broker 2 | Technology | 210 | 17 | 2/2/2022 1:23:40 PM |
| Broker 3 | Technology | 210 | 17 | 2/2/2022 1:23:40 PM |
| Broker 4 | Technology | 210 | 17 | 2/2/2022 1:23:40 PM |
| Broker 1 | Retail     | 47  | 17 | 2/2/2022 1:23:40 PM |
| Broker 4 | Retail     | 47  | 17 | 2/2/2022 1:23:40 PM |
| Broker 2 | Banking    | 124 | 17 | 2/2/2022 1:23:40 PM |
| Broker 3 | Banking    | 124 | 17 | 2/2/2022 1:23:40 PM |
| Broker 4 | Banking    | 124 | 17 | 2/2/2022 1:23:40 PM |
| Broker 1 | Technology | 213 | 18 | 2/2/2022 1:23:40 PM |
| Broker 2 | Technology | 213 | 18 | 2/2/2022 1:23:40 PM |
| Broker 3 | Technology | 213 | 18 | 2/2/2022 1:23:40 PM |
| Broker 4 | Technology | 213 | 18 | 2/2/2022 1:23:40 PM |
| Broker 1 | Retail     | 48  | 18 | 2/2/2022 1:23:40 PM |
| Broker 4 | Retail     | 48  | 18 | 2/2/2022 1:23:40 PM |
| Broker 2 | Banking    | 125 | 18 | 2/2/2022 1:23:40 PM |
| Broker 3 | Banking    | 125 | 18 | 2/2/2022 1:23:40 PM |
| Broker 4 | Banking    | 125 | 18 | 2/2/2022 1:23:40 PM |
| Broker 2 | Commodity  | 668 | 18 | 2/2/2022 1:23:40 PM |
| Broker 4 | Commodity  | 668 | 18 | 2/2/2022 1:23:40 PM |
| Broker 1 | Technology | 215 | 19 | 2/2/2022 1:23:41 PM |
| Broker 2 | Technology | 215 | 19 | 2/2/2022 1:23:41 PM |
| Broker 3 | Technology | 215 | 19 | 2/2/2022 1:23:41 PM |
| Broker 4 | Technology | 215 | 19 | 2/2/2022 1:23:41 PM |
| Broker 2 | Commodity  | 682 | 19 | 2/2/2022 1:23:41 PM |

|          |            |     |    |                     |
|----------|------------|-----|----|---------------------|
| Broker 4 | Commodity  | 682 | 19 | 2/2/2022 1:23:41 PM |
| Broker 2 | Banking    | 126 | 19 | 2/2/2022 1:23:41 PM |
| Broker 3 | Banking    | 126 | 19 | 2/2/2022 1:23:41 PM |
| Broker 4 | Banking    | 126 | 19 | 2/2/2022 1:23:41 PM |
| Broker 1 | Retail     | 49  | 19 | 2/2/2022 1:23:41 PM |
| Broker 4 | Retail     | 49  | 19 | 2/2/2022 1:23:41 PM |
| Broker 1 | Technology | 217 | 20 | 2/2/2022 1:23:41 PM |
| Broker 2 | Technology | 217 | 20 | 2/2/2022 1:23:41 PM |
| Broker 3 | Technology | 217 | 20 | 2/2/2022 1:23:41 PM |
| Broker 4 | Technology | 217 | 20 | 2/2/2022 1:23:41 PM |
| Broker 2 | Commodity  | 689 | 20 | 2/2/2022 1:23:41 PM |
| Broker 4 | Commodity  | 689 | 20 | 2/2/2022 1:23:41 PM |
| Broker 2 | Banking    | 129 | 20 | 2/2/2022 1:23:41 PM |
| Broker 3 | Banking    | 129 | 20 | 2/2/2022 1:23:41 PM |
| Broker 4 | Banking    | 129 | 20 | 2/2/2022 1:23:41 PM |
| Broker 1 | Retail     | 50  | 20 | 2/2/2022 1:23:41 PM |
| Broker 4 | Retail     | 50  | 20 | 2/2/2022 1:23:41 PM |
| Broker 1 | Technology | 221 | 21 | 2/2/2022 1:23:42 PM |
| Broker 2 | Technology | 221 | 21 | 2/2/2022 1:23:42 PM |
| Broker 3 | Technology | 221 | 21 | 2/2/2022 1:23:42 PM |
| Broker 4 | Technology | 221 | 21 | 2/2/2022 1:23:42 PM |
| Broker 2 | Commodity  | 692 | 21 | 2/2/2022 1:23:42 PM |
| Broker 4 | Commodity  | 692 | 21 | 2/2/2022 1:23:42 PM |
| Broker 2 | Banking    | 131 | 21 | 2/2/2022 1:23:42 PM |
| Broker 3 | Banking    | 131 | 21 | 2/2/2022 1:23:42 PM |
| Broker 4 | Banking    | 131 | 21 | 2/2/2022 1:23:42 PM |
| Broker 1 | Retail     | 51  | 21 | 2/2/2022 1:23:42 PM |
| Broker 4 | Retail     | 51  | 21 | 2/2/2022 1:23:42 PM |
| Broker 1 | Technology | 223 | 22 | 2/2/2022 1:23:42 PM |
| Broker 2 | Technology | 223 | 22 | 2/2/2022 1:23:42 PM |
| Broker 3 | Technology | 223 | 22 | 2/2/2022 1:23:42 PM |
| Broker 4 | Technology | 223 | 22 | 2/2/2022 1:23:42 PM |
| Broker 2 | Commodity  | 700 | 22 | 2/2/2022 1:23:42 PM |
| Broker 4 | Commodity  | 700 | 22 | 2/2/2022 1:23:42 PM |
| Broker 1 | Retail     | 52  | 22 | 2/2/2022 1:23:42 PM |
| Broker 4 | Retail     | 52  | 22 | 2/2/2022 1:23:42 PM |
| Broker 2 | Banking    | 134 | 22 | 2/2/2022 1:23:42 PM |
| Broker 3 | Banking    | 134 | 22 | 2/2/2022 1:23:42 PM |
| Broker 4 | Banking    | 134 | 22 | 2/2/2022 1:23:42 PM |
| Broker 1 | Technology | 225 | 23 | 2/2/2022 1:23:43 PM |
| Broker 2 | Technology | 225 | 23 | 2/2/2022 1:23:43 PM |
| Broker 3 | Technology | 225 | 23 | 2/2/2022 1:23:43 PM |
| Broker 4 | Technology | 225 | 23 | 2/2/2022 1:23:43 PM |
| Broker 2 | Commodity  | 701 | 23 | 2/2/2022 1:23:43 PM |
| Broker 4 | Commodity  | 701 | 23 | 2/2/2022 1:23:43 PM |
| Broker 1 | Retail     | 53  | 23 | 2/2/2022 1:23:43 PM |

|          |            |     |    |                     |
|----------|------------|-----|----|---------------------|
| Broker 4 | Retail     | 53  | 23 | 2/2/2022 1:23:43 PM |
| Broker 2 | Banking    | 135 | 23 | 2/2/2022 1:23:43 PM |
| Broker 3 | Banking    | 135 | 23 | 2/2/2022 1:23:43 PM |
| Broker 4 | Banking    | 135 | 23 | 2/2/2022 1:23:43 PM |
| Broker 1 | Technology | 229 | 24 | 2/2/2022 1:23:43 PM |
| Broker 2 | Technology | 229 | 24 | 2/2/2022 1:23:46 PM |
| Broker 3 | Technology | 229 | 24 | 2/2/2022 1:23:46 PM |
| Broker 4 | Technology | 229 | 24 | 2/2/2022 1:23:46 PM |
| Broker 2 | Commodity  | 715 | 24 | 2/2/2022 1:23:46 PM |
| Broker 4 | Commodity  | 715 | 24 | 2/2/2022 1:23:46 PM |
| Broker 2 | Banking    | 137 | 24 | 2/2/2022 1:23:46 PM |
| Broker 3 | Banking    | 137 | 24 | 2/2/2022 1:23:46 PM |
| Broker 4 | Banking    | 137 | 24 | 2/2/2022 1:23:46 PM |
| Broker 1 | Retail     | 54  | 24 | 2/2/2022 1:23:46 PM |
| Broker 4 | Retail     | 54  | 24 | 2/2/2022 1:23:46 PM |
| Broker 2 | Banking    | 140 | 25 | 2/2/2022 1:23:46 PM |
| Broker 3 | Banking    | 140 | 25 | 2/2/2022 1:23:46 PM |
| Broker 4 | Banking    | 140 | 25 | 2/2/2022 1:23:46 PM |
| Broker 1 | Technology | 233 | 25 | 2/2/2022 1:23:46 PM |
| Broker 2 | Technology | 233 | 25 | 2/2/2022 1:23:46 PM |
| Broker 3 | Technology | 233 | 25 | 2/2/2022 1:23:46 PM |
| Broker 4 | Technology | 233 | 25 | 2/2/2022 1:23:46 PM |
| Broker 2 | Commodity  | 729 | 25 | 2/2/2022 1:23:46 PM |
| Broker 4 | Commodity  | 729 | 25 | 2/2/2022 1:23:46 PM |
| Broker 1 | Retail     | 55  | 25 | 2/2/2022 1:23:46 PM |
| Broker 4 | Retail     | 55  | 25 | 2/2/2022 1:23:46 PM |

### Grading:

Do the lab assignment using the following:

- Use thread to simulate the stock price.
- Use async to synchronize the output to the console window and text file

Each team member should make the following files and zip all of them in a zip file:

- Video to demonstrate the lab assignment less than 2 minutes.
  - You need to show two windows in the screen. One window displays the output from the console. Other window shows the output from the file.
  - Scroll the top part of both windows to check the identical output
  - Scroll the bottom part of both windows to check the identical output
- pdf file with coding of the Stock.cs and Broker.cs for each solution.
  - Highlight the code raising the event in the class Stock
  - Highlight the asynchronous implementation in the class Broker
- Zip the project file for each solution

**Each team member submits all the files above and write in the comment box with the following information:**

- Team number and team member names
- Write the completion of the lab assignment for each team member. All the team members must agree with the completion of each team member.

The program run successfully with correct output (100% completion)

The program run successfully with incorrect output (60% completion)

The program has syntax errors or is incomplete (40% completion)

The program has few coding and syntax errors (30% completion)

There is no submission (0%)