

Delegates, Events, and Basic Event Handling - Task 6

Program that demonstrates a counter that triggers an event at a threshold :

using System;

```
namespace EventHandlingDemo
{
    // Defining a delegate
    public delegate void ThresholdReachedEventHandler(object sender, EventArgs e);

    // A Counter class that raises the event
    public class Counter
    {
        public event ThresholdReachedEventHandler ThresholdReached;

        private int count = 0;
        private int threshold;

        public Counter(int threshold)
        {
            this.threshold = threshold;
        }

        public void Increment()
        {
            count++;
            Console.WriteLine("Current Count: " + count);

            if (count == threshold)
            {
                // Raising the event when threshold is reached
                OnThresholdReached(EventArgs.Empty);
            }
        }

        protected virtual void OnThresholdReached(EventArgs e)
        {
            if (ThresholdReached != null)
            {
                ThresholdReached(this, e); // Raising the event
            }
        }
    }
}
```

```
// Creating event handlers
class Handlers
{
    public static void AlertHandler(object sender, EventArgs e)
    {
        Console.WriteLine(">> Alert: Threshold has been reached!");
    }

    public static void LogHandler(object sender, EventArgs e)
    {
        Console.WriteLine(">> Log: Threshold event occurred at " + DateTime.Now);
    }
}

// Main program
class Program
{
    static void Main(string[] args)
    {
        Counter counter = new Counter(5); // Event fires at count = 5

        // Subscribe event handlers
        counter.ThresholdReached += Handlers.AlertHandler;
        counter.ThresholdReached += Handlers.LogHandler;

        Console.WriteLine("Starting counter...");

        // Incrementing the counter in a loop
        for (int i = 0; i < 10; i++)
        {
            counter.Increment();
            System.Threading.Thread.Sleep(500); // just to slow down output
        }

        Console.WriteLine("Done.");
    }
}
```

Output :

```
Starting counter...  
Current Count: 1  
Current Count: 2  
Current Count: 3  
Current Count: 4  
Current Count: 5  
>> Alert: Threshold has been reached!  
>> Log: Threshold event occurred at 14-04-2025 19:19:13
```

```
Current Count: 6  
Current Count: 7  
Current Count: 8  
Current Count: 9  
Current Count: 10  
Done.
```