COS 20007
Task 3.1

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I. Code

1. Counter.cs

```
using System;
namespace ClockClass
{
        public class Counter
        {
                private int _count;
                private string _name;

    public string Name
    {
      get
      {
        return _name;
      }
      set
      {
        _name = value;
      }
    }

                public int Ticks
                {
                        get
                        {
                                return _count;
                        }
                }

    public Counter(string name)
                {
                        _name = name;
                        _count = 0;
                }

                public void Increment()
                {
                        _count ++;
                }
```

```
        public void Reset()
        {
            _count = 0;
        }
    }
}
```

2. Clock.cs

```
using System;
namespace ClockClass
{
  public class Clock
  {
    private Counter _seconds;
    private Counter _minutes;
    private Counter _hours;


    public Clock()
    {
      _seconds = new Counter("seconds");
      _minutes = new Counter("minutes");
      _hours = new Counter("hours");
    }

    public void Tick()
    {
      _seconds.Increment();

      if (_seconds.Ticks == 60)
      {
        _seconds.Reset();
        _minutes.Increment();

        if (_minutes.Ticks == 60)
        {
          _minutes.Reset();
          _hours.Increment();

          if (_hours.Ticks == 24)
          {
            _hours.Reset();
          }
        }
      }
```

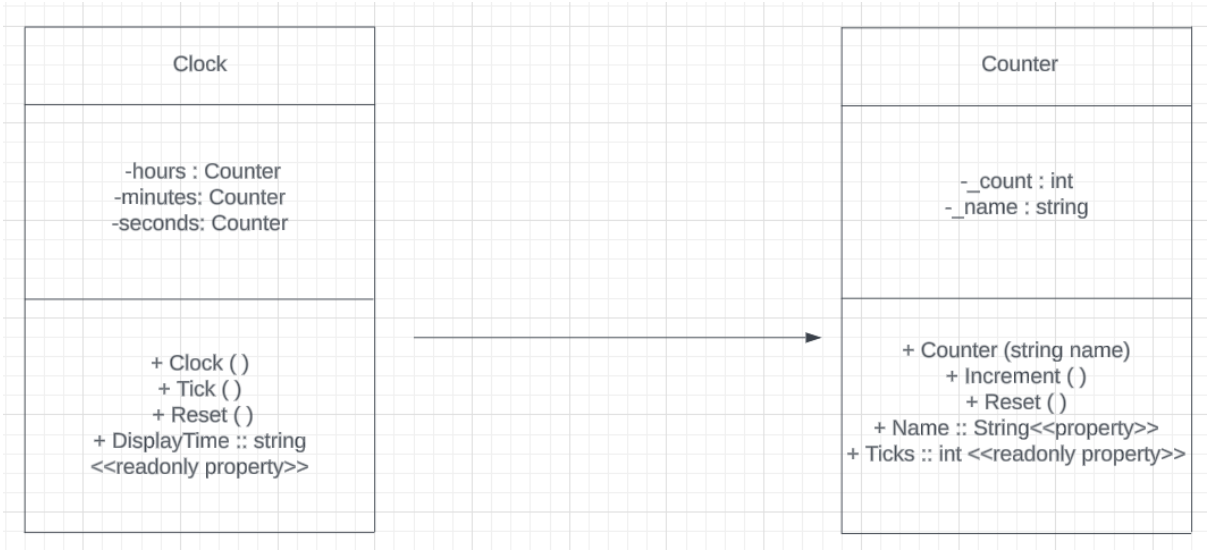
```
        }

        public void Reset()
        {
            _seconds.Reset();
            _minutes.Reset();
            _hours.Reset();
        }

        public string DisplayTime()
        {
            return string.Format("{0:D2}:{1:D2}:{2:D2}", _hours.Ticks, _minutes.Ticks,
_seconds.Ticks);

        }
    }
}
```

3. Program.cs

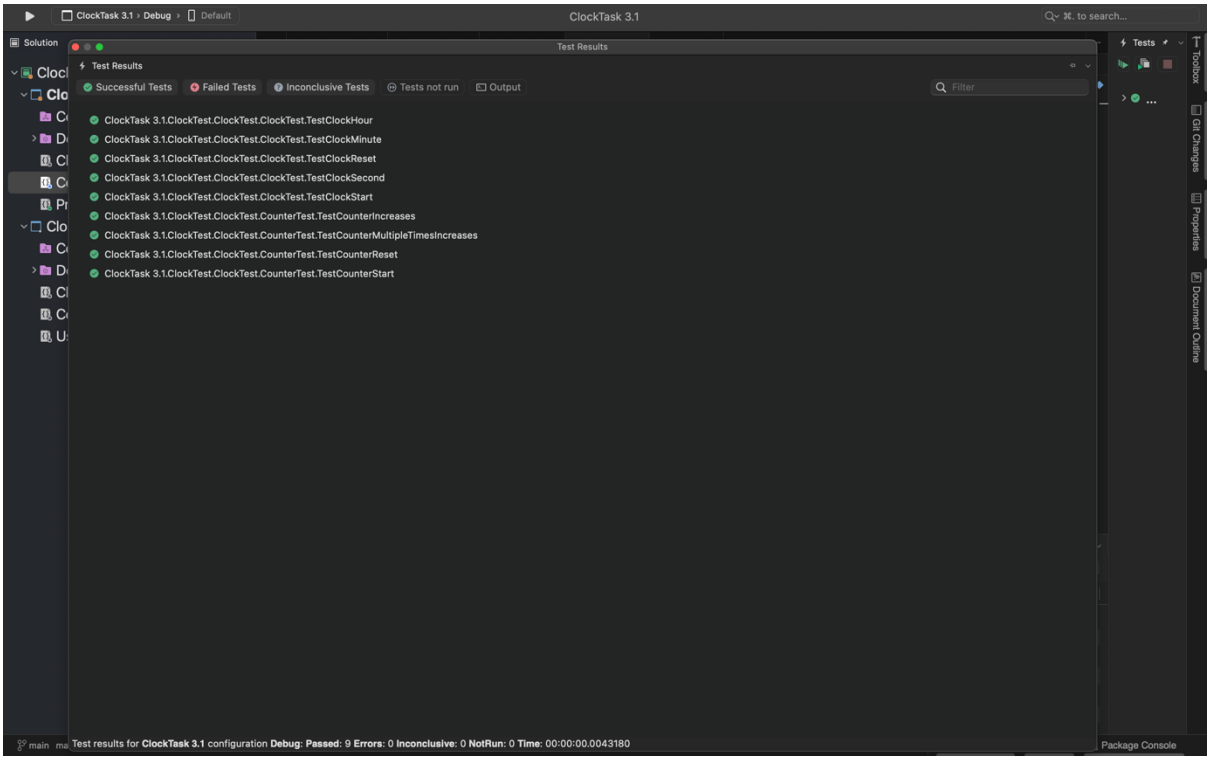
```
namespace ClockClass;

class Program
{
    static void Main(string[] args)
    {
        Clock clock = new Clock();

        while (true)
        {
            Console.Clear();
            Console.WriteLine("Clock Time: " + clock.DisplayTime());

            clock.Tick();
            Thread.Sleep(1000);
        }
    }
}
```

II. Image

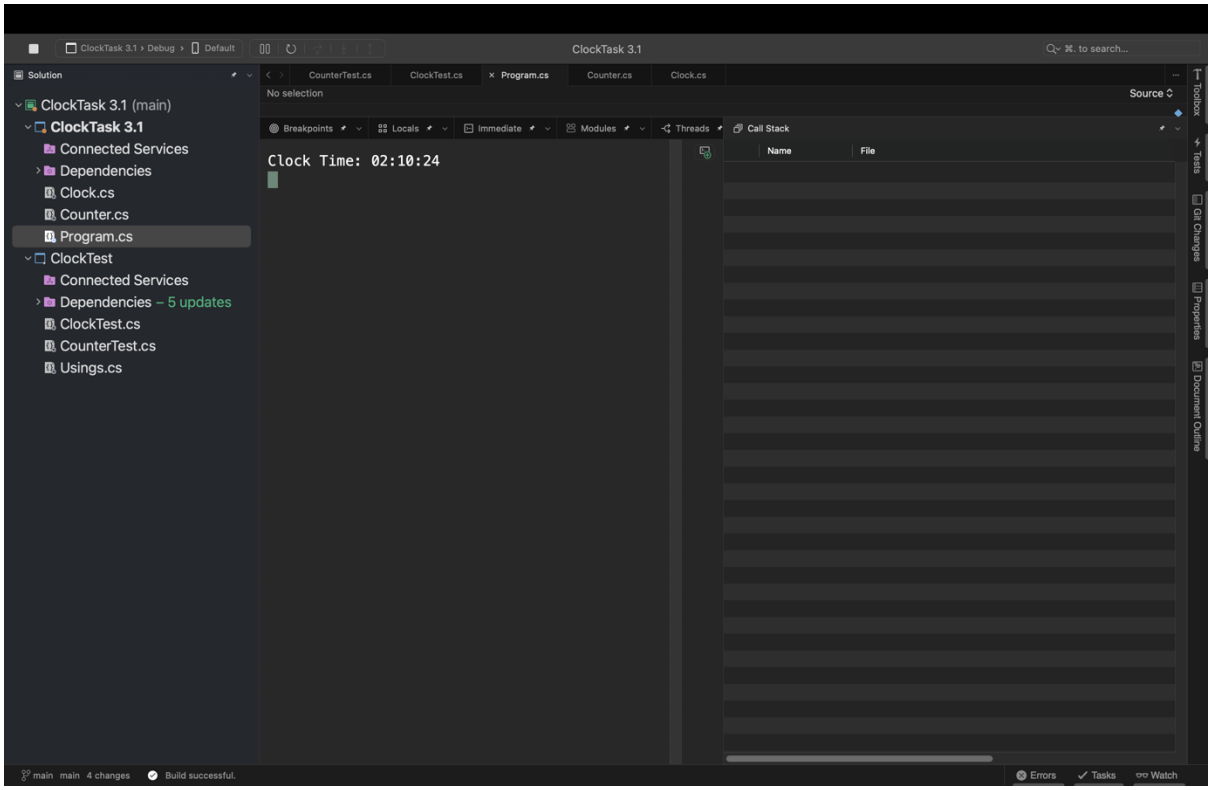
1. UML Diagram

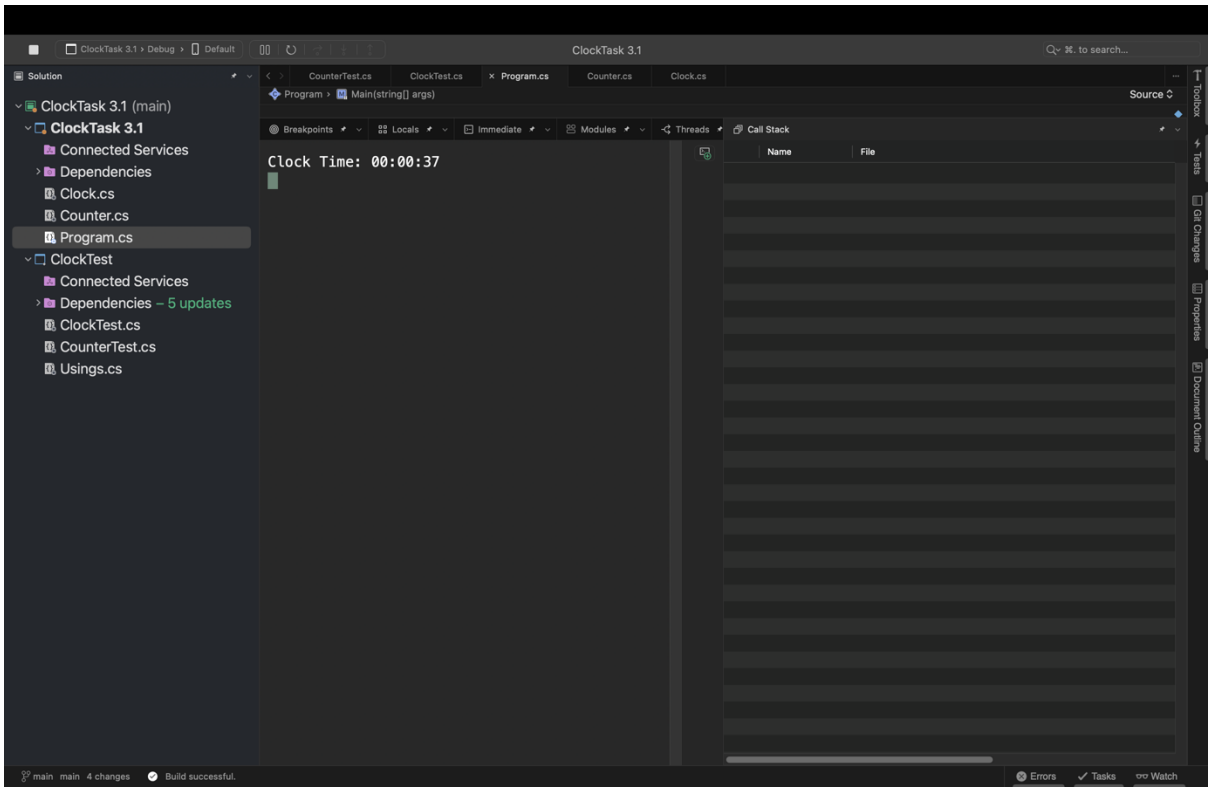


2. NUnit Test



3. Program’s output


ClockTask 3.1
Solution
ClockTask 3.1 (main)
ClockTask 3.1
Connected Services
Dependencies
Clock.cs
Counter.cs
Program.cs
ClockTest
Connected Services
Dependencies – 5 updates
ClockTest.cs
CounterTest.cs
Usings.cs
CounterTest.cs
ClockTest.cs
Program.cs
Counter.cs
Clock.cs
No selection
Source
Breakpoints
Locals
Immediate
Modules
Threads
Call Stack
Name
File
Clock Time: 02:10:24
main main 4 changes
Build successful.
Errors
Tasks
Watch


ClockTask 3.1
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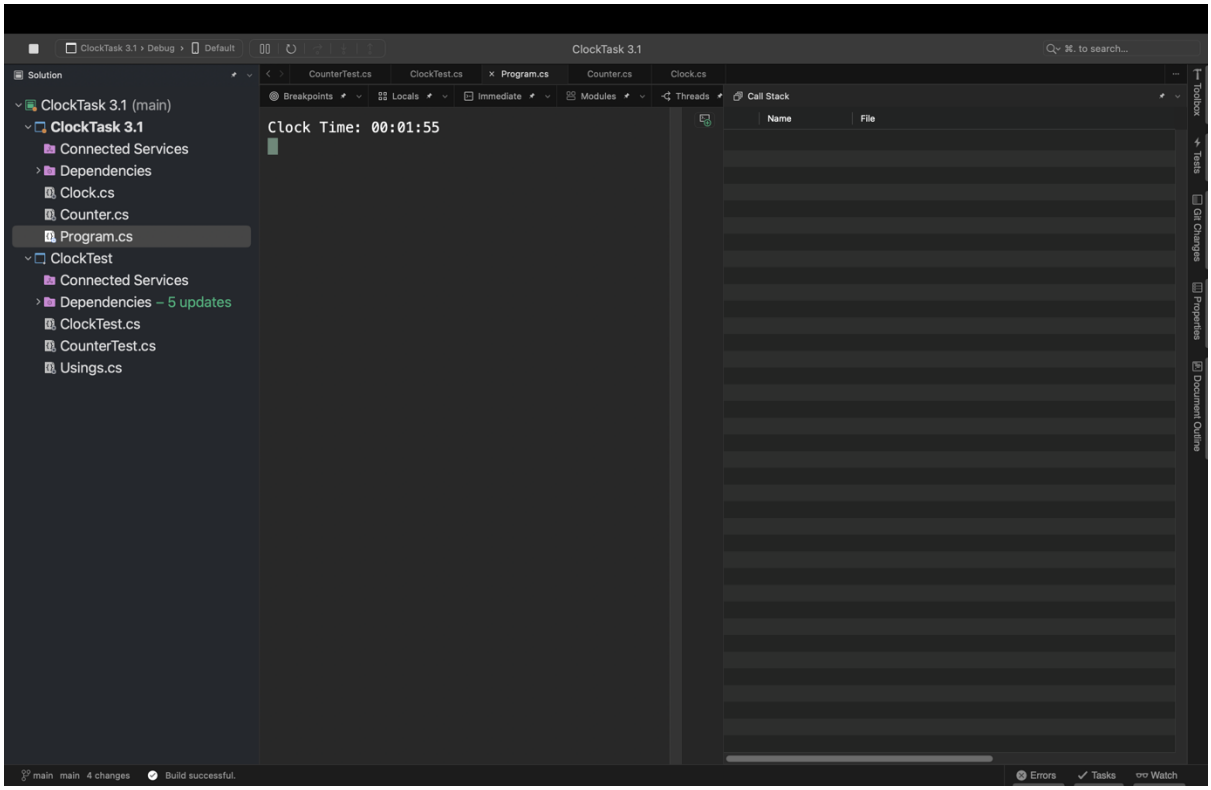
ClockTest
Connected Services
Dependencies – 5 updates
ClockTest.cs
CounterTest.cs
Usings.cs
CounterTest.cs
ClockTest.cs
Program.cs
Counter.cs
Clock.cs
Program
Main(string[] args)
Source
Breakpoints
Locals
Immediate
Modules
Threads
Call Stack
Name
File
Clock Time: 00:00:37
main main 4 changes
Build successful.
Errors
Tasks
Watch


ClockTask 3.1 › Debug › Default
ClockTask 3.1
⌘. to search...
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ClockTask 3.1 (main)
ClockTask 3.1
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ClockTest.cs
Program.cs
Counter.cs
Clock.cs
Breakpoints
Locals
Immediate
Modules
Threads
Call Stack
Name
File
Clock Time: 00:01:55
Toolbox
Tests
Git Changes
Properties
Document Outline
main main 4 changes
Build successful.
Errors
Tasks
Watch