

Chapter 1: Managed Threading Concepts

[illegible]

```
\\Mac\Home\Documents\GitHu x + v - □ ×  
Hello, World!  
Main thread working...  
Main thread working...  
Main thread working...  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Done  
Is network available? Answer: True  
Is network available? Answer: True  
Is network available? Answer: True
```

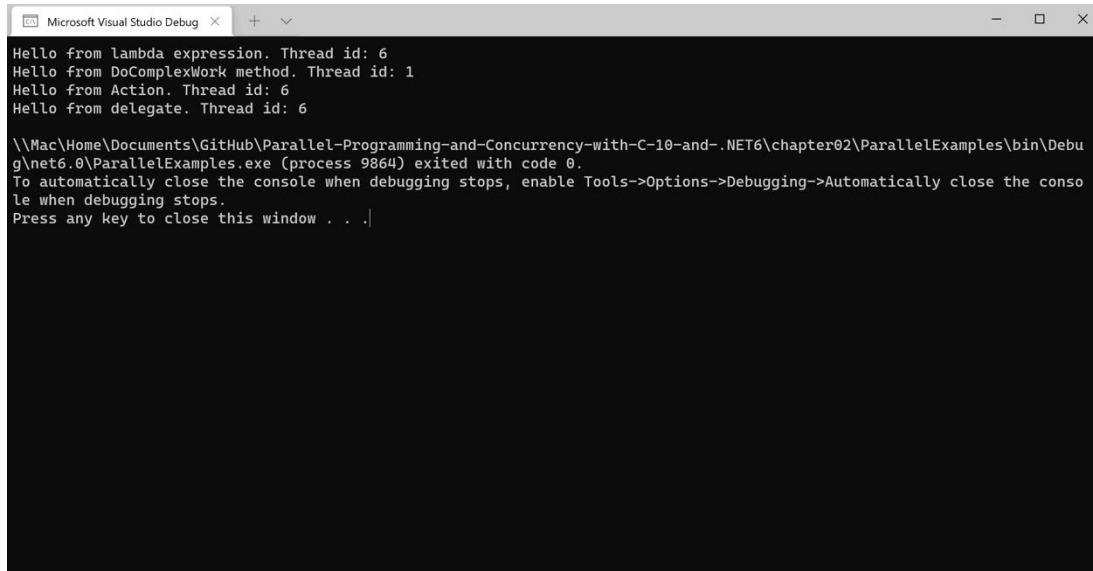
```

Thread priority AboveNormal; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority AboveNormal; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority BelowNormal; Is network available? Answer: True
Thread priority Highest; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority AboveNormal; Is network available? Answer: True
Thread priority AboveNormal; Is network available? Answer: True
Thread priority AboveNormal; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority BelowNormal; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority Normal; Is network available? Answer: True
Thread priority BelowNormal; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True
Thread priority BelowNormal; Is network available? Answer: True
Thread priority BelowNormal; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True
Thread priority Lowest; Is network available? Answer: True

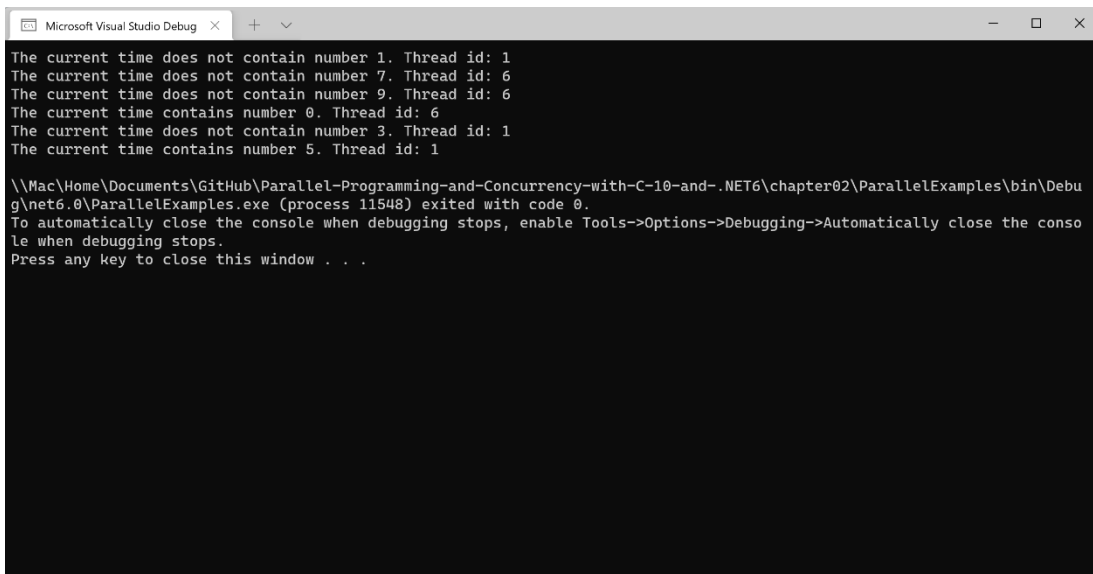
```

```
\Mac\Home\Documents\GitHu X + v - □ X  
Hello, World!  
Main thread working...  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Is network available? Answer: True  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Main thread working...  
Is network available? Answer: True  
Is network available? Answer: True  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Main thread working...  
Is network available? Answer: True  
Is network available? Answer: True  
Is network available? Answer: True  
Done
```

Chapter 2: Evolution of Multi-Threaded Programming in .NET



```
Microsoft Visual Studio Debug  X + -  
Hello from lambda expression. Thread id: 6  
Hello from DoComplexWork method. Thread id: 1  
Hello from Action. Thread id: 6  
Hello from delegate. Thread id: 6  
  
\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter02\ParallelExamples\bin\Debug\net6.0\ParallelExamples.exe (process 9864) exited with code 0.  
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.  
Press any key to close this window . . |
```



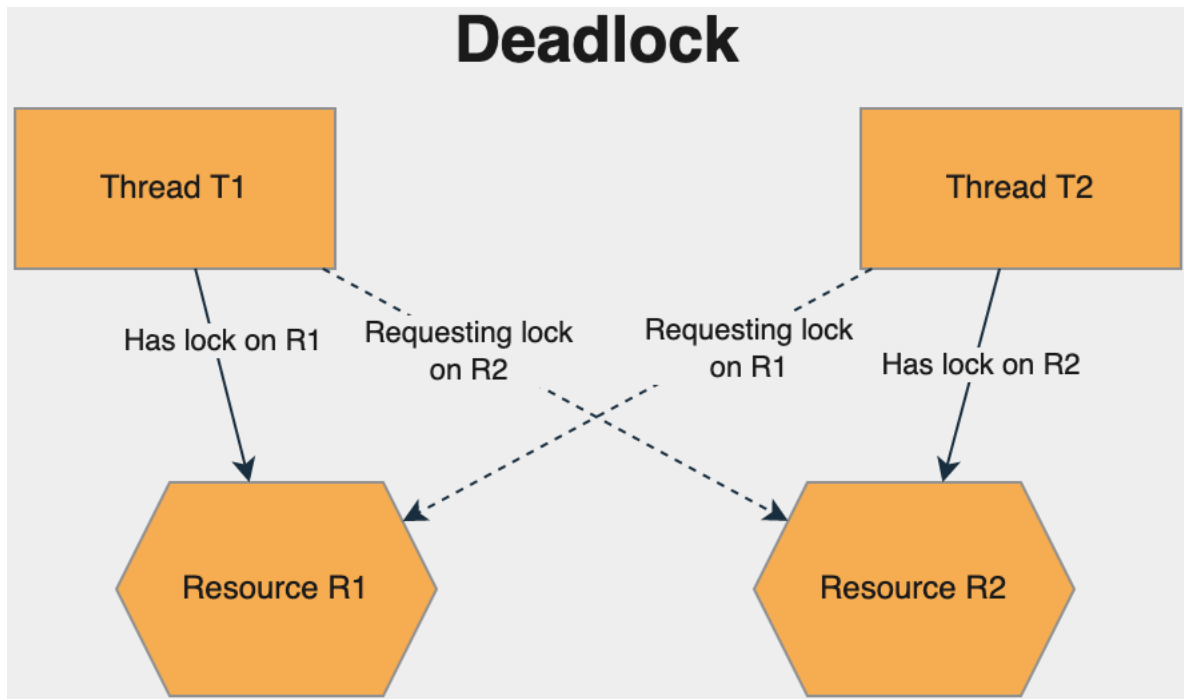
```
Microsoft Visual Studio Debug  X + -  
The current time does not contain number 1. Thread id: 1  
The current time does not contain number 7. Thread id: 6  
The current time does not contain number 9. Thread id: 6  
The current time contains number 0. Thread id: 6  
The current time does not contain number 3. Thread id: 1  
The current time contains number 5. Thread id: 1  
  
\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter02\ParallelExamples\bin\Debug\net6.0\ParallelExamples.exe (process 11548) exited with code 0.  
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.  
Press any key to close this window . . .
```

```
Microsoft Visual Studio Debug x + -
Regular number string: 0,2,4,6,8,10,12,14,16,18,20
Parallel number string: 12,0,14,2,16,4,18,6,20,8,10

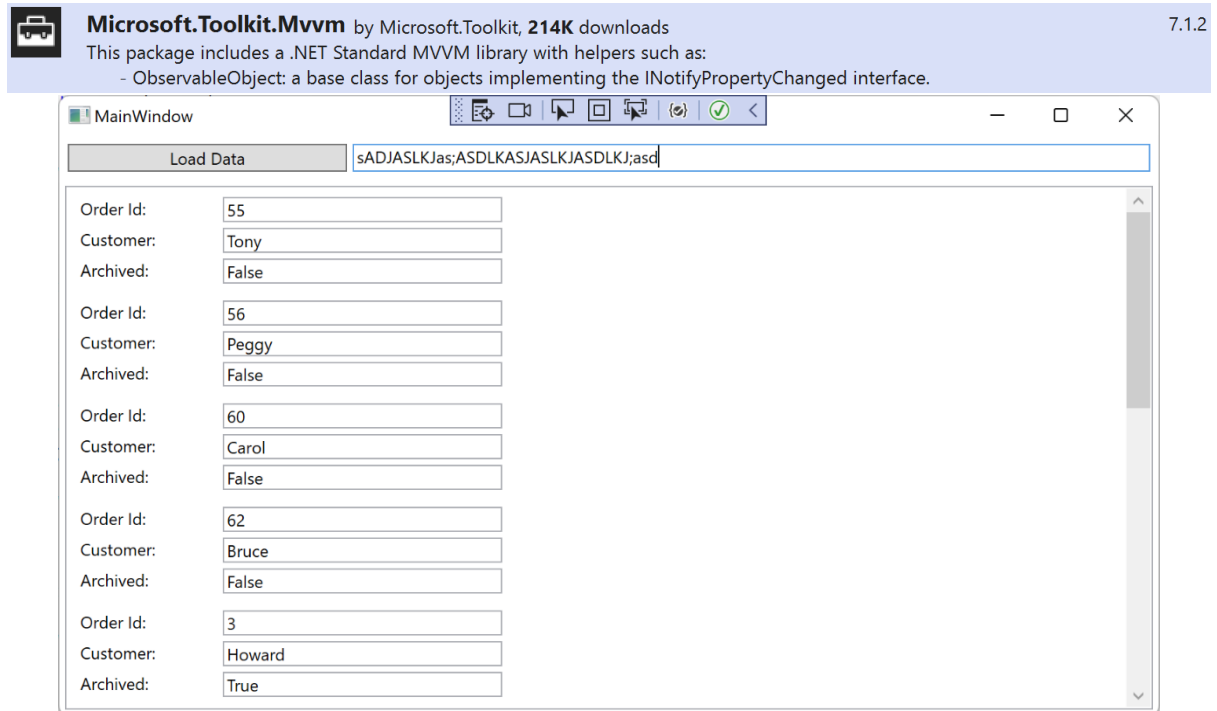
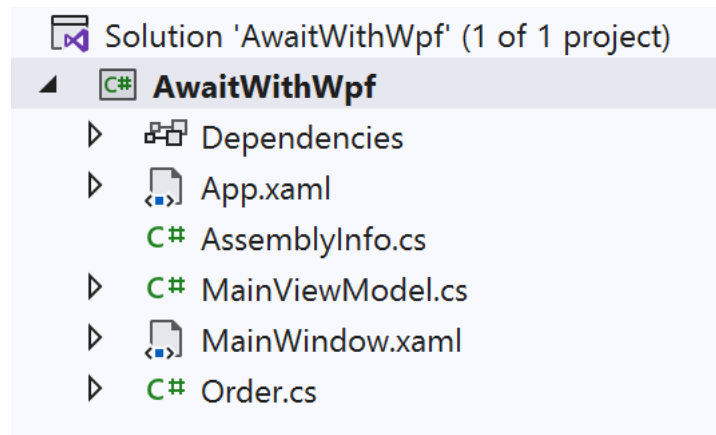
\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter02\ParallelExamples\bin\Debug\net6.0\ParallelExamples.exe (process 8852) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .|
```

```
\\Mac\Home\Documents\GitHub x + -
Hello, World!
Main thread working...
Main thread working...
Is network available? Answer: True
Main thread working...
Is network available? Answer: True
Is network available? Answer: True
Is network available? Answer: True
Is network available? Answer: True
Main thread working...
Is network available? Answer: True
Main thread working...
Is network available? Answer: True
Main thread working...
Main thread working...
Is network available? Answer: True
Is network available? Answer: True
Is network available? Answer: True
Main thread working...
Is network available? Answer: True
Main thread working...
Is network available? Answer: True
Is network available? Answer: True
Is network available? Answer: True
Done
```

Chapter 3: Best Practices for Managed Threading



Chapter 4: User Interface Responsiveness with Threading



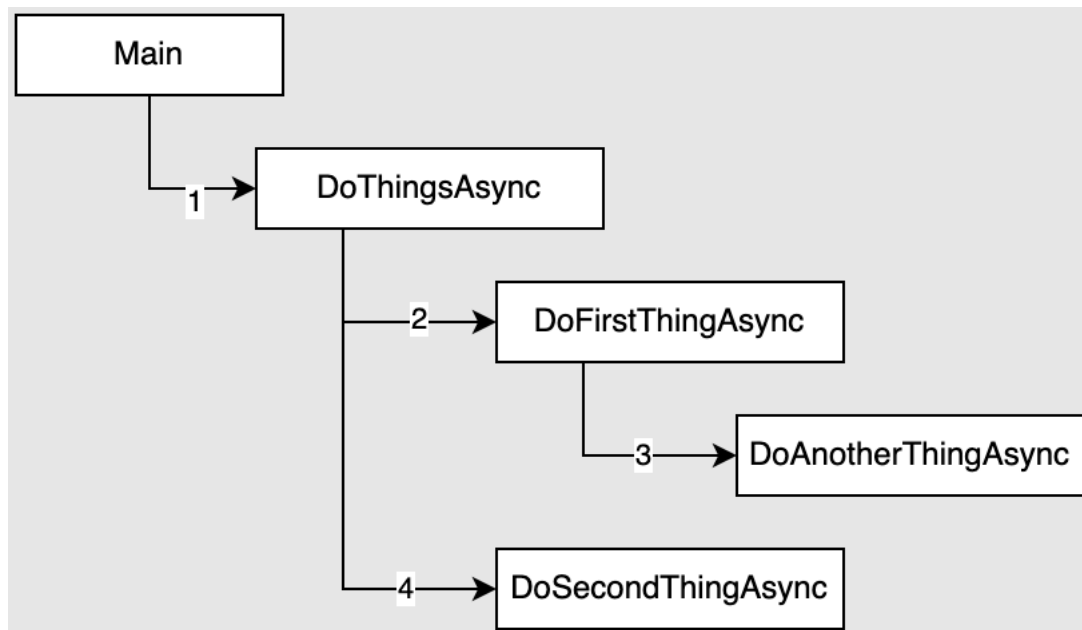
Form1

John Doe

Run in Background

Run on Main Thread

Chapter 5: Asynchronous Programming with C#



```
Microsoft Visual Studio Debug ( x ) + -
Start processing...
Doing things in DoThingsAsync
Doing something in DoFirstThingAsync
Doing something in DoAnotherThingAsync
Did something in DoAnotherThingAsync
Did something in DoFirstThingAsync
Doing something in DoSecondThingAsync
Did something in DoSecondThingAsync
Did things in DoThingsAsync
Done processing...

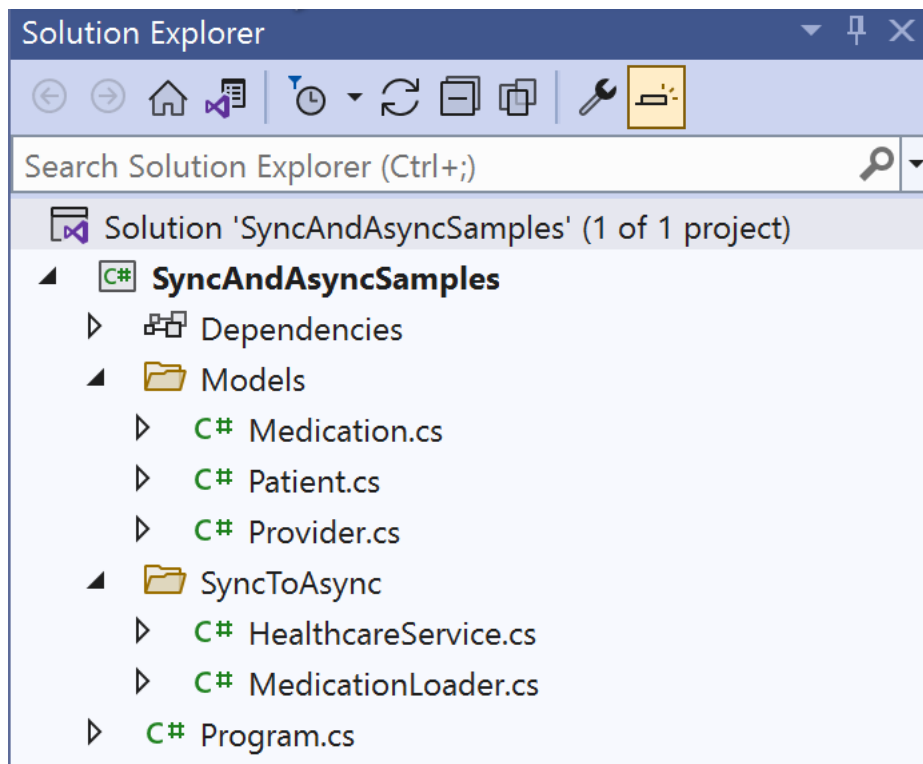
\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter05\AsyncSamples\bin\Debug\net6.0\AsyncSamples.exe (process 4452) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .|
```



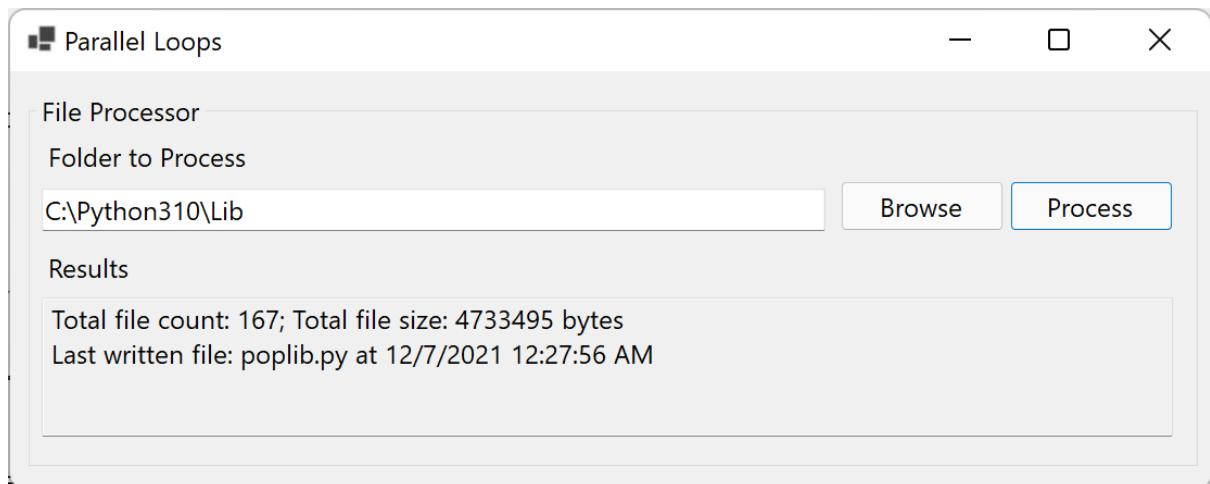
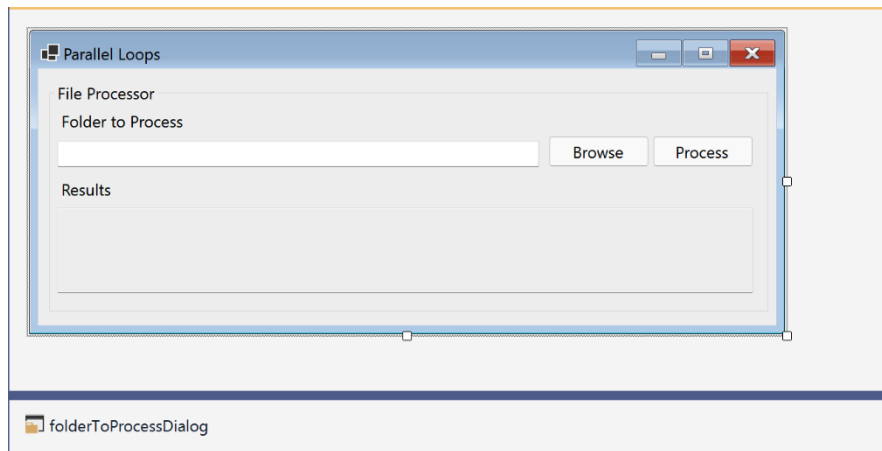
```
Microsoft Visual Studio Debug Console

Did something in DoAnotherThingAsync
Did something in DoFirstThingAsync
Doing something in DoSecondThingAsync
Did something in DoSecondThingAsync
Did things in DoThingsAsync
Continue processing...
Doing things in DoingThingsWrongAsync
Doing something in DoFirstThingAsync
Doing something in DoAnotherThingAsync
Doing something in DoSecondThingAsync
Did something in DoSecondThingAsync
Did things in DoingThingsWrongAsync
Continue processing...
Doing things in DoBlockingThingsAsync
Doing something in DoFirstThingAsync
Doing something in DoAnotherThingAsync
Did something in DoAnotherThingAsync
Did something in DoFirstThingAsync
Did something in DoAnotherThingAsync
Did something in DoFirstThingAsync
Doing something in DoSecondThingAsync
Did something in DoSecondThingAsync
Did things in DoBlockingThingsAsync
Done processing...

\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter05\AsyncSamples\bin\Debug\net6.0\AsyncSamples.exe (process 11940) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```



Chapter 6: Parallel Programming Concepts

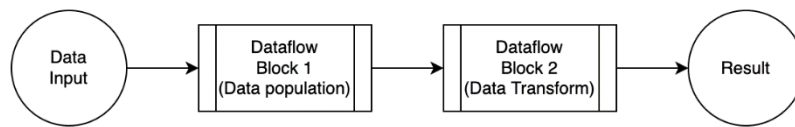


```
\\Mac\Home\Documents\GitHu x + v - □ x
Starting DoAllWork
Finishing DoAllWork
Starting DoThirdItem
Starting DoFirstItem
Finishing DoFirstItem
Starting DoSecondItem
Finishing DoThirdItem
Finishing DoSecondItem
```

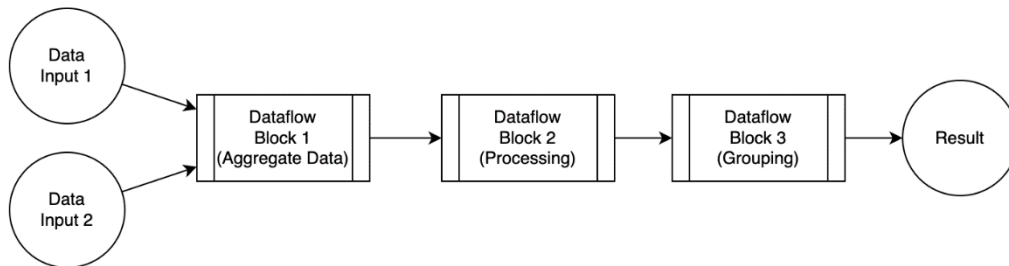
```
Starting DoAllWorkAttached
Starting DoThirdItem
Starting DoFirstItem
Finishing DoFirstItem
Finishing DoThirdItem
Starting DoSecondItem
Finishing DoSecondItem
Finishing DoAllWorkAttached
```

```
Starting DoAllWorkDenyAttach
Finishing DoAllWorkDenyAttach
Starting DoThirdItem
Starting DoFirstItem
Finishing DoThirdItem
Starting DoSecondItem
Finishing DoFirstItem
Finishing DoSecondItem
```

Chapter 7: Task Parallel Library (TPL) and Dataflow



Example 1 - Load and transform data with dataflow pipeline



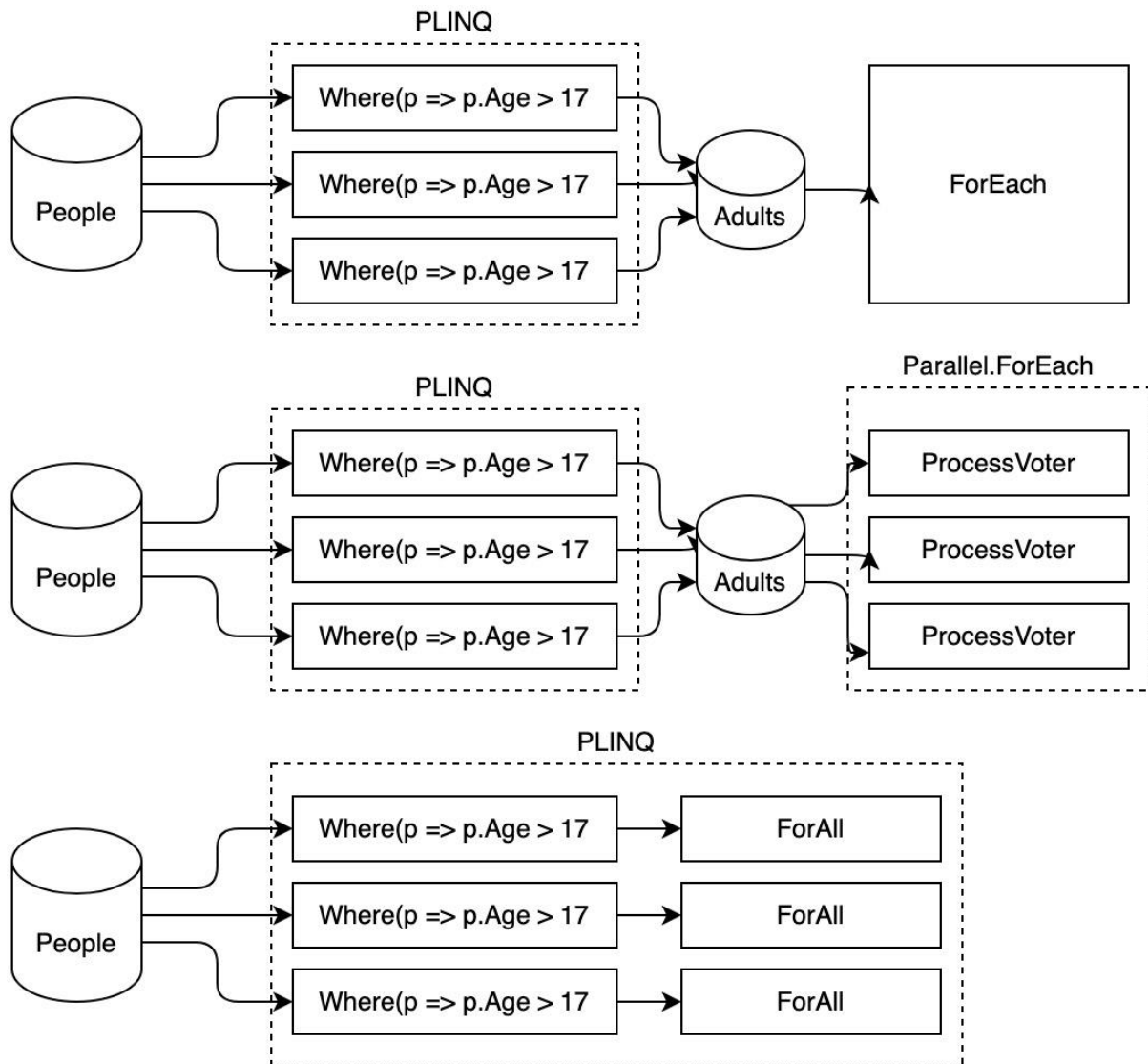
Example 2 - Aggregate, process, and group data with dataflow pipeline

```
\\Mac\Home\Documents\GitHu x + v - □ x
Hello, World!
Fetching feed from 'https://blogs.windows.com/feed'...
Getting category list...
De-duplicating category list...
Extracting category names...
Found CATEGORY PC
Found CATEGORY AGE OF EMPIRES IV
Found CATEGORY PC GAMES
Found CATEGORY PC GAMING
Found CATEGORY UNCATEGORIZED
Found CATEGORY ANNOUNCEMENTS
Found CATEGORY INSIDER
Found CATEGORY PERFORMANCE
Found CATEGORY SLEEPING TABS
Found CATEGORY WINDOWS INSIDER PROGRAM
Found CATEGORY HARDWARE PARTNERS
Found CATEGORY SUSTAINABILITY
Found CATEGORY WINDOWS 11
Found CATEGORY MINECRAFT
Found CATEGORY HYBRID WORK
Found CATEGORY BASKETBALL
Found CATEGORY FORGE OF EMPIRES
Found CATEGORY CANDY CRUSH SAGA
```

```
Microsoft Visual Studio Debug Console
String received: one
Integer received: 1
String received: two
Integer received: 2
String received: three
Integer received: 3
Complete

\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter07\JoinBlockExample\bin\Debug\net6.0\JoinBlockExample.exe (process 8320) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .|
```

Chapter 8: Parallel Data Structures and Parallel LINQ



```
\\Mac\Home\Documents\Gitl x + v - □ x
Exception encountered while processing voters. Message: This person is too old! (Parameter 'adult')
```

```
\\Mac\Home\Documents\Gitl x + v - □ x
Start time: 10:34:46.211 AM. AsParallel children:
Richard
Sally
Joe
Lisa
Start time: 10:34:46.451 AM. AsUnordered children:
Sally
Richard
Joe
Lisa
Start time: 10:34:46.510 AM. Sequential after Where children:
Richard
Sally
Joe
Lisa
Start time: 10:34:46.520 AM. AsOrdered children:
Sally
Joe
Lisa
Richard
Start time: 10:34:46.570 AM. Reverse order children:
Richard
Lisa
Joe
Sally
Finish time: 10:34:46.636 AM
```

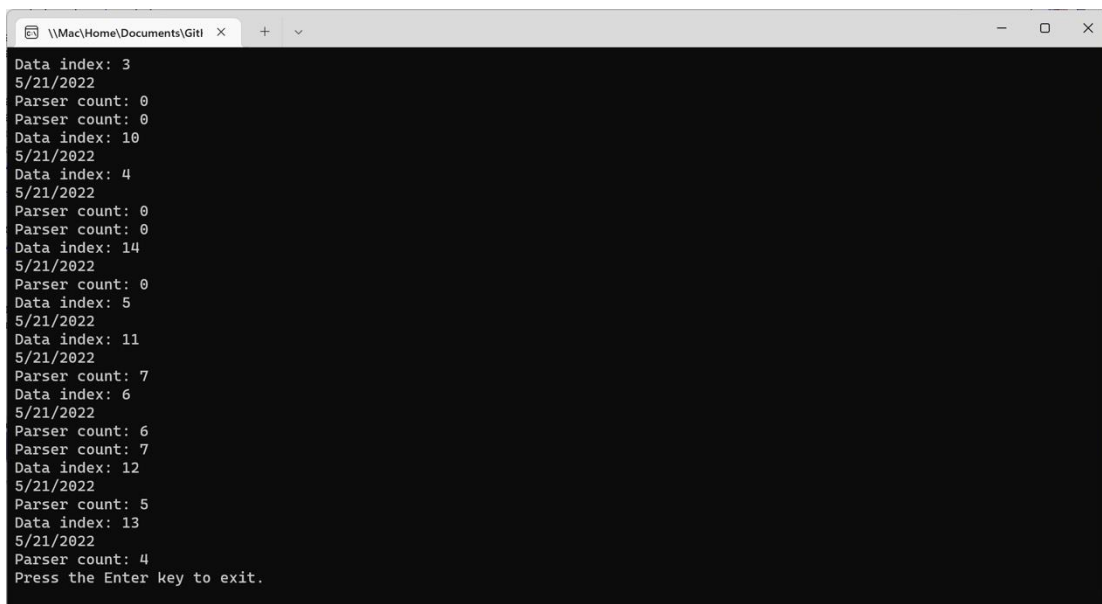
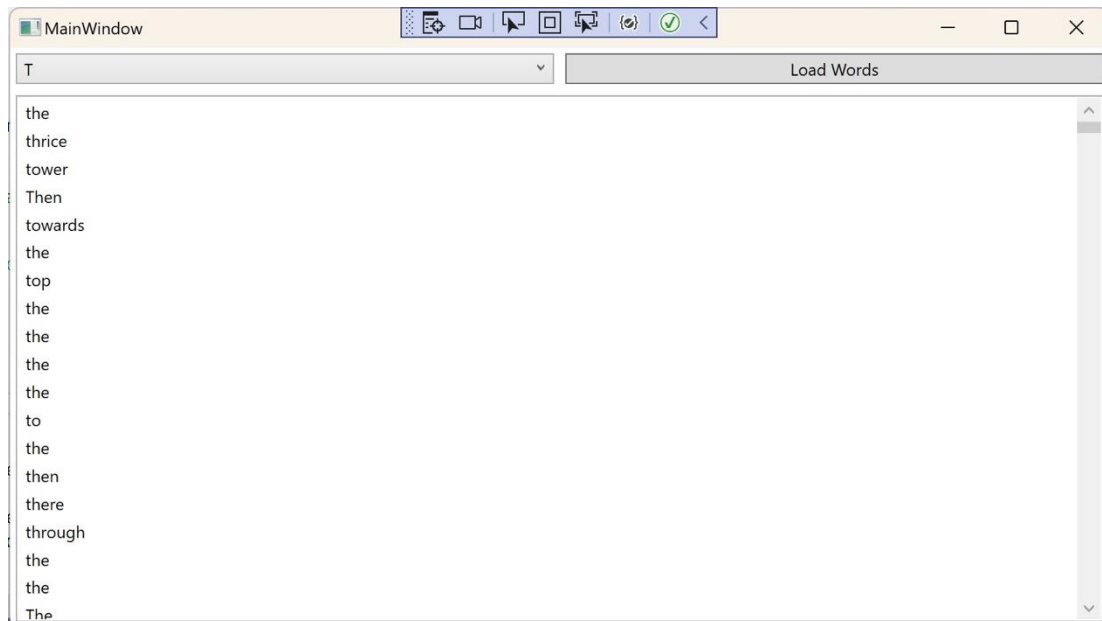
```
Start time: 10:49:25.352 AM. NoMerge children:  
Sally  
Joe  
Lisa  
Start time: 10:49:25.553 AM. DefaultMerge children:  
Sally  
Joe  
Lisa  
Start time: 10:49:25.558 AM. AutoBuffered children:  
Sally  
Joe  
Lisa  
Start time: 10:49:25.560 AM. NotBuffered children:  
Sally  
Joe  
Lisa  
Start time: 10:49:25.562 AM. FullyBuffered children:  
Sally  
Joe  
Lisa  
Finish time: 10:49:25.580 AM  
|
```


Chapter 9: Working with Concurrent Collections in .NET



ParallelExtensionsExtras.NetFxStandard by Microsoft, Sergey Volkov, **13.6K** downloads
Parallel Extensions for the .NET Framework and .NET Standard.
For examples of how to use this library, please visit <https://devblogs.microsoft.com/pfxteam/tag/parallelextensionsextras/>

1.4.0



Lookup Drug by NDC Code

Load Data

NDC Code:

Lookup Drug

Lookup Drug by NDC Code

Load Data

NDC Code:

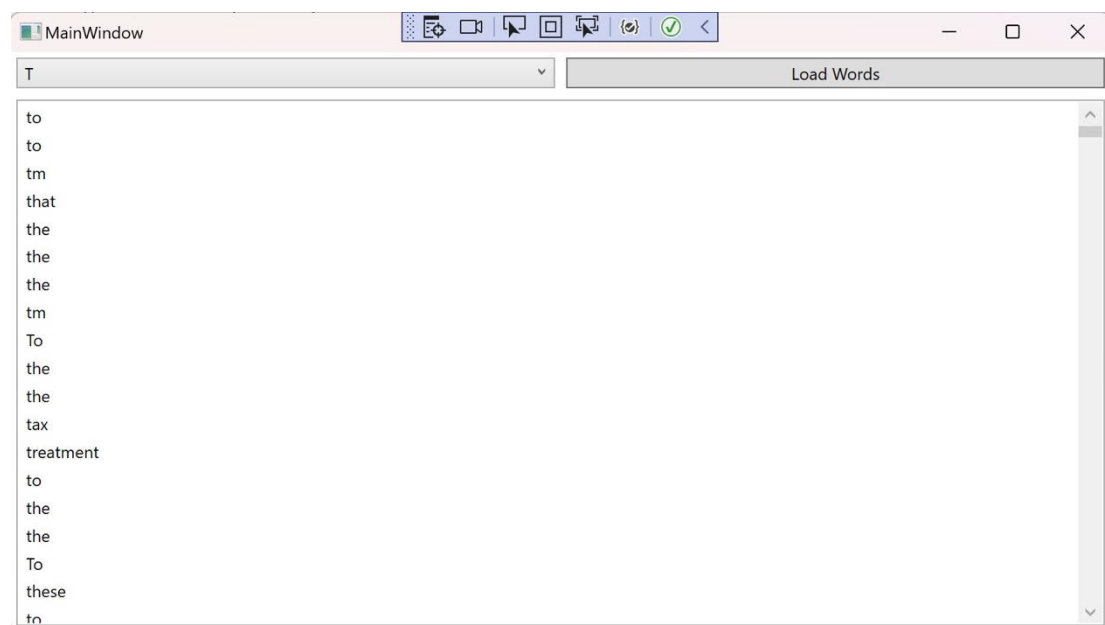
70518-1120

Lookup Drug

Prednisone

```
Microsoft Visual Studio Debu x + v - □ x
Hello, World!
Widget for customer 1
Widget for customer 2
Widget for customer 1
Widget for customer 2
Widget for customer 1
Widget for customer 1
Widget for customer 2
Widget for customer 1
Widget for customer 2
Widget for customer 2

\\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter09\ConcurrentOrderQueue\bin\
Debug\net6.0\ConcurrentOrderQueue.exe (process 15928) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```



Chapter 10: Debugging Multi-Threaded Applications with Visual Studio



Visual Studio Threads window showing 7 threads for Process ID 2040. The table lists thread details including ID, Managed ID, Category, Name, and Location.

ID	Managed ID	Category	Name	Location
8712	1	Main Thread	Main Thread	System.Console.dll!System.ConsolePal.ReadKey
1004	4	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!System.Threading.Monitor.Wait
5624	5	Worker Thread	.NET ThreadPool Gate	System.Private.CoreLib.dll!System.Threading.WaitHandle.WaitOneNoCheck
752	6	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!Interop.Kernel32.GetQueuedCompletionStatus
0	0	Unknown Thread	[Thread Destroyed]	<not available>
9260	9	Worker Thread	<No Name>	BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0
9264	0	Worker Thread	<No Name>	<not available>

Visual Studio Threads window showing 1 thread for Process ID 6424. The table lists thread details including ID, Managed ID, Category, Name, and Location.

ID	Managed ID	Category	Name	Location
10108	8	Worker Thread	<No Name>	BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0 (External Code)

Visual Studio Threads window showing 2 threads for Process ID 6424. The table lists thread details including ID, Managed ID, Category, Name, and Location.

ID	Managed ID	Category	Name	Location
10908	1	Main Thread	Main Thread	System.Console.dll!System.ConsolePal.ReadKey
10108	8	Worker Thread	<No Name>	BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0 (External Code)

Threads

Search

Group by: Process ID

Columns

Flag Just My Code

Flag Custom Module Selection...

Process ID: 6424 (7 threads)

ID	Managed ID	Category	Name	Location
10908	1	Main Thread	Main Thread	System.Console.dll!System.ConsolePal.ReadKey
4612	3	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!System.Threading.Monitor.Wait
10304	4	Worker Thread	.NET ThreadPool Gate	System.Private.CoreLib.dll!System.Threading.WaitHandle.WaitOneNoCheck
9200	5	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!Interop.Kernel32.GetQueuedCompletionStatus
5704	0	Worker Thread	<No Name>	<not available>
10352	0	Worker Thread	<No Name>	<not available>
10108	8	Worker Thread	<No Name>	BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0 BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0 [External Code]

Threads

Search

Group by: Process ID

Columns

Process ID: 6972 (6 threads)

ID	Managed ID	Category	Name	Location
8940	1	Main Thread	Main Thread	BackgroundPingConsoleApp.dll!Program.<Main>\$
8716	3	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!System.Threading.Monitor.Wait
5044	4	Worker Thread	.NET ThreadPool Gate	System.Private.CoreLib.dll!System.Threading.WaitHandle.WaitOneNoCheck
11032	5	Worker Thread	.NET ThreadPool Worker	System.Private.CoreLib.dll!Interop.Kernel32.GetQueuedCompletionStatus
9768	0	Worker Thread	<No Name>	<not available>
5180	8	Worker Thread	<No Name>	BackgroundPingConsoleApp.dll!Program.<Main>\$.AnonymousMethod__0_0

Output Locals Watch 1 Threads

Parallel Stacks

Search (Ctrl+E)

View: Threads

100%

[8940] Main Thread

Program.<Main>\$

[5180] <No Name>

Program.<Main>\$.AnonymousMethod__0_0

[External Code]

3 Threads

[External Code]

Parallel Stacks Diagnostic Tools

Parallel Stacks

Search (Ctrl+E) [magnifying glass icon] [up/down arrows] View: Tasks [dropdown menu] [grid icon] [list icon] [refresh icon] [save icon]

100%

1 Async Logical Stack

- StartupHook.Initialize.AnonymousMethod__0
- Task.Run

Parallel Stacks Diagnostic Tools

Parallel Stacks

Search (Ctrl+E) [magnifying glass icon] [up/down arrows] View: Tasks [dropdown menu] [grid icon] [list icon] [refresh icon] [save icon]

100%

1 Async Logical Stack

- ContinuationTaskFromResultTask<>.InnerInvoke
- Task..cctor.AnonymousMethod__272_0
- ExecutionContext.RunFromThreadPoolDispatchI
- Task.ExecuteWithThreadLocal
- Task.ExecuteEntryUnsafe
- Task.ExecuteFromThreadPool
- ThreadPoolWorkQueue.Dispatch
- WorkerThread.WorkerThreadStart
- Thread.StartCallback

1 Async Logical Stack

- Start<StartupHook.
- StartupHook.Initialize.AnonymousMethod__0
- Task.Run

Parallel Stacks Diagnostic Tools

Parallel Watch 1 - TaskSamples.Examples.PrepareOrders

Filter by Boolean Expression

[Task]	_sharedOrders	<Add Watch>
[6]	Count = 0	View

Parallel Watch 1 Call Stack Exception Settings Immediate Window

Parallel Watch 1 - TaskSamples.Examples.ProcessOrders

Filter by Boolean Expression

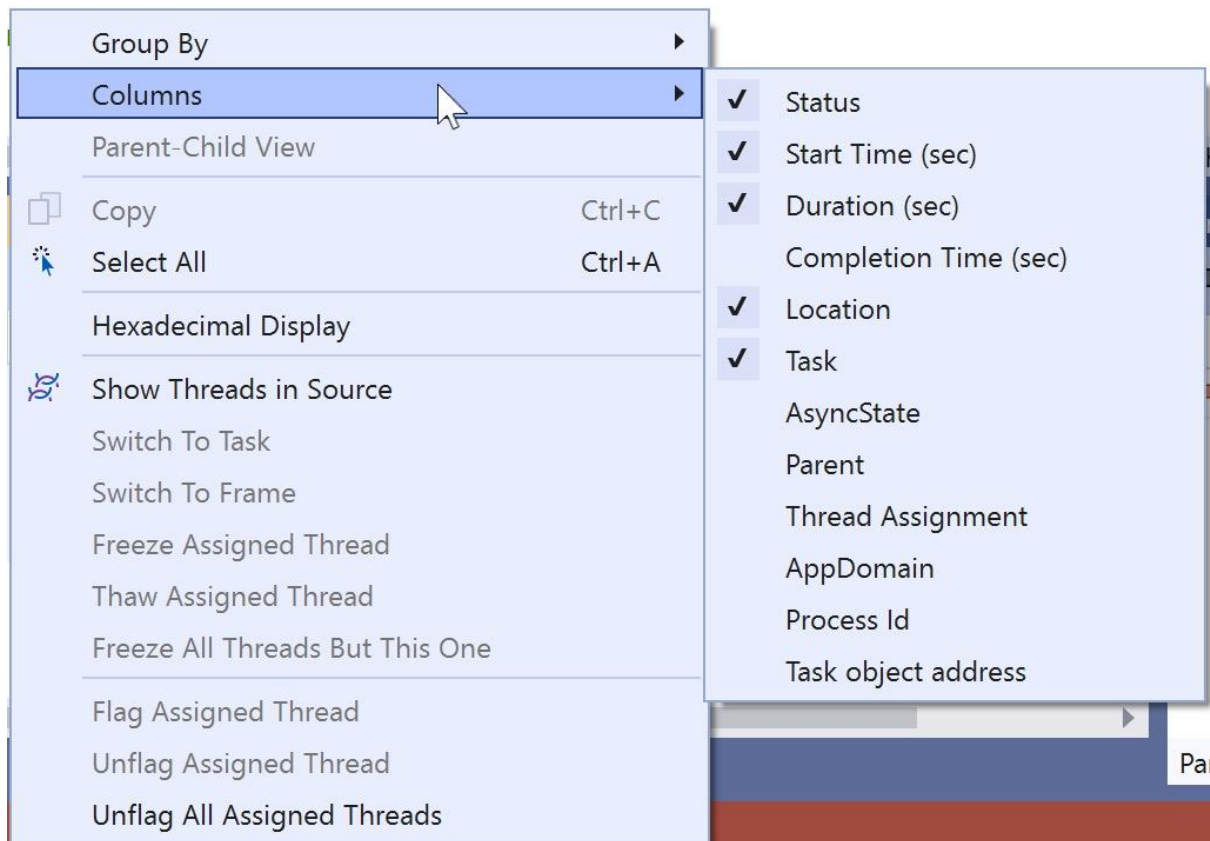
[Thread]	_sharedOrders	<Add Watch>
[3952]	Count = 0	View

Parallel Watch 1 Call Stack Exception Settings Immediate Window

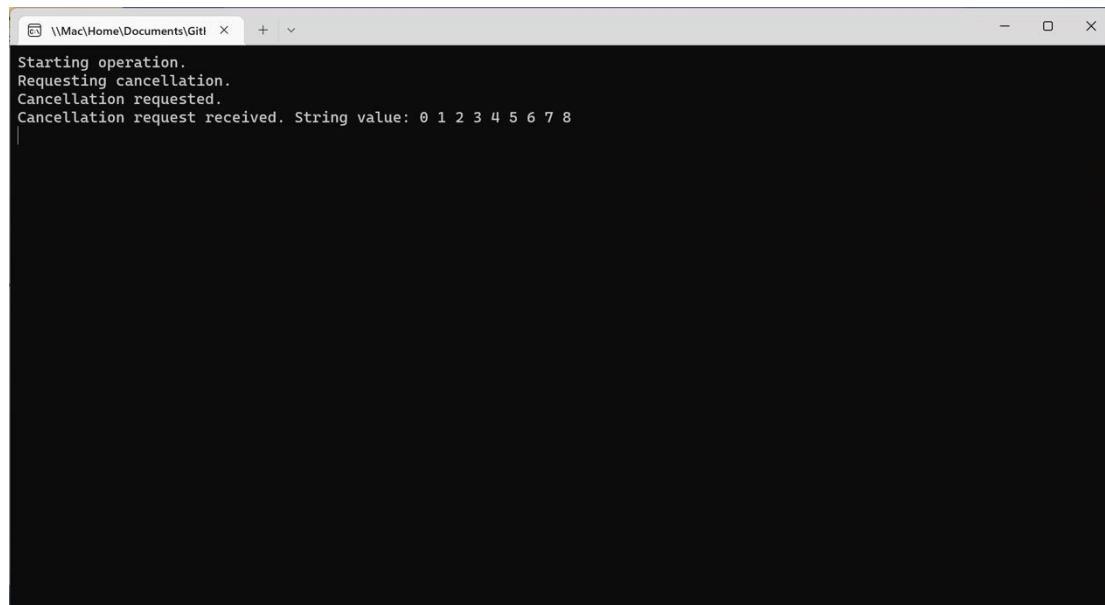
Tasks

ID	Status	Start Tim...	Duration...	Location	Task
5	Awaiting	0.000	17.299	System.Threading.Tasks.U...	System.Threading.Tasks.UnwrapPromise<TResult>.Invoke(completingTask)
6	Active	14.977	2.322	TaskSamples.Examples.Pre	TaskSamples.Examples.<>c__DisplayClass1_0.<ProcessOrders>b_0
4	Active	0.000	17.299	StartupHook.<>c__Display	StartupHook.<>c__DisplayClass1_0.<Initialize>b_0
7	Scheduled	14.977	2.322	[Scheduled and waiting to	Task: <ProcessOrders>b_1

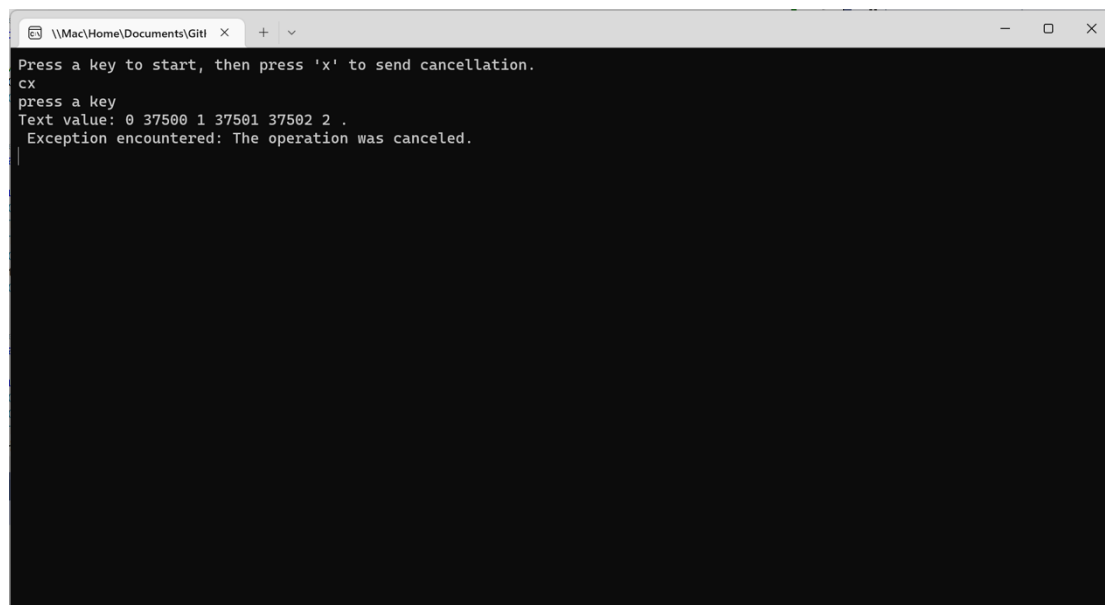
Output Locals Watch 1 Threads Tasks



Chapter 11: Cancelling Asynchronous Work

A terminal window with a title bar showing the file path \\Mac\Home\Documents\Gitl. The terminal output shows a sequence of messages: 'Starting operation.', 'Requesting cancellation.', 'Cancellation requested.', and 'Cancellation request received. String value: 0 1 2 3 4 5 6 7 8'.

```
\\Mac\Home\Documents\Gitl x + v
Starting operation.
Requesting cancellation.
Cancellation requested.
Cancellation request received. String value: 0 1 2 3 4 5 6 7 8
```

A terminal window with a title bar showing the file path \\Mac\Home\Documents\Gitl. The terminal output shows a sequence of messages: 'Press a key to start, then press 'x' to send cancellation.', 'cx', 'press a key', 'Text value: 0 37500 1 37501 37502 2 .', and 'Exception encountered: The operation was canceled.'.

```
\\Mac\Home\Documents\Gitl x + v
Press a key to start, then press 'x' to send cancellation.
cx
press a key
Text value: 0 37500 1 37501 37502 2 .
Exception encountered: The operation was canceled.
```

```
\\Mac\Home\Documents\Gitl x + v
Press a key to start.
Requesting cancel.
Cancel requested.
Exception encountered: The query has been canceled via the token supplied to WithCancellation.
```

```
\\Mac\Home\Documents\Gitl x + v
Hello, World! Press a key to start, then press 'x' to cancel.
cPoint with small X coordinate found. Value: 31
Point with small X coordinate found. Value: 7
Point with small X coordinate found. Value: 21
Point with small X coordinate found. Value: 46
Point with small X coordinate found. Value: 49
Point with small X coordinate found. Value: 32
Point with small X coordinate found. Value: 33
Point with small X coordinate found. Value: 9
Point with small X coordinate found. Value: 13
Point with small X coordinate found. Value: 9
Point with small X coordinate found. Value: 13
Point with small X coordinate found. Value: 39
Point with small X coordinate found. Value: 39
Point with small X coordinate found. Value: 14
Point with small X coordinate found. Value: 41
Press a key to quit
```

```
\\Mac\Home\Documents\Gitl x + v - □ x
Starting download
Download canceled. Exception: The operation was canceled.
```

```
\\Mac\Home\Documents\Gitl x + v - □ x
Use x to cancel, p to pause, or s to start or resume,
Use any other key to quit the program.
Found even number: 0
Found even number: 2
Found even number: 4
Found even number: 6
Found even number: 8
Found even number: 10
Operation canceled.
```

Chapter 12: Unit Testing Async, Concurrent, and Parallel Code

Test Explorer			
Test run finished: 4 Tests (4 Passed, 0 Failed, 0 Skipped) run in 2.4 sec			
Test	Duration	Traits	Error Message
ParallelExample.Tests (4)	635 ms		
ParallelExample.Tests (4)	635 ms		
TextServiceTests (4)	635 ms		
ProcessText_Returns_Expected_Strings	6 ms		
ProcessText_Throws_Exception_For_Empty_String	16 ms		
ProcessTextAsync_Returns_Expected_Strings	392 ms		
ProcessTextAsync_Throws_Exception_For_Empty_String	221 ms		



JetBrains.dotMemoryUnit by JetBrains, **5.11M** downloads

dotMemory Unit is an additional unit testing framework that allows you to write tests that check code for all kinds of memory issues. For example, these can be tests that determine leaks by checking memory for objects of a particular...

```
C:\dev\JetBrains.dotMemoryUnit.3.2.20220510> .\dotMemoryUnit.exe "c:\Program Files\dotnet\dotnet.exe" -- test "c:\dev\net6.0\MemoryExample.Tests.dll"
dotMemory Unit 3.2 part of 2017.3 build 111.0.20200404.84342. Copyright (C) 2015-2020 JetBrains s.r.o.
Microsoft (R) Test Execution Command Line Tool Version 17.2.0 (x64)
Copyright (c) Microsoft Corporation. All rights reserved.

Starting test execution, please wait...
A total of 1 test files matched the specified pattern.
[xUnit.net 00:00:13.02] MemoryExample.Tests.ImageServiceMemoryTests.WorkWithSquares_Releases_Memory_From_Bitmaps [FAIL]
Failed MemoryExample.Tests.ImageServiceMemoryTests.WorkWithSquares_Releases_Memory_From_Bitmaps [10 s]
Error Message:
Assert.Equal() Failure
Expected: 0
Actual: 1
Stack Trace:
   at MemoryExample.Tests.ImageServiceMemoryTests.<>c.<WorkWithSquares_Releases_Memory_From_Bitmaps>b__0_0(Memory memory) in \\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter12\MemoryExample\MemoryExample.Tests\ImageServiceMemoryTests.cs:line 18
   at JetBrains.dotMemoryUnit.dotMemory.Check(Action`1 check)
   at MemoryExample.Tests.ImageServiceMemoryTests.WorkWithSquares_Releases_Memory_From_Bitmaps() in \\Mac\Home\Documents\GitHub\Parallel-Programming-and-Concurrency-with-C-10-and-.NET6\chapter12\MemoryExample\MemoryExample.Tests\ImageServiceMemoryTests.cs:line 17

Failed! - Failed: 1, Passed: 0, Skipped: 0, Total: 1, Duration: < 1 ms - MemoryExample.Tests.dll (net6.0)
C:\dev\JetBrains.dotMemoryUnit.3.2.20220510>
```

```
C:\dev\JetBrains.dotMemoryUnit.3.2.20220510> .\dotMemoryUnit.exe "c:\Program Files\dotnet\dotnet.exe" -- test "c:\dev\net6.0\MemoryExample.Tests.dll"
dotMemory Unit 3.2 part of 2017.3 build 111.0.20200404.84342. Copyright (C) 2015-2020 JetBrains s.r.o.
Microsoft (R) Test Execution Command Line Tool Version 17.2.0 (x64)
Copyright (c) Microsoft Corporation. All rights reserved.

Starting test execution, please wait...
A total of 1 test files matched the specified pattern.

Passed! - Failed:    0, Passed:    1, Skipped:    0, Total:    1, Duration: < 1 ms - MemoryExample.Tests.dll (net6.0)
C:\dev\JetBrains.dotMemoryUnit.3.2.20220510> |
```