

Sela.



ParallelWS

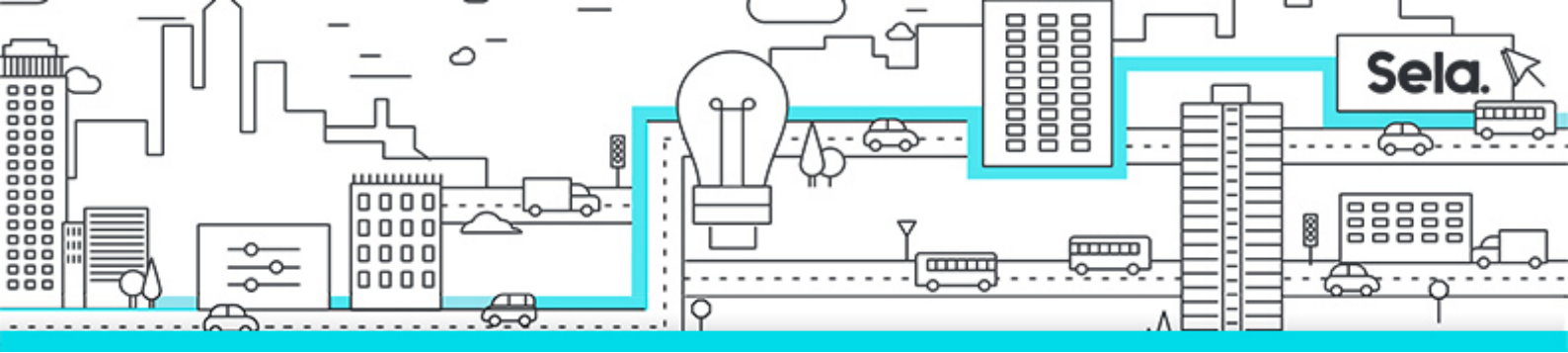
Parallel Programming with the TPL



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Parallel Programming with the TPL

ParalleWS - Version: 1

1 day course

Description:

The goal of this workshop is to introduce the parallel programming in the .NET framework, emphasizing the modern development with TPL (Task Parallel Library) async & await and introduction to TPL Dataflow library. The workshop is including a wide overview of modules and API for parallel programming, emphasizing best practices and avoiding common mistakes. The participations will finish the workshop with understanding of the modules, the techniques and the considerations for parallel working, and a lot of practical tips, support them to maximize the code effectiveness and avoiding mistakes.

Intended Audience:

.NET developers with experience of 2 years and above. Basic understating of parallel programming (threads) - advantage.

Topics:

- **Introduction to parallel programming**
 - Moore's Law
 - Amdahl's Law
 - Hitting the Memory Wall
 - Thread safety
 - Thread & ThreadPool
- **Task API (TPL)**
 - Task
 - Task



- Tuning Task Execution

- **Continuation**

- Tasks vs. APM
- Continuation Patterns

- **Async & Await**

- Concept
- API
- Fork Join
- Async and Disposable

- **Implicit Parallelism**

- Parallel loops
- Pitfalls

- **PLINQ**

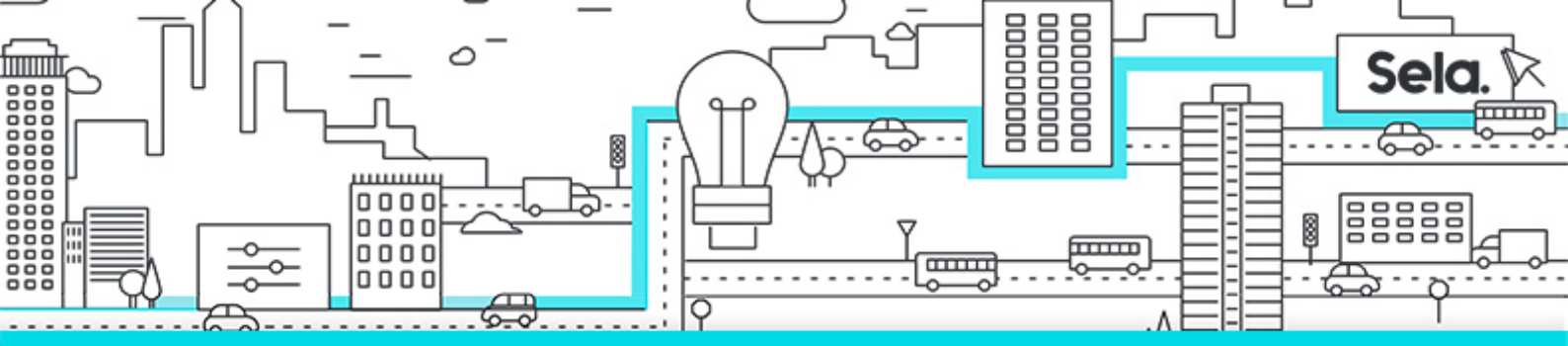
- API
- Pitfalls

- **Await Loops**

- Async For
- Async Linq

- **Parent Child**

- Api
- Continuation
- Diagnostic
- Deny



- **Exception Handling**

- Aggregate Exception
- Async Exception Handling

- **IO Completion Port (IOCP)**

- Concept
- Best Practice
- Async Lambda
- Task-based Asynchronous Pattern (TAP)

- **Cancellation**

- Concept
- API
- Timeout
- Lazy Cancellation

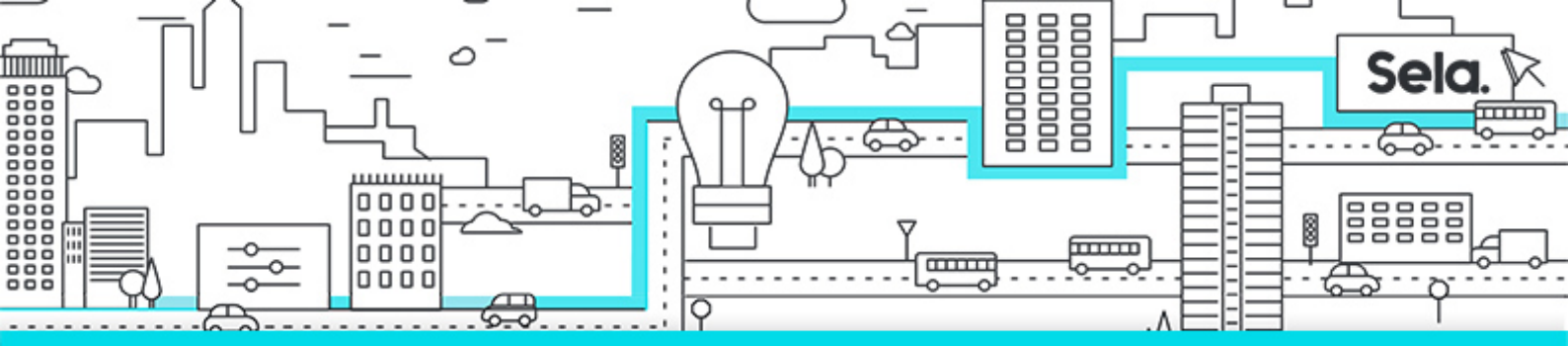
- **Concurrent Collection**

- Concurrent Queue
- Concurrent Stack
- Concurrent Bug
- Blocking Collection
- Concurrent Dictionary

- **Async UI**

- Scheduler
- Async Await
- Configure Await
- Progress

- **Custom Scheduler**



- **Optimization**

- Pest Practice
- Guidelines
- Pitfalls
- Design
- Timeouts

- **Introduction to TPL Dataflow**

- Concept
- Getting started
- Interfaces
- Message patterns
- Action Block
- Throttling
- Buffer Block
- Bounded Capacity
- Broadcast Block
- Transform Block
- Transform Many Block
- Known Bug (warning)
- Tuning multiple blocks
- Web Crawler Demo