Session Survey

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Asynchronous Patterns

- Asynchronous Programming Model (APM)

- Event Asynchronous Pattern (EAP)

- Task Asynchronous Pattern (TAP)

Asynchronous Programming Model (APM)

- Method-Based

- Methods
  - BeginGetData()
  - EndGetData()

- IAsyncResult

Event Asynchronous Pattern (EAP)

- Method/Event-Based
- Method
  - GetDataAsync()
- Event
  - GetDataCompleted
  - Results in EventArgs

Task Asynchronous Pattern (TAP)

- Task-Based
- Method Returns a Task
  - Task<T> GetDataAsync()
- Task
  - Represents a concurrent operation
  - May or may not operate on a separate thread
  - Can be chained and combined

async & await

- Syntactic Wrapper Around Task
  - "await" pauses the current method until Task is complete.
  - Looks like a blocking operation
  - Does not block current thread
- "async" is just a Hint
  - Does not make a method run asynchronously
  - Tells the compiler to treat "await" as noted above

- Task Properties
  - IsCanceled
  - IsCompleted*
  - IsFaulted

Note: Means "no longer running" not "completed successfully"

IsCompletedSuccessfully
- .NET Core
- .NET Standard 2.1
- .NET 6

- NOT .NET Standard 2.0
- NOT .NET Framework

Task Properties

- Task Properties
  - IsCanceled
  - IsCompleted*
  - IsFaulted
  - Status

Note: Means "no longer running" not "completed successfully"

- TaskStatus
  - ***Canceled***
  - Created
  - ***Faulted***
  - ***RanToCompletion***
  - Running
  - WaitingForActivation
  - WaitingForChildrenToComplete
  - WaitingToRun

- AggregateException
  - Tree structure

- Flatten()
  - Flattens the tree structure to a single level

Cancellation

- CancellationToken is ReadOnly
  - new CancellationToken(true)
  - new CancellationToken(false)

- CancellationTokenSource
  - var cts = new CancellationTokenSource()
  - var token = cts.Token
  - cts.Cancel()

Resources

Code Samples & Resources

https://github.com/jeremybytes/vslive2022-austin

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Visual Studio LIVE!
EXPERT SOLUTIONS FOR ENTERPRISE DEVELOPERS

Thank You!

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