**DOTNET Performance Improvement**

**Lab Requirements**

**Windows 10**

**Visual Studio 2017**

**LeakDiag tool**

**CLR Profiler**

**ANTS Profiler**

**Wire Shark**

**Mem Profiler**

**Network Analyser**

**Just Trace**

**Day 1**

**Understanding Memory Management**

* Garbage Collection
* The Large Object Heap
* Garbage Collection and Performance
* Induced Collections
* Latency Modes
* Optimization for Shared Web Hosting
* Garbage Collection Notifications
* Application Domain Resource Monitoring
* Weak References

**Memory Leaks**

* Windows Memory Architecture
  + Allocating Memory
* Managed Heap Fundamentals
* Garbage Collector Internals
  + Generations
  + Roots
  + Finalization
  + Reclaiming GC Memory
  + Large Object Heap
  + Pinning
  + Garbage Collection Modes
  + Configuration Options
  + Measuring and Investigating GC Performance
* Definition of Memory Leak
  + Leaking Stack Memory
  + Leaking Unmanaged Heap Memory
  + Leaking Managed Heap Memory

**Day 2**

**How to Examine Heap**

* Heap Statistics
* Heap Searching

**Leak Detection**

* How to get Memory Snapshot
* Debugging Managed Object Heap Fragmentation
* Object filters
* Object Tracing and Object Graph view (Finding roots)

**Debugging Managed Heap Corruptions**

**Debugging Managed Heap Fragmentation**

**Debugging Out of Memory Exceptions**

**Using Performance Counters**

* Reliability and Performance
* Performance Counters

**Day 3**

**Performance Measure and Leak Detection Tools**

* Event Source class
* Windows Performance Toolkit
* Perf View
* Leak Diagnosis Tool (LeakDialog)
* SOS Debugger Extensions
* Windows Debugger Tools
* CLR Profiler
* ANTS Profiler
* Mem Profiler
* SOAPUI
* vsPerfCmd.exe
* perfview.exe
* WinDbg
* Winshark
* .NetILAnalyzers
* MeasureIt
* p. SysInternals Utilities
* q. dotTrace Prfoiler
* r. JustTrace
* s. YourKit .NET