**Introduction to Dot Net**

* **Objectives**
* **.Net Framework Architecture**
* **Compiling Source Code**
* **Program Execution**
* **The Overall Process**
* **Common Language Runtime (CLR)**
* **Common Language Infrastructure (CLI)**
* **Common Type System (CTS)**
* **Common Language Specification (CLS)**
* **Intermediate Language (IL)**
* **Base Class Library (BCL)**
* **.Net Framework Features**
* **The C# Language**
* **Evolution of C#**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngIntroduction to WWW**

* **Objectives**
* **What is Internet?**
* **World Wide Web (WWW)**
* **What is URL?**
* **URI Vs URL Vs URN**
* **Internet Protocol**
* **HTTP**
* **Important Internet Glossaries**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngC-Sharp Language Fundamentals**

* **Objectives**
* **My First Program**
* **Develop, Compile & Execute C# Program**
* **Console Output**
* **Console Input**
* **Statement**
* **Various Main Methods**
* **Block**
* **Comments**
* **Keywords**
* **Whitespaces**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngVariables & Data Types**

* **Objectives**
* **Variables**
* **Programming Language Classification – Based on Data Types**
* **C# Data Types Groups & Categories**
* **Integers Primitive Value Data Types**
* **Integer Representation**
* **Literals**
* **Integer Literals**
* **Char Data Type**
* **C# Valid Identifiers**
* **Floating Point Types**
* **Float Data Type**
* **Double Data Type**
* **Decimal Data Type**
* **Floating Point Special Values**
* **Real Literals**
* **bool Data Type**
* **Local Variable & Its Scope**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngExpressions & Operators**

* **Objectives**
* **Expressions & Operators**
* **C# Operators**
* **Assignment Operators**
* **Arithmetic Operators**
* **Binary Arithmetic Operators**
* **Relational Operators**
* **Numeric Comparison**
* **Conditional Logical Operators**
* **Bitwise Operators**
* **Increment & Decrement Operators**
* **Compound Assignment Operators**
* **Conditional Operators**
* **Order of Operator Precedence**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngControl Structures**

* **Objectives**
* **Empty Statement**
* **Control Structures**
* **Sequence Structures**
* **Selection Structures**
* **If Selection Structures**
* **Switch Selection Structures**
* **Repetition Structures**
* **While Statement**
* **Do – While Statement**
* **For Statement**
* **Foreach Statement**
* **continue Statement**
* **break Statement**
* **goto Statement**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngImplicit & Explicit Primitive type Conversion**

* **Objectives**
* **Conversion Fundamentals**
* **Implicit Conversions**
* **Implicit Identity Conversion**
* **Implicit Numeric Conversion**
* **Implicit Constant Expression Conversion**
* **Explicit Conversions**
* **Explicit Numeric Conversions**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngOOP in C#**

* **Objectives**
* **What is OOP?**
* **Class**
* **Instance Variables**
* **Member Instance Variables Initializers**
* **Instance Methods**
* **Constructors**
* **This Keyword**
* **Value & Reference Variables and Assignment**
* **Argument Passing**
* **Value Type Vs Reference Data Type**
* **Ref Keyword**
* **Out Keyword**
* **Return Objects**
* **What is Polymorphism?**
* **Method Overloading**
* **Constructor Overloading**
* **Object Initializers**
* **Optional Arguments**
* **Named Arguments**
* **Inheritance**
* **Types of Inheritance**
* **Inheritance in C#**
* **Base Keyword**
* **Upcasting & Downcasting**
* **Method Overriding**
* **Virtual Methods**
* **Constant**
* **Readonly Modifier**
* **Encapsulation**
* **Accessibility**
* **Static Modifier**
* **Sealed Modifier**
* **Nested Class**
* **Recursion**
* **Destructors**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngAbstract Classes & Interfaces**

* **Objectives**
* **Abstract Class**
* **Abstract Member**
* **Abstract Nested Class**
* **Important Points on Abstract Class & Method**
* **Interface**
* **Declaration & Implementation of Interfaces**
* **Implicit Interface Implementation**
* **Explicit Interface Implementation**
* **Implementing More than One Interface**
* **Multiple Interfaces Implementation – Name Conflict**
* **Interface Inheritance**
* **Single Interface Inheritance – Name Conflict**
* **Multiple Interface Inheritance – Name Conflict**
* **Interface Implements in Abstract Class**
* **Interfaces vs Abstract Classes**
* **Interfaces As Parameter**
* **Interfaces As Return Datatype**
* **The is Operator**
* **The as Operator**
* **Interfaces Within a Class**
* **Types of Inheritance**
* **Important Points on Interfaces**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngStructures**

* **Objectives**
* **Quick Recall on Value Type & Reference Type**
* **Structure**
* **Constructors & Destructors**
* **Structure Object Creation**
* **Structure Assignment & Argument Passing**
* **Structure & Inheritance & Polymorphism**
* **Ref & Out Keyword**
* **Structure & Encapsulation**
* **static Modifier**
* **Nested Structure**
* **Summary**
* **Lab Activities**

**http://wisentechnologies.com/ImageDB/arrow_single.pngArrays**

* **Objectives**
* **About Arrays**
* **Single Dimension Arrays**
* **Multi Dimensional Rectangular Arrays**
* **Multi Dimensional Jagged or Ragged Arrays**
* **Array Immutability**
* **Array References**
* **Array length Property**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngProperties**

* **Objectives**

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* **What is Properties?**

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* **Properties Declaration**

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* **Internal Implementation of Properties**

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* **Read-only & Write-Only Properties**

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* **Automatic Implemented Properties**

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* **Auto-Implemented Properties Default Values**

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* **Properties Initialization**

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* **Static Properties**

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* **Access Modifiers With Properties**

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* **Properties & Inheritance**

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* **Abstract Properties**

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* **Implicit Implementation**

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* **Explicit Implementation**

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* **Property Name Hidng**

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* **In the Interface Implemented Class**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngIndexers**

* **Objectives**

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* **What is Indexer?**

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* **Indexer Declaration**

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* **Simple Indexer Program**

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* **Read-only & Write-only Indexers**

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* **Indexing Data using Different Data Type other than Integer**

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* **Overloaded Indexers**

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* **Multi Dimension Indexers**

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* **Indexer Without Underlying Data Store**

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* **Inheritance of Indexers**

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* **Abstract Indexers**

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* **Implicit Implementation**

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* **Explicit Implementation**

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* **Indexer Hiding**

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* **In the Interface Implemented Class**

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* **Indexer Restrictions**

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* **Indexer Vs Properties & Indexers Vs Arrays**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngOperator Overloading**

* **Objectives**

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* **Operator Overloading Overview**

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* **Operator Overloading Definition**

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* **First Unary Operator Overloading**

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* **Unary Operator Overloading**

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* **First Binary Operator Overloading**

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* **Relational Operator Overloading**

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* **Logical Operator Overloading**

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* **Short circuit && and || Operator Overloading**

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* **Bitwise Operator Overloading**

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* **Internal Implementation of Overloaded Operators**

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* **User Defined Conversion**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngDelegates & Events**

* **Objectives**

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* **Overview of Delegates**

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* **Delegate Declaration**

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* **Assigning Delegate**

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* **Multicasting**

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* **Delegates with Return Values**

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* **Important Points on Delegate**

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* **Event Overview**

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* **Publishing an Event**

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* **Subscribing an Event**

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* **Raising an Event**

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* **Event – A Complete Example**

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* **Events with static Keyword**

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* **Multicast Events**

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* **Covariance & Contravariance**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngAnonymous Methods & Lambda Expressions**

* **Objectives**

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* **Anonymous Functions**

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* **Overview of Anonymous Method**

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* **Anonymous Method Declaration**

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* **Anonymous Method Return Type**

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* **Pass Argument to an Anonymous Method**

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* **Scope of Various Variables & Parameters**

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* **Captured Variables Side Effect**

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* **Important points on Anonymous Method**

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* **Overview of Lambda Expressions**

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* **Expression Lambda**

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* **Statement Lambda**

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* **Important points of Lambda Expressions**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngNamespaces**

* **Objectives**

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* **Compilation Unit & Assembly Namespace**

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* **Namespace Declaration**

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* **Nested Namespace**

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* **using Keyword**

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* **Namespace Aliases**

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* **Namespaces are Additive**

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* **Namespace Alias Qualifier**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngEnums & Preprocessors**

* **Objectives**

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* **Enum Overview**

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* **Enum Declaration**

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* **Conversion**

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* **Specify the Underlying Type & Explicit Values**

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* **Important points on Enum**

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* **Preprocessor Overview**

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* **#define and #undef Directives**

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* **Conditional Compilation**

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* **#region & #endregion Preprocessor**

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* **Diagnostic Directives**

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* **#line directive**

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* **#pragma Directive**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngSystem Namespace**

* **Objectives**

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* **System Namespace**

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* **Object**

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* **Array Class**

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* **Convert Class**

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* **Math Class**

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* **Random Class**

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* **Console Class**

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* **ValueType class**

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* **Boolean Structure**

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* **Byte Structure**

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* **SByte Structure**

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* **Other .Net Structure to the Primitive Value Data Types**

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* **Char**

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* **Single Structure**

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* **Double Structure**

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* **Decimal**

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* **DateTime Structure**

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* **DateTimeOffset**

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* **TimeSpan Structure**

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* **Boxing & Unboxing**

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* **String**

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* **StringBuilder Class**

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* **IComparable interface**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngFormatting**

* **Objectives**

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* **Formatting Fundamentals**
* **Creating Formatted String**

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* **Standard Number Formatting**

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* **Custom Number Formatting**

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* **Standard Date & Time Formatting**

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* **Custom Date & Time Formatting**

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* **Standard TimeSpan Formatting**

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* **Custom TimeSpan Formatting**

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* **Enumeration Formatting**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngException Handling**

* **Objectives**

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* **Errors & its Types**

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* **Getting Started with Exception**

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* **Try-catch Block**

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* **Multiple Catch**

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* **Nested try-catch Blocks**

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* **Finally Block**

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* **Throw Statement**

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* **Exception Class**

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* **User Defined Exceptions**

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* **Commonly Used Pre-build Exceptions**

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* **Checked & Unchecked Exception**

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* **Catching Derived Class Exceptions**

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* **Unreachable Code**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngCollections**

* **Objectives**

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* **Getting Started with Collections**

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* **System.Collection Namespace**

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* **IEnumerator Interface**

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* **IEnumerable Interface**

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* **ICollection Interface**

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* **IList**

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* **ArrayList**

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* **Stack Class**

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* **Queue Class**

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* **CollectionBase Class**

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* **ReadOnlyCollectionBase Class**

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* **IDictionary Interface**

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* **IComparer Interface & Comparer, CaseInsensitiveComparer**

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* **IEqualityComparer Interface**

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* **StructuralComparisons Class**

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* **DictionaryEntry Structure**

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* **IDictionaryEnumerator**

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* **Hashtable**

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* **SortedList Class**

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* **DictionaryBase Class**

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* **Structural Comparisons**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngGenerics**

* **Objectives**

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* **Generics Fundamentals**

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* **Generic Class**

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* **Constructed Type**

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* **Constrained Type**

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* **Base Class Constraints**

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* **Interface Constraints**

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* **Reference Type & Value Type Constraints**

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* **Constructor Constraints**

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* **Default Values for the Type Parameter**

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* **Generic Methods**

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* **Generic Structures**

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* **Generic Delegates**

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* **Generic Interfaces**

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* **Generic Method Overloading**

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* **Inheritance in Generic Classes**

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* **Covariance in Generics**

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* **Contravariance in Generics**

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* **Summary**

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* **Lab Activities**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngGeneric Collections**

* **Objectives**

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* **System.Collection.Generic**

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* **IEnumerator Interface**

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* **IEnumerable Interface**

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* **ICollection Interface**

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* **IList Interface**

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* **List Class**

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* **LinkedListNode**

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* **LinkedList**

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* **Stack Class**

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* **Queue Class**

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* **ISet Interface**

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* **HashSet**

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* **SortedSet**

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* **IDictionary Interface**

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* **Dictionary Class**

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* **Dictionary.KeyCollection Class**

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* **Dictionary.ValueCollection**

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* **SortedList**

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* **KeyValuePair Structure**

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* **SortedDictionary Class**

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* **SortedDictionary.KeyCollection**

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* **SortedDictionary.ValueCollection Class**

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* **IComparer & Comparer**

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* **IEqualityComparer & EqualityComparer**

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* **IReadOnlyCollection Interface**

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* **IReadOnlyDictionary**

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* **IReadOnlyList**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngSpecialized Collections**

* **Objectives**

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* **System.Collections.Specialized Namespace**

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* **CollectionsUtil**

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* **HybridDictionary**

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* **ListDictionary**

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* **NameObjectCollectionBase.KeysCollection**

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* **NameObjectCollectionBase**

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* **IOrderedDictionary**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngThreading**

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* **Thread Delegates**

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* **Deadlock & Race Condition**

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* **Using MethodImplAttribute**

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* **Mutex Class**

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* **Semaphore Class**

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* **Interlocked Class**

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* **ThreadPool Class**

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* **Timer Class**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngSystem.IO**

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* **System.IO Namespace**

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* **DriveInfo Class**

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* **Directory Class**

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* **FileSystemInfo Class**

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* **FileInfo Class**

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* **Stream**

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* **FileStream Class**

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* **BufferedStream Class**

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* **MemoryStream Class**

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* **BinaryReader Class**

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* **BinaryWriter Class**

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* **StreamWriter**

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**http://wisentechnologies.com/ImageDB/arrow_single.pngImplicit & Explicit Type Casting**

* **Objectives**

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* **Implicit Enumeration Conversion**

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* **Implicit Null Literal Conversion**

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* **Implicit Nullable Conversions**

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* **Implicit Reference Conversions**

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* **Implicit Boxing Conversion**

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* **User Defined Implicit Conversions**

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* **Implicit Anonymous Method & Method Group Conversions**

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* **Explicit Enumeration Conversion**

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* **Explicit Nullable Conversions**

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* **Explicit Reference Conversions**

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* **Explicit Unboxing Conversion**
* **Explicit Dynamic Conversion**
* **User Defined Explicit Conversions**
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