

Common Framework Library (20% 4 pages)

Systems.Collections Namespace (Queue, Stack, Collection) | System (Bool, Char, Math, String, Exception)
Next: Finish Exception, HasTable, SortedList, Web, ArrayList. IO, etc...

System.Collections Namespace

The System.Collections namespace contains interfaces and classes that define various collections of objects, such as lists, queues, bit arrays, has tables, and dictionaries.

ArrayList | BitArray | CaseInsensitiveComparer | CaseInsensitiveHashCodeProvider | CollectionBase | Comparer | DictionaryBase | HashTable | Queue | ReadOnlyCollectionBase | SortedList | Stack | Structural Comparisons

SYSTEM.COLLECTIONS.QUEUE

Represents a generic object collection FIFO

- Queue | Queue(ICollection) | Queue(Int32) | Queue(Int32, Single)
- Properties: Count, IsSynchronized, SyncRoot
- Methods:
- Clear() | Clone() | Contains(Object)
- CopyTo(Array, Int32) | DeQueue() | Enqueue(Object) | Equals(Object) | Finalize()
- GetEnumerator() | GetHashCode() | GetType() | MemberwiseClone() | Peek()
- ToArray() | ToString() | TrimToSize()

SYSTEM.COLLECTIONS.STACK

Represents a generic object collection LIFO

- Constructors: Stack() | Stack(ICollection) | Stack(Int32)
- Properties: Count | IsSynchronized | SyncRoot
- Methods:
- Clear() | Clone() | Contains(Object) | CopyTo(Array, Int32) | Equals(Object) | Finalize()
- GetEnumerator() | GetHashCode() | GetType()
- MemberwiseClone()
- Peek() | Pop() | Push(Object)
- Synchronized(Stack) | ToArray() | ToString()
- Extension Methods:
- AsParallel() | AsQueryable() | Cast<TResult>() | OfType<TResult>()

SYSTEM.COLLECTIONS.GENERIC

The System.Collections.Generic namespace contains interfaces and classes that define generic collections, which allow users to create strongly typed collections that provide better type safety and performance than non-generic strongly typed collections.

- Classes: `Comparer<T>` | `Dictionary<TKey, TValue>` | `EqualityComparer<T>` | `HashSet<T>` | `Dictionary<TKey, TValue>.KeyCollection` | `SortedDictionary<TKey, TValue>.KeyCollection` | `KeyedByTypeCollection<TItem>` | `KeyNotFoundException` | `LinkedList<T>` | `LinkedListNode<T>` | `List<T>` | `Queue<T>` | `SortedDictionary<TKey, TValue>` | `SortedList<TKey, TValue>` | `SortedSet<T>` | `Stack<T>` | `SynchronizedCollection<T>` | `SynchronizedKeyedCollection<K,T>` | `SynchronizedReadOnlyCollection<T>` | `Dictionary<TKey, TValue>.ValueCollection` | `SortedDictionary<TKey, TValue>.ValueCollection`
- Structures: `Dictionary<TKey, TValue>.Enumerator` | `Dictionary<TKey, TValue>.KeyCollection.Enumerator` | `HashSet<T>.Enumerator` | `LinkedList<T>.Enumerator` | `List<T>.Enumerator` | `Queue<T>.Enumerator` | `SortedDictionary<TKey, TValue>.Enumerator` | `SortedDictionary<TKey, TValue>.KeyCollection.Enumerator` | `SortedSet<T>.Enumerator` | `Stack<T>.Enumerator` | `KeyValuePair<TKey, TValue>`

Many of the generic collection types are direct analogs of nongeneric types. [Dictionary<TKey, TValue>](#) is a generic version of [Hashtable](#); it uses the generic structure [KeyValuePair<TKey, TValue>](#) for enumeration instead of [DictionaryEntry](#). [List<T>](#) is a generic version of [ArrayList](#). There are generic [Queue<T>](#) and [Stack<T>](#) classes that correspond to the nongeneric versions. There are generic and nongeneric versions of [SortedList<TKey, TValue>](#). Both versions are hybrids of a dictionary and a list. The [SortedDictionary<TKey, TValue>](#) generic class is a pure dictionary and has no nongeneric counterpart. The [LinkedList<T>](#) generic class is a true linked list and has no nongeneric counterpart.

System

SYSTEM.BOOL

- `CompareTo(Boolean)` | `CompareTo (Object)`
- `Equals(Boolean)` | `Equals (Object)`
- `GetHashCode()` | `GetType()` | `GetTypeCode()`
- `Parse(String)` | `ToString()` | `ToString(IFormatProvider)` | `TryParse()`

SYSTEM.CHAR

- `CompareTo(Char)` | `CompareTo(Object)`
- `ConvertFromUtf32(Int32)` | `ConvertFromUtf32(Char, Char)` | `ConvertUtf32(String, Int32)`
- `Equals(Char)` | `Equals(Object)`
- `GetHashCode()` | `GetNumericValue(Char)` | `GetNumericValue (String, Int32)` | `GetType()` | `GetTypeCode()`
- `IsDigit(Char)` | `IsDigit(String, Int32)` | `IsHighSurrogate(Char)` | `IsHighSurrogate(String, Int32)` | `IsLetter(Char)` | `IsLetter(String, Int32)` | `IsLetterOrDigit(Char)` | `IsLetterOrDigit(String, Int32)` |

IsLower(Char) | IsLower(String, Int32) | IsNumber(Char) | IsNumber (String, Int32) |
 IsPunctuation(Char) | IsPunctuation(String, Int32) | IsSeparator(Char) | IsSeparator(String, Int32) |
 IsSurrogate(Char) | IsSurrogate(String, Int32) | IsSymbol(Char) | IsSymbol (String, Int32) |
 IsUpper(Char) | IsUpper(String, Int32) | IsWhiteSpace(Char) | IsWhiteSpace(String, Int32)
 • Parse(String) | ToLower(Char) | ToLower(Char, CultureInfo) | ToLowerInvariant(Char) | ToString() |
 ToString(Char) | ToUpper(Char) | ToUpper(Char, CultureInfo) | TryParse(String, Char)

SYSTEM.MATH

- Constants: E, PI
- Methods:
- Abs(Decimal) | Abs(Double) | Abs(Int16) | Abs(Int32) | Abs(Int 64) | Abs(SByte) | Abs(Single) | Abs(Double)
- Acos(Double) | Asin(Double) | Atan(Double) | Atan2(Double, Double)
- BigMul(Int32, Int32)
- Ceiling(Decimal) | Ceiling(Double) | Cos(Double) | Cosh(Double) | DivRem(Int32, Int32, Int32)
- Exp(Double) | Floor(Decimal) | Floor(Double) | IEEERemainder(Double, Double) | Log(Double) | Log(Double, Double) | Log10(Double) | Max(Byte, Byte) | Max(Decimal, Decimal) Max(Double, Double) | Max(Int16, Int16) | Max(Int32, Int32) | Max(Int64, Int64) | Min(Decimal, Decimal) – various other Min methods like max
- Pow(Double, Double) | Round(Decimal) | Round(Decimal, Int32) | Round(Decimal, Int32, MidpointRounding) | Round(Double) and so on....
- Sign(Decimal) and various other parameter types
- Sin(Double) | Sinh(Double) | Sqrt(Double) | Tan(Double) | Tanh(Double)
- Truncate(Decimal) | Truncate(Double)

SYSTEM.OBJECT

- Equals(Object) | Equals(Object, Object)
- Finalize() | GetHashCode() | GetType()
- MemberwiseClone() | ReferenceEquals(Object, Object)
- ToString()

SYSTEM.STRING

- CONSTRUCTORS: String(Char*) | String(Char*, Int32, Int32) | String (Char, Int32) | String(Char[]) | String(Char[], Int32, Int32) | String(SByte*) | String(SByte*, Int32, Int32) | String(SByte*, Int32, Int32)
- Properties: Chars[Int32], Length
- Methods:
- Clone() | Compare(String, Int32, String, Int32, Int32, Boolean, CultureInfo) ... various other compare methods | CompareOrdinal(String, Int32, String, Int32, Int32) | CompareOrdinal(String, String) | CompareTo(Object) | CompareTo(String)
- Concat(IEnumerable<String>) | Concat(Object) | Concat(Object, Object) | Concat(Object, Object, Object) | Concat(Object, Object, Object, Object) | Concat(Object[]) various other Concat methods

- Contains(String) | Copy(String) | CopyTo(Int32, Char[], Int32, Int32)
- EndsWith(String) | EndsWith(String, Boolean, CultureInfo) | EndsWith(String, StringComparison)
- Equals(Object) | Equals(String) | Equals(String, String) | Equals(String, String, StringComparison) other equals methods
- Format(IFormatProvider, String, Object) | Format(IFormatProvider, String, Object, Object) various other format methods
- GetEnumerator() | GetHashCode() | GetType() | GetTypeCode()
- IndexOf(Char) | IndexOf(Char, Int32) | IndexOf(Char, Int32, Int32) various other IndexOf methods | IndexOfAny(Char[]) various other index of any methods
- Insert(Int32, String) | Intern(String) | IsInterned(String) | IsInterened(String) | IsNormalized() | IsNormalized(NormalizationForm) | IsNullOrEmpty(String) | IsNullOrWhiteSpace(String)
- Join(String, IEnumerable<String>) various other Join methods
- LastIndexOf(Char) various other LastIndexOf methods | LastIndexOfAny(Char[])
- Normalize() | Normalize(NormalizationForm)
- PadLeft(Int32) | PadLeft (Int32, Char) | PadRight(Int32) | PadRight(Int32, Char)
- Remove(Int32) | Replace(Char, Char) | Replace(String, String)
- Split(Char[]) | Split(Char[], Int32) various other split methods
- StartsWith(String) various other StartsWith methods
- Substring(Int32) | Substring (Int32, Int32)
- ToCharArray() | ToCharArray(Int32, Int32) | ToLower() | ToLowerInvariant() | ToString() | ToUpper() | ToUpperInvariant() | Trim() | Trim(Char[]) | TrimEnd(Char[]) | TrimStart(Char[])

SYSTEM.EXCEPTION

Some exceptions are thrown automatically by the .NET Framework's common language runtime (CLR) when basic operations fail. These exceptions and their error conditions are listed in the following table.

ArithmeticException | ArrayTypeMismatchException | DivideByZeroException | IndexOutOfRangeException | InvalidCastException | NullReferenceException | OutOfMemoryException | OverflowException | StackOverflowException | TypeInitializationException

SystemException Represents errors that occur during application execution.

Properties of any Exception: Data | HelpLink | Hresult | InnerException | Message | Source | StackTrace | TargetSite

Methods of any Exception: Equals(Object) | Finalize | GetBaseException() | GetHashCode | GetObjectData(SerializationInfo, StreamingContext) | GetType() | MemberwiseClone() | ToString()

All .NET exceptions live in one of the classes from the following list of exception classes, for example InternalLoggerException may be an exception or a class containing other exceptions

- Inheritance Hierarchy: SystemObject > System.Exception >
- **Microsoft.Build.BuildEngine:** InternalLoggerException | Invalid ProjectFileException | InvalidToolsetDefintionException | RemoteException

- **Microsoft.Build.Exceptions:** BuildAbortedException | InternalLoggerException | InvalidProjectFileException | InvalidToolSetDefinitionException
- **Microsoft.Build.Framework:** LoggerException
- **Microsoft.CSharp.RuntimeBinder:** RuntimeBinderException | RuntimeBinderInternalCompilerException
- **Microsoft.JScript:** CmdLineException | ParserException
- **System.Activities:** DynamicUpdate.InstanceUpdateException | ExpressionParser.SourceExpressionException | Expressions.LambdaSerializationException | InvalidWorkflowException | Presentation.Metadata.AttributeTableValidationException | Statements.WorkflowTerminatedException | VersionMismatchException | WorkflowApplicationException
- **System.AddIn.Hosting:** AddInSegmentDirectoryNotFoundException | Hosting.InvalidPipelineStoreException
- **System:** AggregateException | ApplicationException
- **System.ComponentModel.Composition:** CompositionContractMismatchException | CompositionException | ImportCardinalityMismatchException | Primitives.ComposablePartException
- **System.ComponentModel:** DataAnnotations.ValidationException | Design.ExceptionCollection
- **System.Configuration:** Provider.ProviderException | SettingsPropertyIsReadOnlyException | SettingsPropertyNotFoundException | SettingsPropertyWrongTypeException
- **System.Data.Linq.ChangeConflictException**
- **System.Diagnostics:** Eventing.Reader.EventLogException | System.Diagnostics.Tracing.EventSourceException

[System.DirectoryServices.ActiveDirectory.ActiveDirectoryObjectExistsException](#)
[System.DirectoryServices.ActiveDirectory.ActiveDirectoryObjectNotFoundException](#)
[System.DirectoryServices.ActiveDirectory.ActiveDirectoryOperationException](#)
[System.DirectoryServices.ActiveDirectory.ActiveDirectoryServerDownException](#)
[System.DirectoryServices.Protocols.DirectoryException](#)
[System.IdentityModel.AsynchronousOperationException](#)
[System.IdentityModel.Metadata.MetadataSerializationException](#)
[System.IdentityModel.Protocols.WSTrust.WSTrustSerializationException](#)
[System.IdentityModel.RequestException](#)
[System.IdentityModel.Selectors.CardSpaceException](#)
[System.IdentityModel.Selectors.IdentityValidationException](#)
[System.IdentityModel.Selectors.PolicyValidationException](#)
[System.IdentityModel.Selectors.ServiceBusyException](#)
[System.IdentityModel.Selectors.ServiceNotStartedException](#)
[System.IdentityModel.Selectors.StsCommunicationException](#)
[System.IdentityModel.Selectors.UnsupportedPolicyOptionsException](#)
[System.IdentityModel.Selectors.UntrustedRecipientException](#)
[System.IdentityModel.Selectors.UserCancellationException](#)
[System.IdentityModel.Services.AsynchronousOperationException](#)
[System.IdentityModel.Services.FederatedAuthenticationSessionEndingException](#)
[System.IdentityModel.Services.FederationException](#)
[System.IdentityModel.Services.WSFederationMessageException](#)
[System.InvalidTimeZoneException](#)

[System.IO.IsolatedStorage.IsolatedStorageException](#)
[System.IO.Log.SequenceFullException](#)
[System.Management.Instrumentation.InstrumentationBaseException](#)
[System.Management.Instrumentation.WmiProviderInstallationException](#)
[System.Net.Http.HttpRequestException](#)
[System.Net.Mail.SmtpException](#)
[System.Net.PeerToPeer.PeerToPeerException](#)
[System.Runtime.CompilerServices.RuntimeWrappedException](#)
[System.Runtime.DurableInstancing.InstancePersistenceException](#)
[System.Runtime.Remoting.MetadataServices.SUDSGeneratorException](#)
[System.Runtime.Remoting.MetadataServices.SUDSParserException](#)
[System.Runtime.Serialization.InvalidDataContractException](#)
[System.Security.RightsManagement.RightsManagementException](#)
[System.ServiceModel.Channels.InvalidChannelBindingException](#)
[System.SystemException](#)
[System.Threading.BarrierPostPhaseException](#)
[System.Threading.LockRecursionException](#)
[System.Threading.Tasks.TaskSchedulerException](#)
[System.TimeZoneNotFoundException](#)
[System.Web.Query.Dynamic.ParseException](#)
[System.Web.Security.MembershipCreateUserException](#)
[System.Web.Security.MembershipPasswordException](#)
[System.Web.UI.ViewStateException](#)
[System.Web.UI.WebControls.EntityDataSourceValidationException](#)
[System.Web.UI.WebControls.LinqDataSourceValidationException](#)
[System.Windows.Automation.NoClickablePointException](#)
[System.Windows.Automation.ProxyAssemblyNotLoadedException](#)
[System.Windows.Controls.PrintDialogException](#)
[System.Windows.Forms.AxHost.InvalidActiveXStateException](#)
[System.Windows.Xps.XpsException](#)
[System.Windows.Xps.XpsWriterException](#)
[System.Workflow.Activities.Rules.RuleException](#)
[System.Workflow.ComponentModel.Compiler.WorkflowValidationFailedException](#)
[System.Workflow.ComponentModel.Serialization.WorkflowMarkupSerializationException](#)
[System.Workflow.ComponentModel.WorkflowTerminatedException](#)
[System.Workflow.Runtime.WorkflowOwnershipException](#)
[System.Xaml.XamlException](#)