Microsoft .NET Framework 3.5

Commonly Used Types and Namespaces

Microsoft .net Framework 3.5

Windows Presentation Foundation

System.Windows
Style
Trigger
UIElement3D NEW
Visibility
Window

System.Windows.Controls
Border
Button
CheckBox
ColumnDefinition
ContextMenu
ControlTemplate
DockPanel
FlowDocumentReader
Frame
Grid
Image
InkCanvas
ItemCollection
ItemsPresenter
ListBox
ListView
MediaElement
Menu
MenuItem
Page
PasswordBox
ProgressBar
RadioButton
RichTextBox
RowDefinition
ScrollViewer
Slider
SpellCheck
StackPanel
TabControl
TabItem
TextBlock
TextBox
ToolBar
ToolTip
TreeView
UIElementCollection
ViewBox
Viewport3D
VirtualizingStackPanel
WrapPanel

System.Windows.Controls.Primitives
Popup
RepeatButton
ScrollBar
StatusBar
TabPanel
Thumb
ToggleButton
UniformGrid

System.Windows.Data
Binding
CollectionView
DataSourceProvider
MultiBinding
ObjectDataProvider
XmlDataProvider

System.Windows.Documents
Block
Bold
Figure
FixedDocument
Floater
FlowDocument
Hyperlink
Inline
Italic
List
ListItem
Paragraph
Run
Section
Span
Table
TableCell
TableColumn
TableRowGroup
TextPointer
TextRange
TextSelection
Underline

System.Windows.Documents.Serialization
SerializerDescriptor
SerializerProvider
SerializerWriter

System.Windows.Forms.Integration
ElementHost
WindowsFormsHost

System.Windows.Input
Cursor
Cursors
FocusManager
InputDevice
Keyboard
KeyboardNavigation
Mouse
Stylus

System.Windows.Interop
BrowserInteropHelper
HwndHost
InteropBitmap
WindowInteropHelper

System.Windows.Markup
MarkupExtension
XamlReader
XamlWriter

System.Windows.Media
Color
DrawingBrush
ImageBrush
LinearGradientBrush
RadialGradientBrush
RotateTransform
ScaleTransform
SolidColorBrush

System.Windows.Media.Animation
DoubleAnimation
Storyboard
Timeline

System.Windows.Media.Effects
BlurBitmapEffect
DropShadowBitmapEffect

System.Windows.Media.Imaging
BitmapImage
RenderTargetBitmap
WritableBitmap

System.Windows.Media.Media3D
AmbientLight
DiffuseMaterial
DirectionalLight
GeometryModel3D
ModelVisual3D
PerspectiveCamera
SpecularMaterial

System.Windows.Navigation
BaseUriHelper
JournalEntry
NavigationWindow
PageFunction<T>

System.Windows.Shapes
Ellipse
Line
Path
Polygon
Rectangle

System.Windows.Threading
DispatcherObject
DispatcherTimer

System.Windows.Xps
VisualToXpsDocument
XpsDocumentWriter

System.Windows.Xps.Serialization
XpsSerializationManager
XpsSerializationManagerAsync

Windows Forms

System.Drawing
Bitmap
Brush
Color
Font
Icon
Image
Pen

System.Drawing.Printing
PrintDocument
PrinterSettings

System.Media
SoundPlayer

System.Windows.Forms
Button
CheckBox
ComboBox
DataGrid
DateTimePicker
Form
Label
ListBox
ListView
MessageBox
NumericUpDown
OpenFileDialog
PictureBox
ProgressBar
RadioButton
RichTextBox
TabControl
TextBox
TreeView
UserControl
WebBrowser

ASP.NET

System.Web
HttpApplication
HttpCookie
HttpRequest
HttpResponse
HttpRuntime
HttpServerUtility

System.Web.ApplicationServices NEW
AuthenticationService NEW
ProfileService NEW
RoleService NEW

System.Web.Caching
Cache

System.Web.ClientServices NEW
ClientFormsIdentity NEW
ClientRolePrincipal NEW
ConnectivityStatus NEW

System.Web.ClientServices.Providers NEW
ClientFormsAuthenticationMembershipProvider NEW
ClientRoleProvider NEW

System.Web.Compilation
BuildProvider

System.Web.Configuration
WebConfigurationManager

System.Web.Hosting
ApplicationManager

System.Web.Management
WebBaseEvent

System.Web.Security
FormsAuthentication
FormsIdentity
Membership
Roles

System.Web.SessionState
HttpSessionState

System.Web.UI
Control
MasterPage
Page
ScriptManager NEW
UpdatePanel NEW
UpdateProgress NEW
UserControl

System.Web.UI.HtmlControls
HtmlButton
HtmlControl
HtmlForm
HtmlInputControl

System.Web.UI.WebControls NEW
Content
DetailsView
FormView
GridView
LinqDataSource NEW
ListView NEW
Login
Menu
ObjectDataSource
TreeView
Wizard

System.Web.UI.WebControls.WebParts
WebPart

Communications and Workflow

System.Messaging
Message
MessageQueue

System.Net
Dns
FtpWebRequest
HttpListener
HttpWebRequest
WebClient

System.Net.Mail
MailMessage
SmtpClient

System.Net.NetworkInformation
NetworkInterface
NetworkChange
Ping

System.Net.PeerToPeer NEW
Cloud NEW
PeerName NEW
PeerNameRecord NEW
PeerNameResolver NEW

System.Net.PeerToPeer.Collaboration NEW
ContactManager NEW
PeerApplication NEW
PeerCollaboration NEW
PeerContact NEW
PeerNearMe NEW

System.Net.Security
NegotiateStream
SslStream

System.Net.Sockets
NetworkStream
Socket
TcpClient
TcpListener
UdpClient

System.ServiceModel
NetMsmqBinding
NetTcpBinding
OperationBehaviorAttribute
OperationContractAttribute
ServiceBehaviorAttribute
ServiceContractAttribute
ServiceHost
WorkflowServiceHost NEW
WSHttpBinding

System.ServiceModel.Activation
AspNetCompatibilityRequirementsAttribute
ServiceHostFactory
WorkflowServiceHostFactory NEW

System.ServiceModel.Channels
Binding
CommunicationObject
IChannel
Message

System.ServiceModel.ComIntegration
ServiceMoniker

System.ServiceModel.Description
DurableOperationAttribute NEW
DurableServiceAttribute NEW
IEndpointBehavior
IOperationBehavior
IServiceBehavior
MetadataExporter
MetadataImporter
OperationDescription
ServiceEndpoint
ServiceDescription
WebHttpBehavior
WebScriptEnablingBehavior NEW
WorkflowRuntimeBehavior NEW

System.ServiceModel.Diagnostics
PerformanceCounterScope

System.ServiceModel.Dispatcher
ClientOperation
ClientRuntime
DispatchOperation
DispatchRuntime

System.ServiceModel.MsmqIntegration
MsmqIntegrationBinding

System.ServiceModel.PeerResolvers
CustomPeerResolverService

System.ServiceModel.Persistence NEW
PersistenceProvider NEW
PersistenceProviderFactory NEW
SqlPersistenceProviderFactory NEW

System.ServiceModel.Security
SecurityAlgorithmSuite NEW
SecurityMessageProperty
SecurityVersion

System.ServiceModel.Syndication NEW
Atom10FeedFormatter NEW
Rss20FeedFormatter NEW
SyndicationFeed NEW
SyndicationItem NEW

System.ServiceModel.Web NEW
WebGetAttribute NEW
WebInvokeAttribute NEW
WebOperationContext NEW
WebServiceHost NEW

System.Web.Services
WebService

System.Web.Services.Protocols
SoapHttpClientProtocol

System.Workflow.Activities
CodeActivity
SequenceActivity
ParallelActivity
ReceiveActivity NEW
SendActivity NEW
StateMachineWorkflowActivity

System.Workflow.Activities.Rules
Rule
RuleAction
RuleCondition
RuleSet

System.Workflow.Activities.Rules.Design
RuleConditionDialog
RuleSetDialog

System.Workflow.ComponentModel
Activity
ActivityExecutionContext
CompositeActivity

System.Workflow.ComponentModel.Compiler
WorkflowCompiler

System.Workflow.ComponentModel.Design
ActivityDesigner

System.Workflow.ComponentModel.Serialization
WorkflowMarkupSerializer

System.Workflow.Runtime
WorkflowInstance
WorkflowRuntime

System.Workflow.Runtime.Hosting
WorkflowLoaderService
WorkflowPersistenceService
WorkflowRuntimeService
WorkflowSchedulerService

System.Workflow.Runtime.Tracking
TrackingService

DATA, XML, and LINQ

System.Data
DataColumn
DataRow
DataSet
DataTable
DataView

System.Data.Common
DbCommand
DbConnection
DbDataAdapter
DbDataReader
DbProviderFactory

System.Data.Linq NEW
DataContext
EntityRef<T>
EntitySet<T>
Table<T>

System.Data.Linq.Mapping NEW
AttributeMappingSource
MetaModel
XmlMappingSource

System.Data.Odbc
OdbcCommand
OdbcConnection
OdbcDataAdapter
OdbcDataReader

System.Data.OleDb
OleDbCommand
OleDbConnection
OleDbDataAdapter
OleDbDataReader

System.Data.OracleClient
OracleCommand
OracleConnection
OracleDataAdapter
OracleDataReader

System.Data.SqlClient
SqlCommand
SqlConnection
SqlDataAdapter
SqlDataReader
SqlNotification

System.Xml
XmlAttribute
XmlDocument
XmlElement
XmlNode
XmlReader
XmlWriter

System.Xml.Linq NEW
XAttribute NEW
XDocument NEW
XElement NEW
XName NEW
XNamespace NEW
XNode NEW
XText NEW

System.Xml.Schema
XmlSchema
XmlSchemaSet
XmlSchemaValidator

System.Xml.Serialization
XmlSerializer

System.Xml.XPath
XPathDocument
XPathExpression
XPathNavigator

System.Xml.Xsl
XslCompiledTransform
XsltArgumentList

What is the .NET Framework?

The .NET Framework is the managed code programming model for Windows. It provides a highly productive environment for software developers and offers excellent skills reuse across multiple application architectures. The .NET Framework is available with the same consistent API across different development platforms, including the full .NET Framework for the desktop and server, the .NET Compact Framework for mobile devices, the .NET Framework on SQL Server, the .NET Micro Framework for small embedded systems such as SPOT watches, and Silverlight version 1.1 for cross-platform, cross-browser development of rich Internet applications. The .NET Framework is used by 90% of Fortune 100 companies and is easily deployable to end user PCs.

Key

NEW New with the .NET Framework 3.5.
3.0 New with the .NET Framework 3.0.
CF Also available in the .NET Compact Framework 3.5.
SL Planned for implementation in Silverlight 1.1. (Subject to change.)

Fundamentals

System
Array
Boolean
Byte
Char
Console
DateTime
DateTimeOffset
Decimal
Delegate
Enum
Environment
EventArgs
Exception
Int32
Int64
Math
Object
String
TimeZoneInfo NEW
Type
Uri

System.AddIn.Contract NEW
IContract
INativeHandleContract

System.AddIn.Hosting NEW
AddInProcess
AddInSecurity
AddInStore
AddInToken

System.AddIn.Pipeline NEW
CollectionAdapters
ContractStore
ContractWrapper
FrameworkElementAdapters

System.Collections
ArrayList
HashTable
IEnumerable

System.Collections.Generic
Dictionary<K,V>
HashSet<T>
IEnumerable<T>
List<T>
Queue<T>
Stack<T>

System.ComponentModel
Component
TypeConverter

System.Configuration
Configuration

System.Diagnostics
Debug
EventLog
EventSchemaTraceListener NEW
Process
Trace

System.Diagnostics.Eventing NEW
EventDescriptor NEW
EventProvider NEW
EventProviderTraceListener NEW

System.Diagnostics.Eventing.Reader NEW
EventLogInformation NEW
EventLogReader NEW
EventLogRecord NEW
EventLogWatcher NEW
EventRecord NEW
ProviderMetadata NEW

System.Diagnostics.PerformanceData NEW
CounterData NEW
CounterSet NEW

System.DirectoryServices
DirectoryEntry
DirectorySearcher

System.DirectoryServices.ActiveDirectory
Domain
Forest

System.EnterpriseServices
ServicedComponent

System.Globalization
Calendar
CultureInfo
RegionInfo
TextInfo

System.IdentityModel.Claims
Claim
ClaimSet

System.IO
Directory
File
FileStream
Path
Stream
StreamReader
StreamWriter

System.IO.Compression
GZipStream

System.IO.IsolatedStorage
IsolatedStorage

System.IO.Pipes NEW
AnonymousPipeClientStream NEW
AnonymousPipeServerStream NEW
NamedPipeClientStream NEW
NamedPipeServerStream NEW
PipeSecurity NEW
PipeStream NEW

System.IO.Ports
SerialPort

System.Linq NEW
IQueryable<T>
Queryable

System.Linq.Expressions NEW
Expression<T>
Expression

System.Reflection
Assembly
FieldInfo
MemberInfo
MethodInfo
PropertyInfo

System.Reflection.Emit
AssemblyBuilder
MethodBuilder
TypeBuilder

System.Resources
ResourceManager

System.Runtime.Serialization
DataContractAttribute
DataContractSerializer
DataMemberAttribute
ISerializable
XmlDictionaryReader
XmlDictionaryWriter

System.Runtime.Serialization.Json NEW
DataContractJsonSerializer NEW
JsonReaderWriterFactory NEW

System.Security
SecureString
SecurityManager

System.Security.AccessControl
AccessRule
FileSecurity
ObjectSecurity

System.Security.Cryptography
ECDiffieHellmanCng NEW
SHA512
TripleDES

System.Security.Cryptography.X509Certificates
X509Store

System.Security.Principal
WindowsIdentity

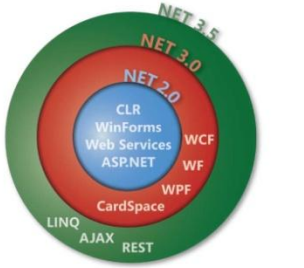
System.ServiceProcess
ServiceBase

System.Text
Encoding
StringBuilder

System.Text.RegularExpressions
Regex

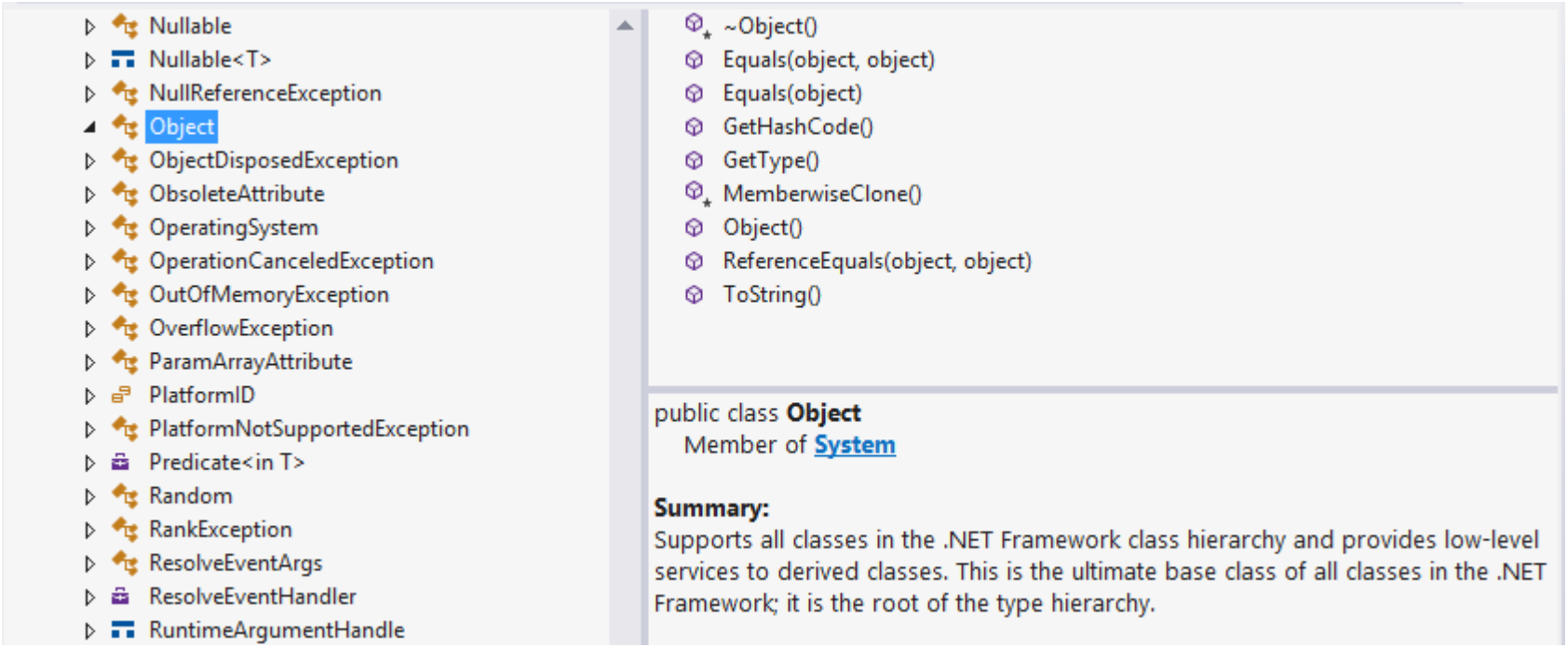
System.Threading
ReaderWriterLockSlim NEW
Semaphore
Thread
WaitHandle

System.Transactions
Transaction

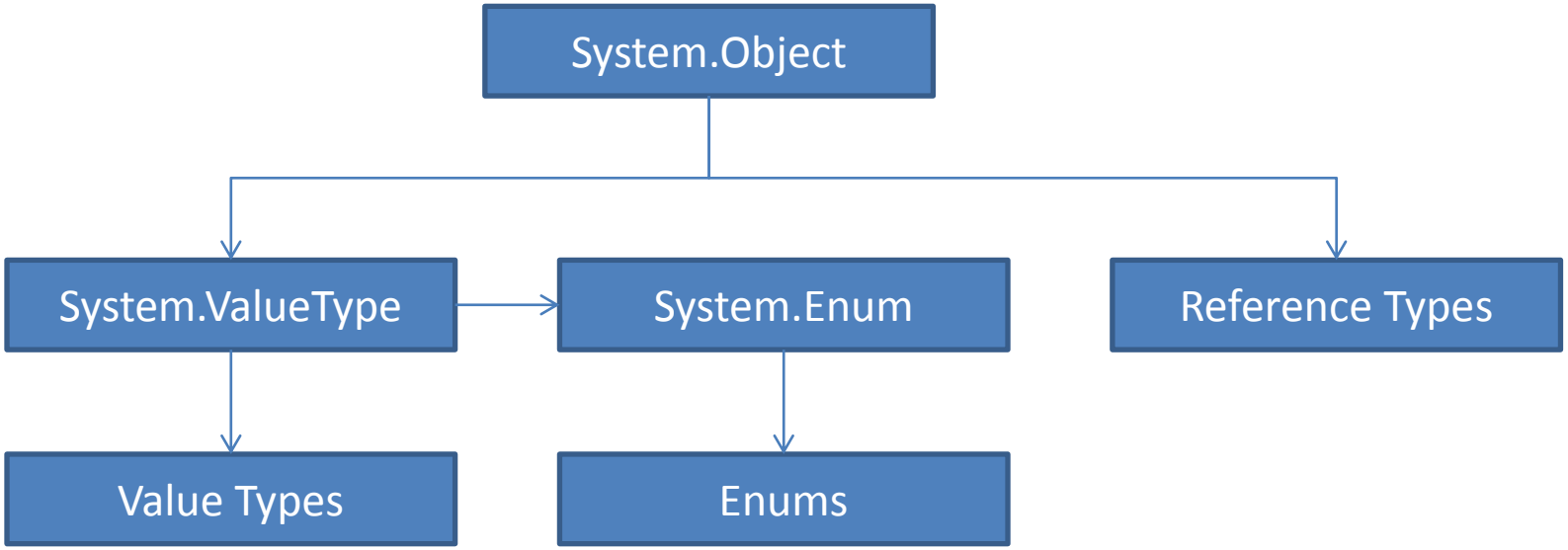


Additive versions of the .NET Framework

System.Object



Ссылочные и значимые типы



Создание объектов

```
Observation observation = new Observation(10.0,
  ObservationType.LeftCensored);

System.Int32 i = new System.Int32();
System.Int32 i = 0;
int i = new int();
int i = 0;
```

Примитивные типы

Примитивный тип	FCL тип	Описание
sbyte	System.SByte	8-разрядное значение со знаком
byte	System.Byte	8-разрядное значение без знака
short	System.Int16	16-разрядное значение со знаком
ushort	System.UInt16	16-разрядное значение без знака
int	System.Int32	32-разрядное значение со знаком
uint	System.UInt32	32-разрядное значение без знака
long	System.Int64	64-разрядное значение со знаком
ulong	System.UInt64	64-разрядное значение без знака
char	System.Char	16-разрядный символ Unicode
float	System.Single	32-разрядное значение с плавающей точкой
double	System.Double	64-разрядное значение с плавающей точкой
decimal	System.Decimal	128-разрядное значение с плавающей точкой
bool	System.Boolean	Булево значение
string	System.String	Массив символов
object	System.Object	Базовый тип
dynamic	System.Object	

Ссылочные типы

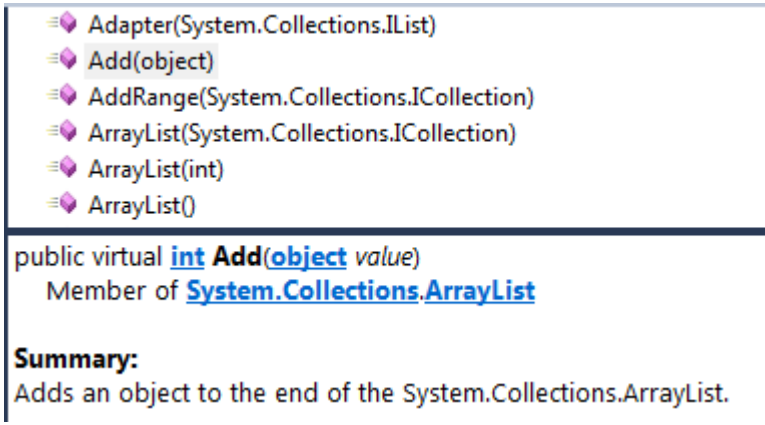
```
public class Observation
{
    public double Value;
}
static void Main(string[] args)
{
    var observation = new Observation();
    observation.Value = 10;

    Console.WriteLine(observation.Value);

    var observationCopy = observation;
    observationCopy.Value = 20;

    Console.WriteLine(observation.Value);
    Console.WriteLine(observationCopy.Value);
}
```

Типы значений

```
public ~~class~~ struct Observation
{
    public double Value;
}
static void Main(string[] args)
{
    var observation = new Observation();
    observation.Value = 10;

    Console.WriteLine(observation.Value);

    var observationCopy = observation;
    observationCopy.Value = 20;

    Console.WriteLine(observation.Value);
    Console.WriteLine(observationCopy.Value);
}
```

Упаковка и распаковка

```
public struct Observation
{
   public double Value;
}
static void Main(string[] args)
{
   Observation observation;
   var list = new ArrayList();
   for (int i = 0; i < 10; i++)
   {
        observation.Value = i;
        list.Add(observation);
   }
   observation = (Observation)list[0];
}
```



```
public struct Observation
{
    private double _value;
    public Observation(double value)
    { _value = value; }

    public void Change(double value)
    { _value = value; }

    public override string ToString()
    { return _value.ToString(); }
}
static void Main(string[] args)
{
    Observation observation = new Observation(10);
    Console.WriteLine(observation);

    observation.Change(20);
    Console.WriteLine(observation);

    object o = observation;
    Console.WriteLine(o);

    ((Observation) o).Change(30);
    Console.WriteLine(o);
}
```

Что же выбрать?

- Тип похож на примитивный
- Тип неизменяемый
- Размер экземпляров типа мал (16 байт или меньше)
- Экземпляры не передаются как параметры методов и не возвращаются из них

Равенство объектов

```
public class Object
{
    public virtual bool Equals(object obj)
    {
            if (this == obj)
            {
                    return true;
            }
            return false;
    }
}
static void Main(string[] args)
{
    Observation observation = new Observation(10);
    Observation observation2 = new Observation(10);

    Console.WriteLine(observation == observation2);
}
```

Переопределение Object.Equals

- false, если obj равен null
- true, если obj равен this
- false, если obj и this разных типов
- false, если Equals базового класса вернул false
- Сравнить все поля объектов obj и this

- Рефлексивность
- Симметричность
- Транзитивность
- Постоянство

```
public class Observation
{
    public double Value { get; set; }
    public ObservationType Type { get; set; }

    protected bool Equals(Observation other)
    {
            return Value == other.Value && Type == other.Type;
    }

    public override bool Equals(object obj)
    {
            if (ReferenceEquals(null, obj)) return false;
            if (ReferenceEquals(this, obj)) return true;
            if (obj.GetType() != this.GetType()) return false;
            return Equals((Observation)obj);
    }

    public override int GetHashCode()
    {
            unchecked
            {
                    return (Value.GetHashCode() * 397) ^ (int)Type;
            }
    }
}
```

Примитивный тип dynamic

```
public class Observation
{
   public double Value { get; set; }
   public Observation(double value)
   {
         Value = value;
   }
}
static void Main(string[] args)
{
   dynamic observation = new Observation(10);

   Console.WriteLine(observation.Value);
   Console.WriteLine(observation.Value2);
}
```

Источники

- CLR via C#. Программирование на платформе Microsoft .NET Framework 4.0 на языке C#, Дж.Рихтер, 3е издание, 2012
- http://download.microsoft.com/download/4/a/3/4a3c7c55-84ab-4588-84a4-f96424a7d82d/NET35_Namespaces_Poster_LORES.pdf
- http://msdn.microsoft.com/en-us/library/vstudio/ms229017(v=vs.100).aspx