Introduction to Programming ArcObjects Using the Microsoft® .NET Framework

Three Days

Overview

ArcObjects components are the building blocks of the ArcGIS family of products, and the ArcObjects libraries provide a set of software components and a framework for developing GIS applications. This course introduces the ArcObjects libraries to Microsoft .NET programmers and teaches how to develop custom GIS applications. You work with ArcGIS Engine controls and .NET development tools and learn how to use help resources. In course exercises, you work with the ArcObjects .NET developer resources and ArcGIS Engine controls to create applications that perform specific GIS tasks including map navigation, feature selection and rendering, spatial operations, data projection, data management, editing, geoprocessing, and map creation.

Audience

This course is designed for experienced Microsoft .NET programmers who want to develop applications using ArcObjects.

Prerequisites and recommendations

Students should have completed ArcGIS Desktop II: Tools and Functionality or Learning ArcGIS Desktop or have equivalent knowledge.

It is mandatory that students have a basic proficiency with VB.NET or C#.NET before taking this course. Students in this course should already know how to:

- Declare and use variables.
- Write function and sub procedures.
- Use conditional statements (If Then Else, Select Case).
- Work with loops.
- Create forms, add controls, and write event procedures.

Those without the requisite .NET experience can gain proficiency before taking this course by working exercises in an introductory third-party .NET course or tutorial.

Goals

- Describe the architecture of the core ArcObjects libraries.
- Illustrate the most effective ways to use the components of the software development kit (SDK) and developer tools to implement custom functionality.
- Use ArcObjects to develop GIS functionality using .NET.
- Customize .NET forms with ArcGIS Engine controls.
- Write reusable code for automating tasks in ArcGIS.

Topics Covered

Getting started with ArcObjects: Classes, class libraries, COM, query interface.

The ArcGIS application framework: Customize dialog box, Visual Basic Editor.

Working with maps and layers: Active data frame, layer properties.

Accessing data with ArcObjects: Accessing existing data using ArcObjects.

Displaying data: Feature and raster data rendering.

Working with queries and selections: Cursors and feature cursors, selection sets.

Geometry and spatial analysis: Spatial analysis, spatial reference, buffering.

Data creation and editing: Creating new data, editing using cursors.

Geoprocessing: Running geoprocessing tools, setting environments.

Working with layouts: Making maps, adding elements, exporting and printing.

ArcObjects beyond the basics: Extending applications, more ArcGIS Engine, ArcGIS Server.