Effective Object-Oriented Analysis and Design

SUMMARY

This three-day course covers fundamental Object-Oriented (OO) Programming strategies and explains what makes them so powerful. After completely establishing the strengths and usefulness of the strategies, the course then focuses on how to apply the strategies to new designs, and how to recognize opportunities to use them in your analysis of existing code.

DESCRIPTION

Using an Object-Oriented (OO) language like Java, C#, or C++ is just a first step toward making effective use of Object-Orientation. The developer must also understand the principles and practices that make effective use of OO. This course covers those principles and how to use them in analyzing requirements and creating a design that gets the maximum benefit from OO. The attendees will have an opportunity to exercise the principles in designing an application of their choice.

COURSE OBJECTIVES

This course teaches participants how to analyze requirements and turn them into an object-oriented program. his is done in a collaborative, efficient manner that minimizes the waste associated with software development which encompasses requirements, specifications, implementation and testing.

LEARNING OBJECTIVES

When you have completed this course, you will

- Know how to use polymorphism in effective ways
- Have improved your object-oriented analysis skills
- Be able to identify classes in their problem domain by multiple techniques

GENERAL OUTLINE

- Overview
  - Understand basic object concepts
  - Learn UML that represents those concepts
  - Explore OO principles and practices
- Analysis and Design
  - Create an OO analysis of a system
  - Use OO concepts in design of a system

COURSE OUTLINE

- Classes and Objects
  - Composition and Aggregation
  - Association
  - Inheritance
  - Polymorphism
  - Inheritance versus Interface
- Methodology
  - Overview
  - Conceptualization
  - Scenarios
  - Testability
- Example of Methodology
  - Analysis
  - Classification
  - CRC Cards
- Quality Measures
  - Coupling
  - Cohesion
  - Redundancy
  - Testability
- UML Diagrams
  - Class
  - Collaboration
  - Sequence
  - State
- Design Considerations
  - Coding by Intention
  - Encapsulation
  - Commonalities and Abstractions

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- Guidelines and Principles
    - Open / Closed Principle
    - Design to Interfaces
    - Encapsulate Variations
    - Favor Delegation over Inheritance
- An Introduction to Patterns
    - Strategy Pattern
    - Template Method Pattern
    - Factories

LEVEL

Foundational

TARGET AUDIENCE

PRIMARY AUDIENCE:

Developers who are already familiar with an OO language, such as C++, Java, C#, or VB.NET. The course does not cover syntax issues, but can include basic mechanisms such as encapsulation, reference vs. value objects, polymorphism, inheritance, and interface implementation (if needed).

SECONDARY AUDIENCE:

Intended for non-senior programmers with no object-oriented experience or for experienced programmers who want to go fairly far down the road of object-oriented design and design patterns of their choice.

ROOM SETUP AND EQUIPMENT

Tables seating up to 4-5 people (6 tables for a full class)

Each table should have whiteboard and flip chart

Projector with screen for instructor tables

PREREQUISITES

Familiarity with the syntax and basic library API's of an OO language such as Java, C#, or C++.

COURSE LENGTH

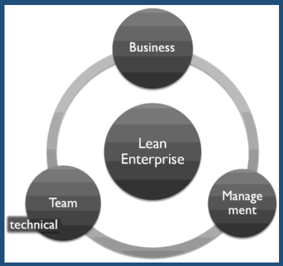
3 days

MAXIMUM NUMBER IN CLASS

24

NET OBJECTIVES

We are committed to delivering the principles, practices, and perspectives that businesses must know in order to maximize their return on their technology solution and software development efforts. We combine our experience and a time proven approach based on lean thinking to continuously extend the capability of what is possible in creating effective technology delivery organizations (IT or product). We provide these learned methods to our clients to assist them in achieving their goals and in assisting them in making their organizations more successful.



Full course descriptions may be found at
www.NetObjectives.com/training

Lean ● Agile ● Kanban Patterns ●
TDD ● ATDD ● Assessments ●
Consulting Training ● Coaching