Course 326: Writing Functional Requirements with Structured Use Case Descriptions (3 days)

Course Description…

Perhaps the single most significant factor that drives successful software projects – those that meet customer and user needs – is the availability of a complete, consistent, clear, correct, testable set of functional and performance requirements. Indeed, the functional requirements section is invariably the largest in the requirements specification, in terms of page count or word count, and invariably the most important, in terms of producing a robust information system. Clearly, organizations that can produce functional requirements properly enjoy a decided competitive advantage, and are most likely to enjoy substantial returns on their software engineering investments.

Suggested Prerequisites…

No specific prerequisites are assumed. A familiarity with information system concepts is recommended.

Who should attend…

This course is suited for software practitioners, business analysts, systems analysts, project managers, and quality assurance professionals.

Learning Objectives…

- Understand the four major sections of the system requirements specification: functional requirements; performance requirements; design constraints; and characteristics
- Examine the role of the context diagram as a starting point for requirements engineering and system testing
- Define the nature and role of the use case as a vehicle for expressing functional requirements
- Obtain experience in writing structured use case descriptions and data element specifications
- Obtain experience in evaluating use case descriptions during the baselining process.

See next page for a detailed course outline…

Course Outline…

Unit 1: Introduction to Requirements Documentation

Unit Objectives

Requirements Documentation Concepts

- Requirements process overview
- Positioning the requirements specification in the documentation tree
- Requirements document audience
- Requirements standards
- Functional and non-functional requirements

Use Case Concepts

- Definition
- Uses
- Structured and narrative descriptions
- Use cases at the business, information system, and component levels
- Benefits and costs

Understanding the Context Diagram

- Definition
- Structure
- Uses
- Accompanying description
- Examples

Workshop: Preparing a Context Diagram and Accompanying Description from Client-Furnished Material

Unit Summary and Best Practices

Unit 2: Components of a Functional Requirements Specification

Unit Objectives

Specification Elements

- Information flow diagram
- Use case descriptions

Creating an Information Flow Diagram for a Business Process

- Information flow diagram structure
- Using the information flow diagram to identify predecessor and successor use cases
- Notation
- Examples

Workshop: Creating an Information Flow Diagram

Elements of a Use Case Description

- Main success scenario
- Identifying extensions
- Identifying alternatives
- How to decide when to use extensions and when to use alternatives
- Expressing iteration
- Identifying and extracting use case fragments

Elements of a Main Success Scenario
- Introductory narrative
- Pre-conditions
- Steps
- Post-conditions
- Examples

Writing an Introductory Narrative
- Content
- Format
- Examples

Workshop: Writing an Introductory Narrative

Writing Pre- and Post-Conditions
- Content
- Format
- Examples

Workshop: Writing Pre-Conditions and Post-Conditions

Writing the Steps of the Main Success Scenario
- Content
- Format
- Examples

Workshop: Writing the Steps of the Main Success Scenario

Writing the Steps of Extensions
- Content
- Format
- Examples
- Comparing the structures of main success and extension scenarios

Workshop: Writing Extension Scenarios

Unit Summary and Best Practices

Unit 3: Writing Data Specifications

Unit Objectives

Data Elements in Structured Use Case Descriptions
- Editing use case descriptions for data element consistency
- Examples

Writing Data Structure Specifications
- Data element metadata
- Specifying data types
- Specifying valid domains

Workshop: Writing Data Specifications for Scenarios Produced in Earlier Workshops

Unit Summary and Best Practices

Unit 4: Inspecting Structured Use Case Descriptions

Unit Objectives

Inspection Concepts

- Inspection goals
- Participants
- Evaluation process overview

What To Look for

- Conformance with business objectives
- Consistent terminology
- Consistent pre- and post-condition chains
- Complete sets of extensions
- Correct interfaces between main success and extension scenarios
- Examples

Workshop: Inspecting Scenarios Produced in Earlier Workshops

Unit Summary and Best Practices

Unit 5: Managing Structured Use Case Descriptions

Unit Objectives

Requirements Management in the CMMI

- The CMMI framework
- Goals and Practices of the Requirements Management Process Area
- Using traceability matrices in impact analysis

Applying CMMI Goals and Practices to Structured Use Case Descriptions

- Evolving use case descriptions
- Managing use case identifiers
- Role of configuration management

Workshop: Assessing Impact of a Proposed Change to Requirements

Unit Summary and Best Practices

Unit 6: The Bottom Line

Ideas to use
Where to go for more information