Developing Applications with an Emphasis on Quality

This is a practical hands-on seminar to cover the critical path of test driven development and the steps involved in the early introduction of testing into the development process. Students will lean and standardize on the terminology, processes, and challenges of incorporating testing into development in the real world. They will also be able to eliminate those costly early software defects that commonly prevent the long term testing to take place. This workshop will allow developers to create software that will enhance maintainability and reduce the costs associated with modifications and enhancements, and gain a comprehensive working knowledge of testing and what it takes to design and conduct an effective test of software, regardless of the technology.

Course Objectives:

- Learn to develop test cases and test plans.
- Know how to identify appropriate metrics to measure progress, performance and quality**.**
- Learn techniques to ensure that an information system protects data and maintain functionality.

Audience: Programmers, developers and managers who are looking to improve quality within the development organization.

Prerequisites: None.

Number of Days: 2 days

1 Introduction to Testing & QA

Objectives & Observations
Impediments, Opportunities, and Managing
Responsibilities during Testing
Testing Definitions
Starting Testing Early vs. Late Start Testing
Quality Assurance, Quality Control, IS Quality Assurance
Quality Tools / Steps / Suggestions
Opportunities to improve the Testing Process
Comparing / Contrasting Development Life Cycles (Waterfall/Agile/TDD)
Understanding TDD
Implementing DTT into YOUR process

2 Major Software Development and Testing Issues

Functional specifications and design documents
Preparing and validating the specifications
Specification Problems/ Defect Classification
Detailing the Scripts and cases
Implementing the Scripts into the Code
Using some of the Common Tools
Unit vs. System or Acceptance Testing
Positive and Negative Testing
Applying to use Cases for Testing
Regulating the Change Control Process

3 Test Methodologies & Extracting the Tests

Setting Test Objectives and Identifying Tests
Benefits of Using Testing Methodologies
Computing/Applying Test Coverage
BVT – Boundary Value Testing
DBT – Decision Based Testing
Decision Tables
State Machines

Test Factor Analysis
OATS – Orthogonal Array Testing System

4 Risk Analysis
Ascertaining the Value of a Test
Assessing the Level of Risk
Assigning a Relative Cost to Testing

5 Documenting the Testing
Unit Testing
Creating and Auditing the Unit Test Plan
Integration Testing and System Testing
System/Acceptance Testing
Creating and Auditing the System Test Plan
Regression Testing
Defining the Traceability Matrix
Operability/Usability Testing

6 Defect Classification
Identifying/Classifying functional specifications defects
Identifying/Classifying design defects
Identifying/Classifying coding defects
Identifying/Classifying testing defects
Defining/Enforcing the coding/testing standards

7 Test Execution and Evaluation
Exploring the Test Logs
Test Logging Scenarios
Exploring the Defect Tracking Report
Retesting and Follow-up Procedures
Understanding the Value of Root Cause Analysis