

## PRINCIPLES OF SOFTWARE TESTING

One-day workshop

### Overview

Defects found in software by customer have resulted in huge losses for many producers of software. Customer expectations cannot be met by ad hoc testing. Software testing is a serious business and there is a need to move from ad hoc to organized and effective testing. This calls for knowledge of principles and techniques of testing to help discover defects in software before your customer does!

### Workshop Objective

This workshop helps you understand the objectives, psychology, limitations of testing and focuses on test design techniques that help you design effective test cases. Further, the workshop also addresses aspects of test planning, insight into a structured test process, and appreciation of test automation.

### Topics of discussion

#### *Fundamentals of testing*

- What is verification and validation?
- What are the various techniques of V&V, where does testing fit in V&V?
- Objectives, limitations of V&V
- Objectives of software testing
- Psychology required for testing
- Levels of testing and how are they different
- Understanding how an erroneous input triggers a latent fault resulting in failure

#### *Test design techniques*

- Black box test design techniques
- Equivalence partitioning
- Boundary value analysis
- Special value
- Error based testing
- Quick appreciation of Cause effect (Decision table based)
- White-box techniques
- Statement coverage
- Decision coverage
- Path/Modified path coverage

How much coverage should we strive for?

Coverage metrics for test adequacy criteria

#### *Unit, Integration, System testing*

How is each level of testing different?

Who does Unit, Integration, System testing?

What types of defects does each level of testing uncover?

Integration test strategies (top-down, bottom-up...)

Test design techniques for unit, integration, system test cases

Quick understanding of non-functional requirements validation - Load, Performance, Stress, Volume, Usability

#### *Test process*

Planning for testing

Test documentation

Defect rating and prioritization

How to use defect information (metrics) effectively

#### *Test automation*

What is test automation and what does this involve?

Various types of tools that aid in test automation

### Workshop benefits

At the end of the workshop the participants will have a good theoretical knowledge of software testing principles that they can apply in their current work.

### Who should attend?

Software developers, software testers, project managers

**Prerequisites** - Participants are expected to have good programming knowledge in any one language

### Delivery method

The workshop consists of classroom discussions and a problem solving/case-study session. It adopts our unique learning model. This enables participants listen to lecture on a topic, introspect using a structured questionnaire, explore the topic - hands-on session, discuss the learning after exploration and finally read the supplemental course notes.