

# Functional Testing Essentials 2013

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## INTRODUCTION

### PART 1

#### WHAT IS FUNCTIONAL TESTING?

- Testing software by its features

#### BLACK BOX:

- you do not see inside
- Input -> process -> output
- Look at symptoms

#### WHITE BOX TESTING

- Go through the code and test it
- All developers are WB testers
- Debugger: go through line by line
- Step in, Step out, Breakpoint, watch variables
- Coding and unit testing
- Profilers – instrumenting agents( go through memory/compiler )

### PART 2

#### WHAT WILL YOU TEST IN A LEFT/ESCALATOR?

- Speed
- Loading capacity
- Buttons
- Fan
- Phone inside
- Door opening
- Door closing
- Lights
- Go to top from basement
- Emergency stop

#### WHAT WILL YOU TEST IN A MOBILE PHONE?

- Switch on and off
- Make a call
- Receive call
- Send SMS
- Receive SMS
- Delete SMS
- Speed dial
- Add contact
- Edit contact
- Search contact

- Browse web
- Record sound
- Record video
- Battery life

## 5 DIFFERENT TESTING ANGLES

1. Configuration (parts) – Is it there in the right place?
  2. Security – Entry points
  3. Functionality – input->output
  4. Performance – (mileage, pickup speed, pulling power)
  5. Environment (compatibility) – Tires, brakes, oil, radiator fluid
- Write 2-3 points for each category, then elaborate
  - Then parameterize

## PART 3

### SOFTWARE TESTING

- The basic questions on testing
- Ensure Quality

Why Test?

- After writing exams, we expect 90% pass
  - Only getting 80%
- Programmers – they also make mistakes
  - Lack of skills
  - Lack of understanding
- Someone other than the developer to test
- Post production errors are VERY COSTLY
  - Lost revenue
  - Recall cost
  - Lost customer confidence
  - Stock prices
  - Lawsuits
  - Lost market share
  - CLOSING BUSINESS
- In software - visual test may not help a lot
  - Functional test to sw
- Bugs are buried in binaries!

## PART 4

### WHAT IS TESTED?

- This field is known as IT “Information Technology”
- Not computer technology
- Information is the key
- Information: meaningful data to customers
- Programs = executables
  - Input -> process -> output
- Input is given by user

- Userid/password
  - System does authentication
  - Navigating to main page
  - Something that runs inside CPU/memory
  - .asp, .jsp, .php
  - Backend programs like java bean or MS VC++ dll files
1. We must test the programs – is it doing the right logic?
  2. Data – check the integrity (not truncated, correct type)

## PART 5

### WHO DOES TESTING?

- Developer must test his/her own program
- Development team as a whole
- Tester - independent of the dev team
- Customer - UAT

### WHERE TO TEST?

- Test Environment
- Real-world system
- Various platforms

### WHEN TO TEST?

- New features
- Changes
- Continuously
- Also:
  - Compile
  - Build
  - Install Media

### HOW TO TEST?

## SDLC - SOFTWARE DEVELOPMENT LIFE CYCLE

### Life Cycle

- SW goes thru a lot of stages
- Not just the program/code
- Many people are involved
- Process leads to perfections

### Phases

- Inception
- Proposal/Quotation
- Requirements
- Design
- Code/Develop
- Testing
- Deploy
- Maintenance

## INCEPTION (PREGNANCY PERIOD)

- Need arises
- Customer requires functionality
- Customer will draft top-level requirements
- Request for Proposal (RFP)/There is a tender (RFP)
  - Customer publication of need, contractor WANTED request
- Funds are acquired for project
- Customer starts spending
- PROJECT ALREADY STARTED FOR THE CUSTOMER
- Many 3<sup>rd</sup> party vendors available to handle the project
- Sales department keep watching/hunting for opportunities, then bid
- Sales talk to internal depts. In company
- They may need some clarification
- Talk or meet customer to understand the need better

## Proposal or quotation

- Overview of company that gives the bid
- Past history and experience
- Technology to be used for this project
- Human Resources you will deploy
- Timeline/Milestones
- Cost
- Customer may get many proposals
  - Meet internally and with vendors
  - Negotiate price – more work, less money
- Due Diligence
  - Background Check
  - Reality Check
  - 3<sup>rd</sup> Party Auditor to check company's financial, records, references
- Lol – Letter of Intent
- Contract
  - Final negotiated cost and time
  - Standard terms
  - IP – intellectual property/copyright
- Vendor/customer sign the contract

## Functional Group

- Sales
- C\*O (CEO, CFO, CIO )
- Customer

## Inputs/Outputs

- Input: Tender
- Out: RFP, Lol, Contract

*Age* - DoB

## REQUIREMENTS ANALYSIS

- BRD – business requirement document
- Business Analyst to create (BA)

## Planning

- Time
- Cost

- Resource
- List out all activities/tasks as root level
- Breakdown all activities to atomic level
- Assign time for each task
- Resource – Human resource
  - Experience
  - Qualification
  - Cost
  - Training Required
  - Hardware and Software
  - OS, DB, webserver
  - Dev and testing tools
- When project consumes resources over time, cost keeps growing
- PM needs to plan this
  - Company pays?
  - Customer pays?
- Risks in the project
  - Risk management
  - Technology
  - People
  - Environment
  - Process
  - Legal

## Requirements Analysis

- Business Analysts/SME
- People know functionality of the customer
- Must know industry/business/processes/workflows

## Functional Group

- Project Management

## Inputs/Outputs

## DESIGN

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## CODE/DEVELOP

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## TESTING

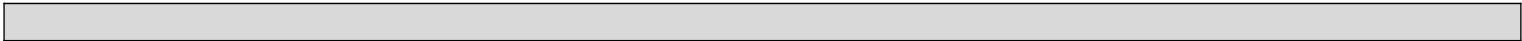
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## DEPLOY

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## MAINTENANCE

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