Functional Testing Essentials 2013

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 capatcity
- 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 3rd 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
    - 3rd Party Auditor to check company's financial, records, references
- LoI – 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, LoI, 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, webserves
    - 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

-

CODE/DEVELOP

-

TESTING

-

DEPLOY

-

MAINTENANCE

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