“Quality is never an accident, it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.”

Closing The Gaps in Regression Testing

Presenter,
Shekhar Bhole
April 26, 2011
We believe…

“In God We Trust, We Test Someone Else’s Code”
Role of IT Supporting Businesses
Regression Testing

Regression Testing is testing something that has already been tested.

It is a process of comparing two different versions of same software entity to ensure that only indented changes are made to the later version of that entity.

Regression Testing usually refers to the testing in the Maintenance phase.
Why do we need to do regression Testing?

- To ensure that only intended changes are made to the system
- Catch Un-intended changes and address those side effects

![Diagram showing Release 1.0 with tests Test 1, Test 2, Test 3, Test 4, Test 5.]

Successfully executed and passed all the 5 tests for release 1.
Why do we need to do regression Testing?

Now we are in release 2.0.

Requirement was to cut lower left corner of the square as shown in the picture
Common Challenges

🌟 Technology
🌟 More agile and rapid software development
🌟 Global delivery or Shared service model
🌟 Lack of visibility in to entire program
🌟 Unplanned changes making their way to prod
🌟 Lack of team communication and handshake
🌟 Speed to market delivery
Retire the Invalid Tests

Not all tests from previous releases are valid for the current release

- **Release 1.0**
  - Test 1
  - Test 2
  - Test 3
  - Test 4
  - Test 5

- **Release 2.0**
  - Test 6

Release 1.0 has 5 Tests

Release 2.0 has 1 new Test

**When to do it?**
Conduct Risk Based Regression Testing

What should be the basis of risk analysis – Requirements or Tests?

Factors for risk analysis

- Probability of failure
- Business Criticality
- Span of Impact
- Visibility
- Financial Impact
- Fatality
- Functional Inter-dependency

Relative importance of risk factors would differ from business to business
Proper Coverage with Magnitude and Depth
Proper Coverage with Magnitude and Depth

Inventory Management

Order-to-Cash

Procure-to-Pay

Financials

AR

AP

G

L

Depth

Magnitude
Conduct Focused Regression Testing

Don’t have enough time and resources?
Some tests are not important, but in context of changes made they may become important.
Involve Testers Early

From last two slides,
- Conduct focused regression testing
- Look outside of regression testing

Reprioritize your regression
Test Bed
Enhance Your Regression Test Bed
Optimize Your Regression Tests

- Avoid duplicate coverage of same requirement in multiple tests
- Minimize the testing efforts by testing related requirements together
Consider the Possibility of Test Automation

What is test automation?

The biggest challenge

- Increase speed to market without compromising quality
  - Test new changes to the application
  - Re-test what was already tested
  - And yet meet the deadline with quality
What Automation can bring to the table

**Planned Benefits**
- Mitigate the risk
- Accommodate increase in test coverage without impacting timelines
- Create bandwidth for QC resources to focus on more important things
- Increase speed to market

**Unplanned Benefits**
- Use of test automation for non-testing purposes

**In the prospective of measurements benefits can be categorized in to tangible and intangible benefits**
Case for Test Automation

Criteria,

- Large number of regression tests to execute with limited resources and time
- Frequent application releases
- Changes accommodate in each release are disproportionately large compared to allotted time and resources
- Increase in test coverage with no corresponding increase in time allotted

Conduct a feasibility study

- Financial feasibility
- Risk appetite
- Technical feasibility
- Environment feasibility
Fundamental Characteristics of Automation

- Reusable
- Scalable
- Robust
- Flexible
- Maintainable and
- Cost effective
What is a framework?

It is a comprehensive design and a holistic approach to,

- Test Development
- Test Execution
- Test Result Analysis & Reporting and
- Maintenance

Frame work is a layered structure in which each layer is designed and developed to address/support specific needs,

- Configuration Layer
- Data Layer
- Technical Layer
  - Configuration Procedures
  - Architecture Procedures
  - Data Procedures
- Reporting
- Integration and
- Error handling

Success Criteria

- Tool Selection
- Framework Selection
- Proper Implementation
Regression Testing - Time It Well

- When to add new test to your regression test bed?
- When to retire invalid tests from your regression test bed?
- When to conduct risk analysis and reprioritize the regression tests?
- When to automate my regression tests?
- When to start regression test execution?
Regression testing can not be sacrificed
Always keep your regression test suite up to date
Conduct risk analysis and prioritize tests
Proper coverage of end-to-end tests to provide depth and magnitude
Involve early – closely monitor change control, assess impact and reprioritize tests
Consider the possibility of test automation
Right time your regression testing efforts
Q & A

Feedback

Thank You!