Test Optimization using Combinatorial Test Design

AT SCALE IMPLEMENTATIONS OF CTD

Client: Large Insurance Company
Objective: Reduce cost by reducing test effort
Method: Reduce test effort by optimizing test suites using Combinatorial Test Design
Approach:
- Targeted reduction of regression test bed comprising over 60,000 test cases
  - Determined effort impact by frequency of usage of tests across release
  - Factored quantum of changes expected in next releases
  - Types and nature of changes
  - Nature of application testing
  - Number of releases
- Analysis of past defects
  - Embedded CTD experts in the team to develop models and build skills in the team
  - Focused on regression packs in year one; later added functional test optimization
  - Required intense socializing of concepts and results with clients to gain acceptance
Result:
- In year one
  - Created 75 CTD models across regression tests of applications
  - Yielded 32% reduction of test scenarios and 27% reduction of test cases (year 1)
  - 4000 hours of test effort reduced (2 person years savings) for one execution cycle
- Over three years increased test coverage with 150 CTD models
- Currently delivering ~40% optimization, with around 20,000 test cases reduction

Client: Large Auto, Home and Life Insurance Company
Objective: Ensure speed to market with reduced risk of defect leakage
Method: Ensured 100% test coverage with test beds by optimizing test case design using Combinatorial Test Design
Approach:
- Redefined the test design process to include Combinatorial Test Design
  - Started modeling new program requirements using CTD
  - Converted existing tests to CTD models
  - Institutionalized CTD to ensure coverage and savings
- Trained existing team on CTD and provided mentorship of CTD SMEs
- Project team developed the models upfront and experts reviewed models
- Targeted increased test throughput by increased design productivity
  - Incorporated CTD in new test case design (from scratch)
  - Factored a minimal 8 weeks of learning curve
- Early inclusion of client in the design journey to enable greater acceptance
Result:
- Delivered higher throughput of test cases per day (12 TC per day against planned of 8 test case per day)
- Increased throughput savings inclusion of review efforts by 9%
- Delivered 18% test case reduction with 100% coverage
- Enabled increase in business (new test services were commissioned)

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