Risk-based Testing Fallacies

How Even Smart People Misuse a Best Practice

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Introduction

- Mark Twain once wrote, "It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so."
- What you know that just ain't so is called a fallacy
- Software testing fallacies abound, including in risk-based testing
- If you apply fallacious thinking when doing risk-based testing, you'll miss out on the full effectiveness and efficiency benefits
- Let's identify and dispel these fallacies…

It's Just Corner Cutting (1)

- The idea for this webinar came when someone said, "Well, risk-based testing means not testing everything."

- Uh, yeah, so does every kind of testing

- There are an infinite number of tests you could run, and you are going to select a finite subset from that infinite set

- The only question: Will you select that subset intelligently, with an understanding of the likelihood and impact associated with potential problems?

It's Just Corner Cutting (2)

- A related fallacy is the idea that risk-based testing doesn't cover the requirements
- Unfortunately, some people promote an approach they call risk-based testing that involves exactly that
- In some cases you might skip testing some requirements
- Generally, you should cover not only the important risks but all the requirements
- Ensure every requirement has:
  - At least one associated risk item
  - At least one associated test case
- Done via traceability in your test management tool
- This is an example of a blended strategy of risk-based and requirements-based testing

It's All About Technical Risk

- Some people suggest that risk-based testing is a form of reactive testing
  - Just wait to see what the system does (i.e., no planning, analysis, or up-front test development)
  - Use experience, defect taxonomies, and other aids to predict and find as many bugs as we can in a limited period of time
- That approach is just a big geeky bug hunt
- It does not cover all of the objectives most organizations have for test teams
- Yes, consider defect likelihood in risk-based testing, but also consider impact

The Test Team Can Do It Alone

- The symptom of this fallacy
    - Simply analyze requirements or other information
    - Don't solicit input from other project and product stakeholders
    - Test based only on analysis of requirements
- That's just a risk-aware form of requirements-based testing
- True risk-based testing is really powerful because it involves input from a cross-functional team of project and product stakeholders
- Risk-based testing always values getting the right quality risk analysis team together over the right process or templates

It's Only About Selecting Test Cases

- One major benefit of risk based testing *is* the smart selection of test cases
- However, risk-based testing also provides three other benefits
  - Reporting test results in terms of residual risk to make test status clearer
  - Running tests in risk priority order maximizes the likelihood of finding important bugs first
  - Triaging your test cases based on risk (if necessary) ensures the most important tests get run
- Don't miss out on these additional benefits

It Says Nothing About Test Design

- Risk based testing does not prescribe the test design technique, but it does gives guidance
- We recommend a descending scale for the extent of testing
  - Extensive
  - Broad
  - Cursory
  - Opportunity
  - Report bugs only
- The test engineer selects the techniques for correct risk mitigation
- We have some guidelines on our Articles page

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It Can Be Done Quantitatively

- The level of risk calculated by multiplying impact and likelihood is an ordinal scale
- It's dangerous to try to use level of risk quantitatively; e.g.,
  - To calculate person-hours of test effort required
  - To predict exactly how many test cases are needed
- Risk-based testing is **not** quantitative risk management, it's qualitative
- We don't have pools of statistical failure data (e.g., insurance companies)
- The test conditions are the risk items identified during the quality risk analysis
- The degree of coverage is determined by looking at two factors, likelihood and impact
- Based on the relative level of risk, we select test design techniques that will give the proper level of coverage

It Doesn't Require Any Documentation

- This is usually connected to the reactive approach being incorrectly called risk-based testing
- To have proper risk-based testing, you need to capture:
  - The risk items
  - Their risk ratings
  - Other ancillary information, such as requirements defects
- Without that data, you can't align the other testing work with the risks and their ratings

Conclusions

- We've seen eight dangerous fallacies associated with risk-based testing

- Each of these fallacies limits—or eliminates—some or all of the benefits

- Don't cut yourself off from the benefits of risk-based testing, a powerful test strategy

- You can find more information (e.g., articles, videos, etc.) on our website and YouTube channel…

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