Módulo I – Fundamentos Computacionais
Sessão 5 - Aula 1 – Teste de Software – Considerações iniciais

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Teste de Software
Considerações iniciais

CEDS -111 - Teste de Software - Sessão 5 - Aula 1

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Por que testar software se é caro e demorado?

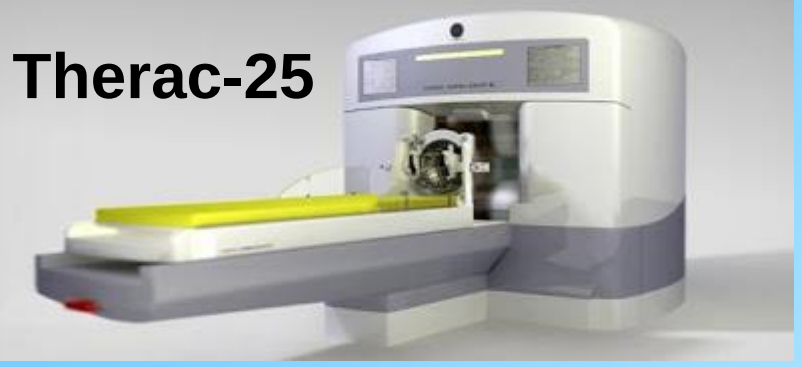
- Porque não testar sai ainda mais caro

- Não testar pode causar desastres e perda de $$$ e até vidas humanas

EXEMPLOS

- Therac-25
- Vôo inaugural do Ariane 5
- Vôo de teste do Airbus 320
- Finanças

EXEMPLOS (2)



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E em Finanças? Crash na Wall Street (1987)?

- **Perda:** $500 bilhões em um dia!
- **Desastre:** Em 19 de outubro de 1987, o índice Dow Jones caiu 508 pontos, perdendo 22,6% de seu valor total. Esta foi a **maior** perda que Wall Street já sofreu em um único dia
- **Causa:** Um mercado em grande alta foi interrompido por uma série de investigações conduzidas pela SEC e por outras forças do mercado. Como os investidores fugiram de ações investigadas, um número muito grande de ordens de venda foram gerados pelos **software de compra de computadores**, quebrando sistemas e deixando os investidores efetivamente cegos

Teste de Software

- Caixa Preta
- Caixa Branca

Dificuldades do Teste

- Custo
- Tempo para Teste
- Número ”alto” de Casos de Teste

Caixa Preta

- Classes de Equivalência
- Valor de Fronteira
- Outros

Caixa Branca

- Control Flow

- Data flow

Como reduzir o número de casos de teste, sem perder a cobertura?

Testar somente os casos estatisticamente mais críticos (perde cobertura)

Usar MATEMÁTICA para reduzir o número de casos de teste

Análise Estatística

- Aplicar Análise Estatística para mostrar que realmente a técnica em questão (pairwise testing, no caso) produz o mesmo resultado que o Teste Exaustivo com (muito?) menor número de casos de teste

Considerações iniciais
Teoria – Artigo Microsoft

Pairwise Testing in the Real World: Practical Extensions to Test-Case Scenarios

Jacek Czerwonka
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February 2008

Jacek Czerwonka works for Microsoft Corporation in one of its test organizations. For the last few years, he has been involved in the design and implementation of pairwise-related tools, and the evangelization of pairwise testing. You can reach Jacek at **jacekcz@microsoft.com**

Summary: **Pairwise testing** has become an indispensable tool in a software tester's toolbox. This article pays special attention to usability of the pairwise-testing technique. In particular, it focuses on ways in which the pure pairwise-testing approach must be modified to become practically applicable, and on the features that tools must offer to support the tester who is trying to use pairwise testing in practice. (15 printed pages)

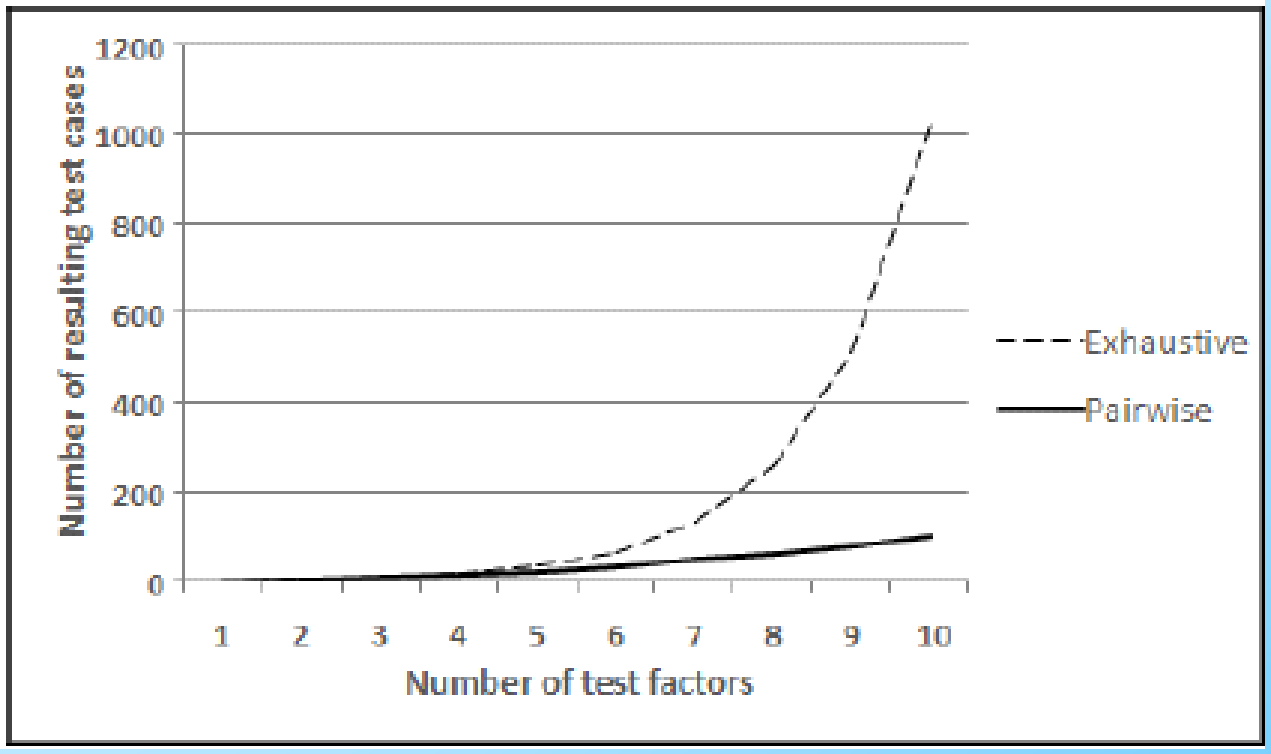
Contents

Overview

Pairwise testing has become an **indispensable** tool in a software tester's toolbox. The technique has been known for almost 20 years [22], but it is only in the last five years that we have seen a tremendous increase in its popularity

So far, information on at least 20 tools that can generate pairwise test cases has been published [1]. Most tools, however, lack practical features that are necessary for them to be used in the industry

A set of possible inputs for any nontrivial piece of software is too large to be tested exhaustively. Techniques such as equivalence partitioning and boundary-value analysis [17] help convert even a large number of test levels into a much smaller set with comparable defect-detection power. Still, if software under test (SUT) can be influenced by a number of such factors, exhaustive testing again becomes impractical.



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