Sanity Test Case Selection by Machine Learning Approach

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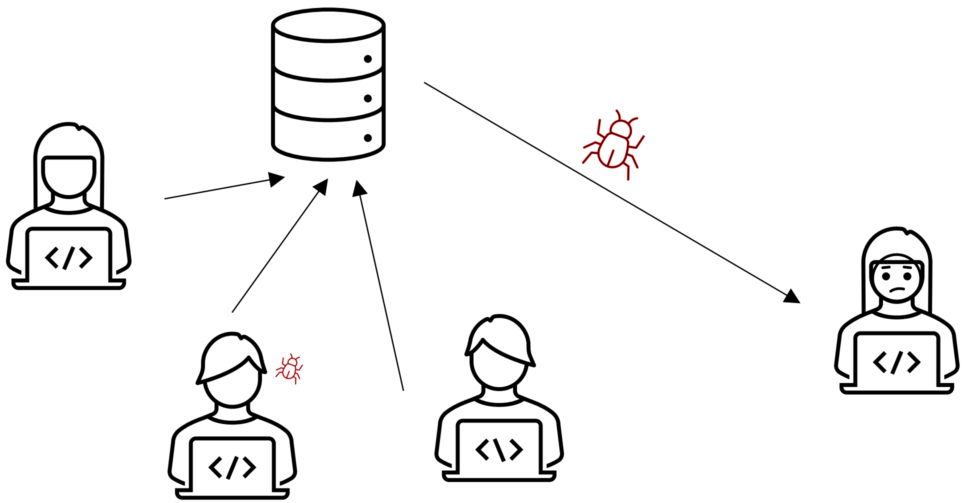
2025 DESIGN AND VERIFICATION™ DVCON CONFERENCE AND EXHIBITION TAIWAN

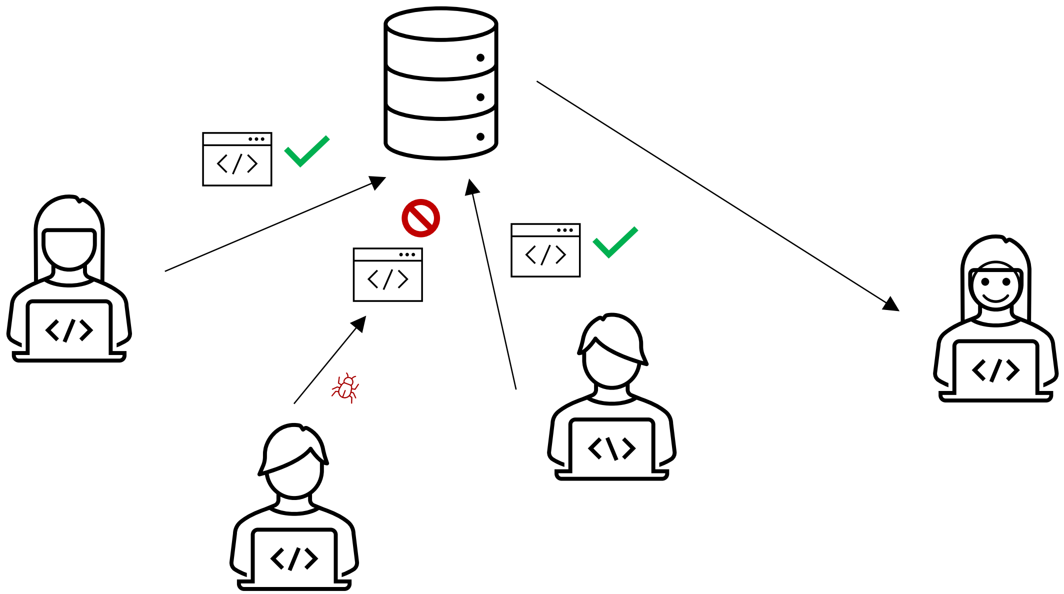
What can you GET?

- Problem with Collaborate Development
- Common Solution
- How to Improve It by AI/ML?
- Real Case Result
- Q&A session

Background

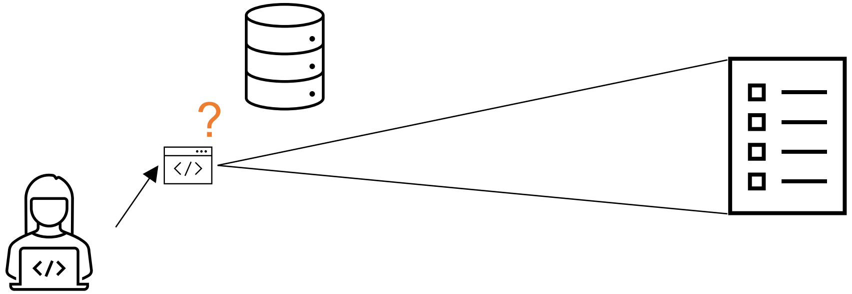


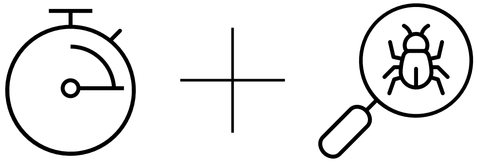
PROBLEMATIC



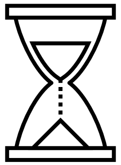
QUALITY

Problem

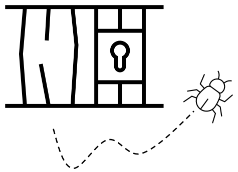




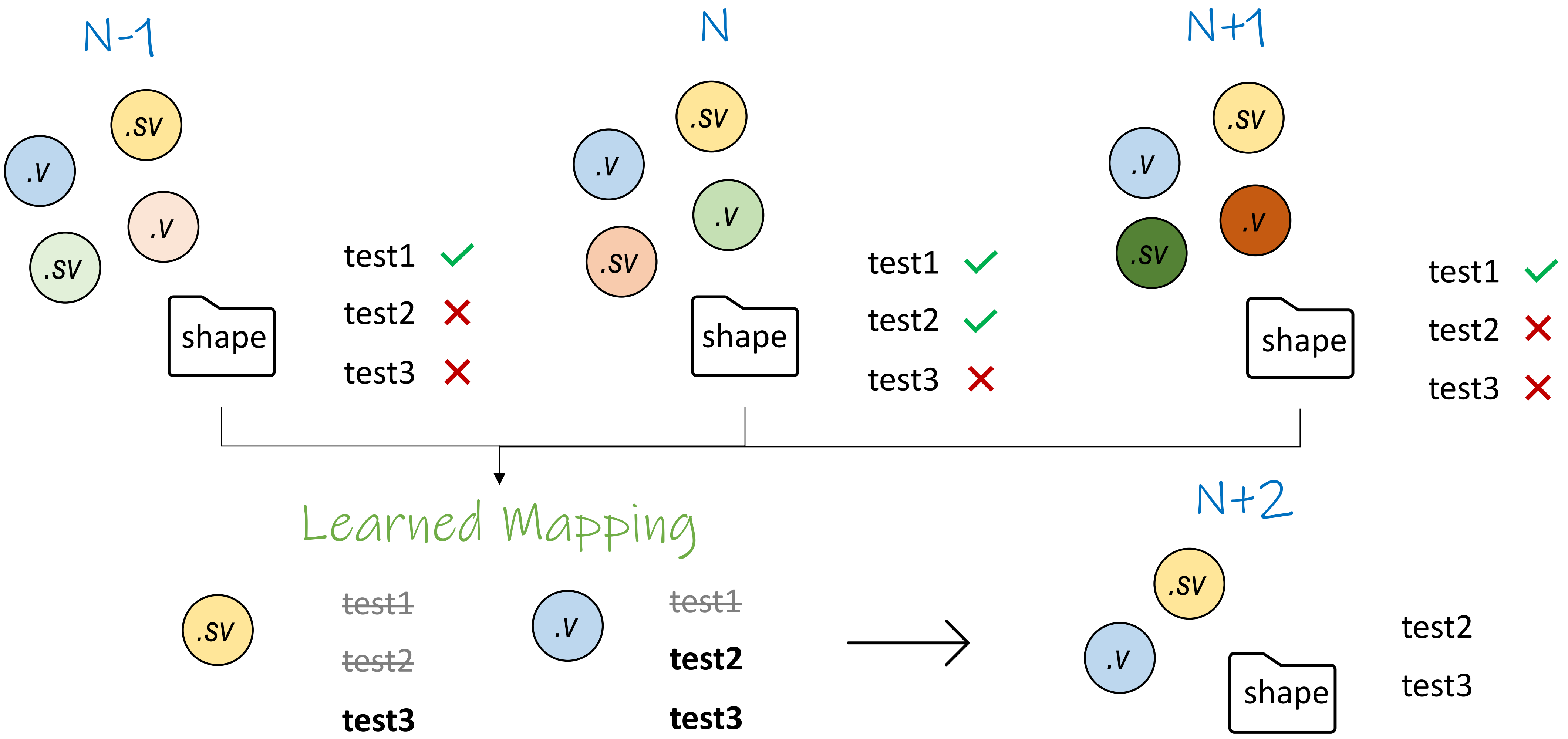
- Full Regression →



- Mini Regression →



Solution



N-1
.SV
.V
.V
.SV
shape
test1
test2
test3
N
.SV
.V
.V
.SV
shape
test1
test2
test3
N+1
.SV
.V
.V
.SV
shape
test1
test2
test3
Learned Mapping
.SV
~~test1~~
~~test2~~
test3
.V
~~test1~~
test2
test3
N+2
.SV
.V
shape
test2
test3

Result & Questions

- 6.6X Quicker than Full Regression (11~51 tests vs 274 tests)
- Coverage Equivalence with Changed Modules (±0-2%)
- Selected ALL Full Regression Failures
- Time to 1st Failure: 1-2% of Selected Regression
- Time to ALL Failures: $^{1}/_{4}$ of Full Regression