Testing Software Quality Characteristics – Part 1

Configuration Testing

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Objective

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Utilize strategies for configuration testing

Multiple Configurations

- Should performance tests be repeated for each possible configuration?

Configuration Testing

Verify that the functional and performance requirements of the system are met for the different configurations that the system must run on.

Configuration Testing Steps

1. **Identify the parameters that define each configuration that could have an impact on the system's ability to meet its functional and performance requirements**
   - CPU
   - Operating system
   - Memory
   - Data Base
2. **Partition (group similar parameters to reduce possible number of configurations)**
3. **Identify configuration combination to test**
   - Boundaries (maximum and minimum
   - Risk based
   - Design of experiments pairwise combinations (used to select combinations of configuration parameters when testing all combinations is impractical or not needed)

Example: Performance Test of Car

Engine	Transmission	2D/4D	Tires
3.0	auto (a)	2D	15 inch normal (15 n)
3.8	manual (m)	4D	15 inch high performance (15 hp)
5.0			

There are 24 configuration combinations.

Performance Test of Car (continued)

Slowest Configuration

3.0 / auto / 4D / 15 n

Fastest Configuration

5.0 / manual / 2D / 15 hp

Risk-based Selection Based on Projected Sales

3.8 / auto / 4D / 15 n

Pairwise Combinations

Engine	Transmission	2D/4D	Tires
3.0	a	2D	15 n
3.0	m	4D	15 hp
3.8	a	2D	15 hp
3.8	m	4D	15 n
5.0	a	4D	15 hp
5.0	m	2D	15 n

Summary