TEST AUTOMATION ACADEMY

BRIEF THEORY OF TESTING

ARTIN
SOLUTIONS

WHAT IS TESTING?

- Policy and strategies
- Process improvement
- Test improvement
- Test closure activities
- Static testing
- Test planing
- Reporting
- Test control
- Dynamic testing (analysis, design, implement, execute, evaluate)

7 TESTING PRINCIPLES

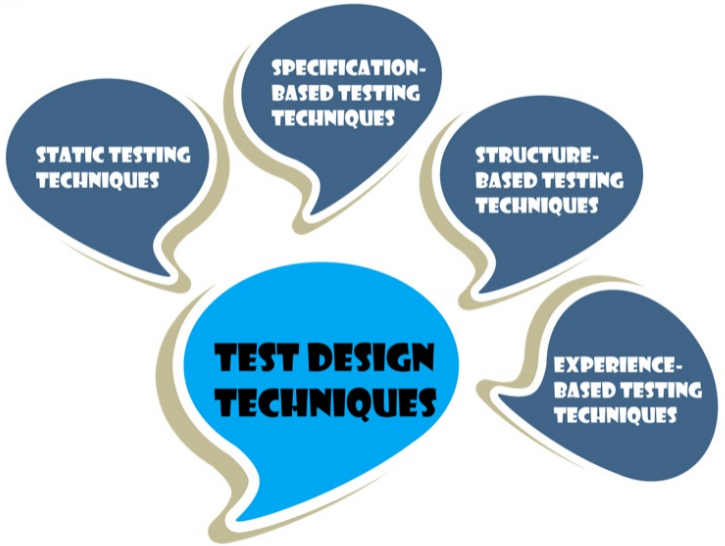
- Testing shows presence of defects
  - *not absence*
- Exhaustive testing is impossible
- Early testing
- Defect clustering
- Pesticide paradox
- Testing is context dependent
- Absence of errors fallacy

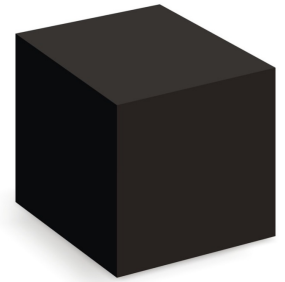
TEST TYPES

- Functional
  - What system should do
- Non-functional
  - How is system doing it
- Structural or Coverage
  - Thoroughness of testing
- Testing related to changes
  - Changes due to defect fixes

TEST DESIGN TECHNIQUES

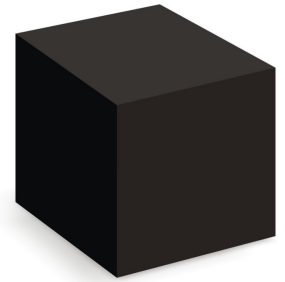
- Black-box
  - EP / BVA / Decision Tables / State transition / UC
- White-box
  - Statement testing / Decision testing / All Paths / MCDC etc.
- Experience based
  - Exploratory testing
  - Error guessing
  - Session based testing





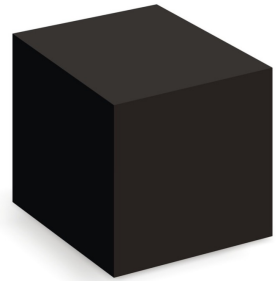
EQUIVALENCE PARTITIONING

- equivalence partitions assumptions
  - one value from each partition is better than all values from one
  - all values in partitions behaves the same



BOUNDARY VALUE ANALYSIS

- boundary value analysis assumptions
  - defects tends to appear on the boundaries

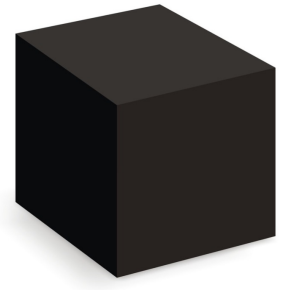


DECISION TABLES

> business rules

> to know the outcomes, we must consider the rules in combination

Combinations	1	2	3	4
Conditions				
>= 18 y	T	T	F	F
passed medicals	T	F	T	F
Actions				
Insure?				

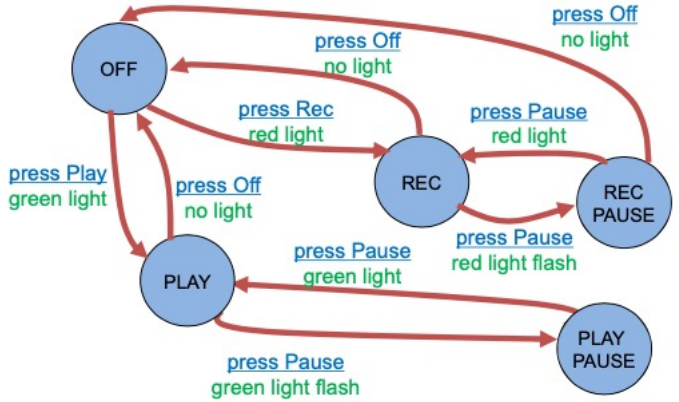


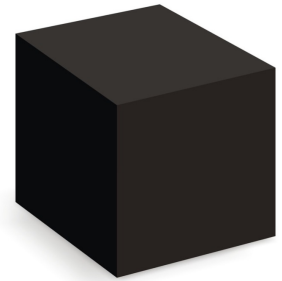
STATE TRANSITION

> series of stable situations

> set of rules that govern which situation brings you to what

states \ events	Press "off"	Press "play"	Press "rec"	Press "pause"
OFF	-	PLAY	REC	-
PLAY	OFF	-	-	PLAY PAUSE
RECORD	OFF	-	-	REC PAUSE
PLAY PAUSE	-	-	-	PLAY
REC PAUSE	OFF	-	-	REC



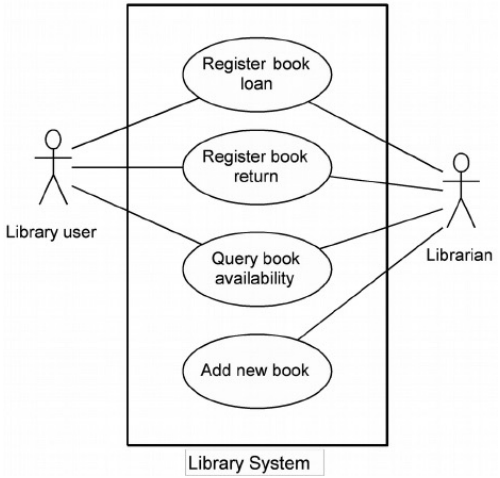


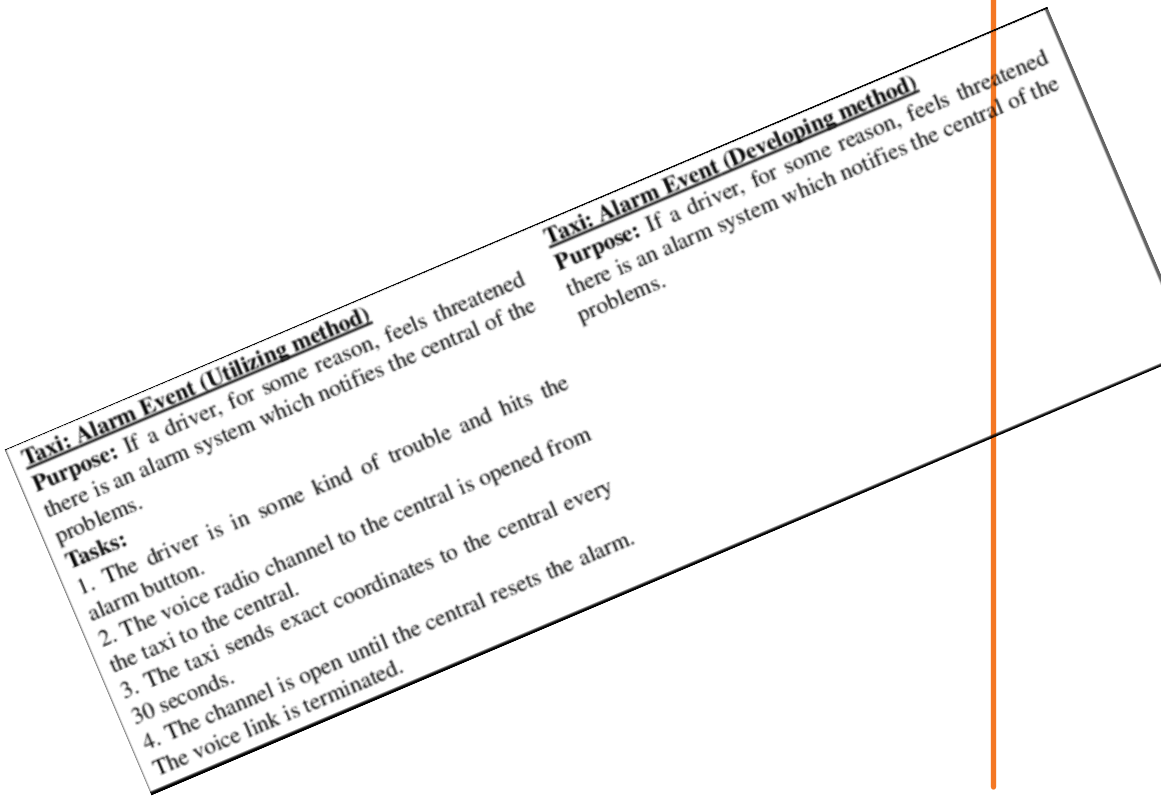
USE CASE

> way of modeling interactions

> have actor and a subject

> describe business uses of system





Taxi: Alarm Event (Utilizing method)
Purpose: If a driver, for some reason, feels threatened there is an alarm system which notifies the central of the problems.
Tasks:
1. The driver is in some kind of trouble and hits the alarm button.
2. The voice radio channel to the central is opened from the taxi to the central.
3. The taxi sends exact coordinates to the central every 30 seconds.
4. The channel is open until the central resets the alarm. The voice link is terminated.

Taxi: Alarm Event (Developing method)
Purpose: If a driver, for some reason, feels threatened there is an alarm system which notifies the central of the problems.

STATEMENT TESTING

> Statement coverage = % of executable statements that have been exercised by a set of test cases

```
while not at end of this document do
    read current;
    if understand then
        go to next section;
        current section becomes this one;
    else
        go back to the beginning of current section;
    end
end
```

DECISION TESTING

> Decision coverage = % of decision outcomes that have been exercised by a set of test cases

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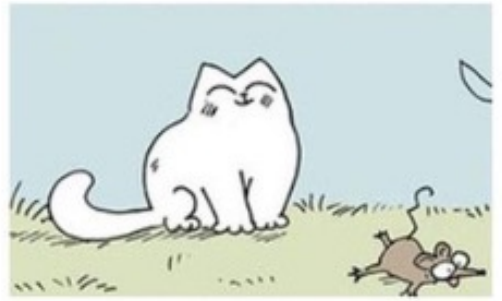
EXPERIENCED TESTER & BUG



EXPERIENCE BASED

> Exploratory Testing

> Error guessing

> Session based testing

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THANK YOU FOR YOUR ATTENTION

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SOLUTIONS