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Test automation in isolation evolution of Simulator approach

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Passion to Perform

Overview

- Testing in isolation
- Simulator evolution
- Usage examples
- Q&A

Dragon Poker

A kind of stud poker played with deck of cards

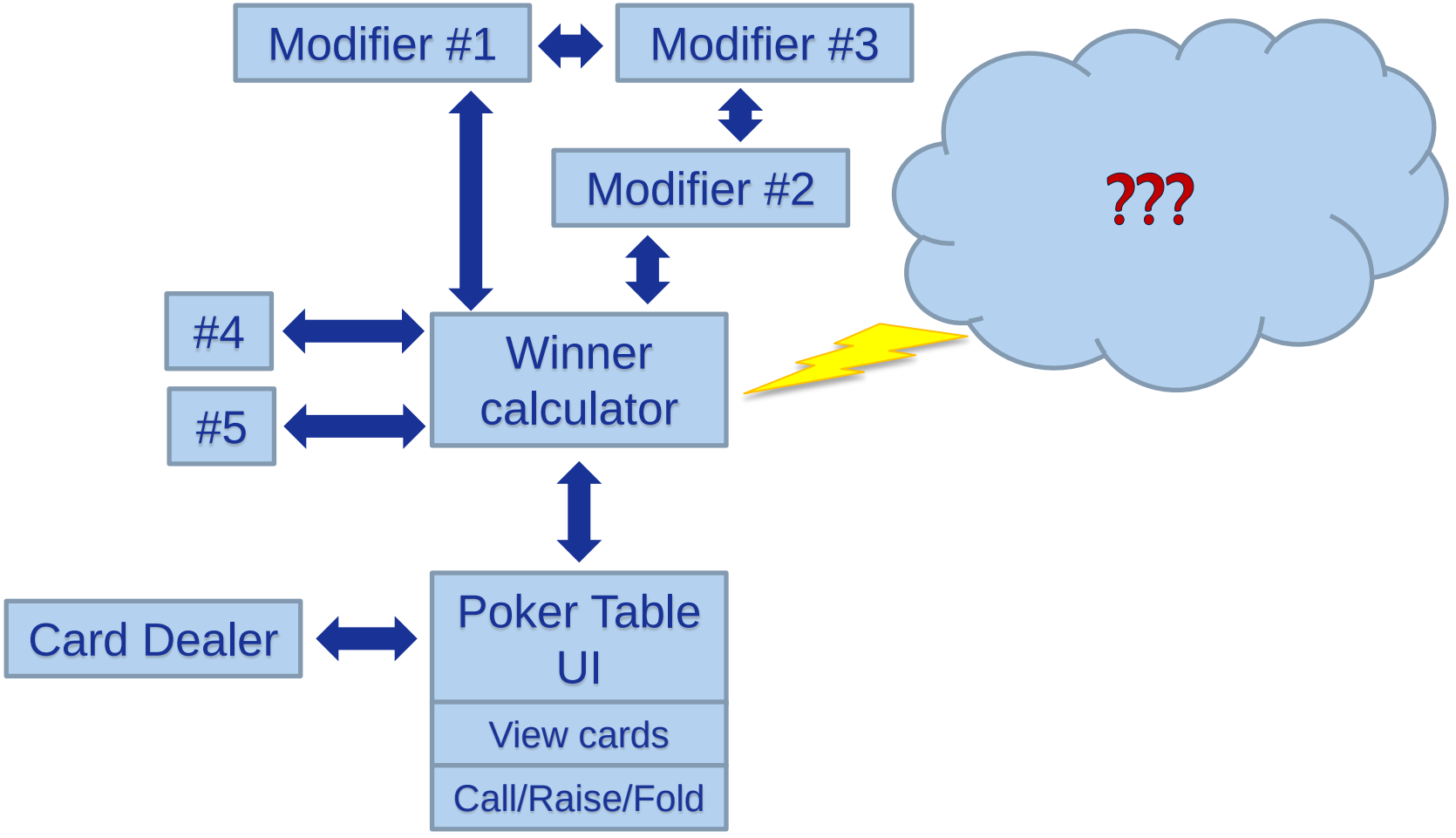
Deal.. Bet.. Show!

Has Conditional Modifiers

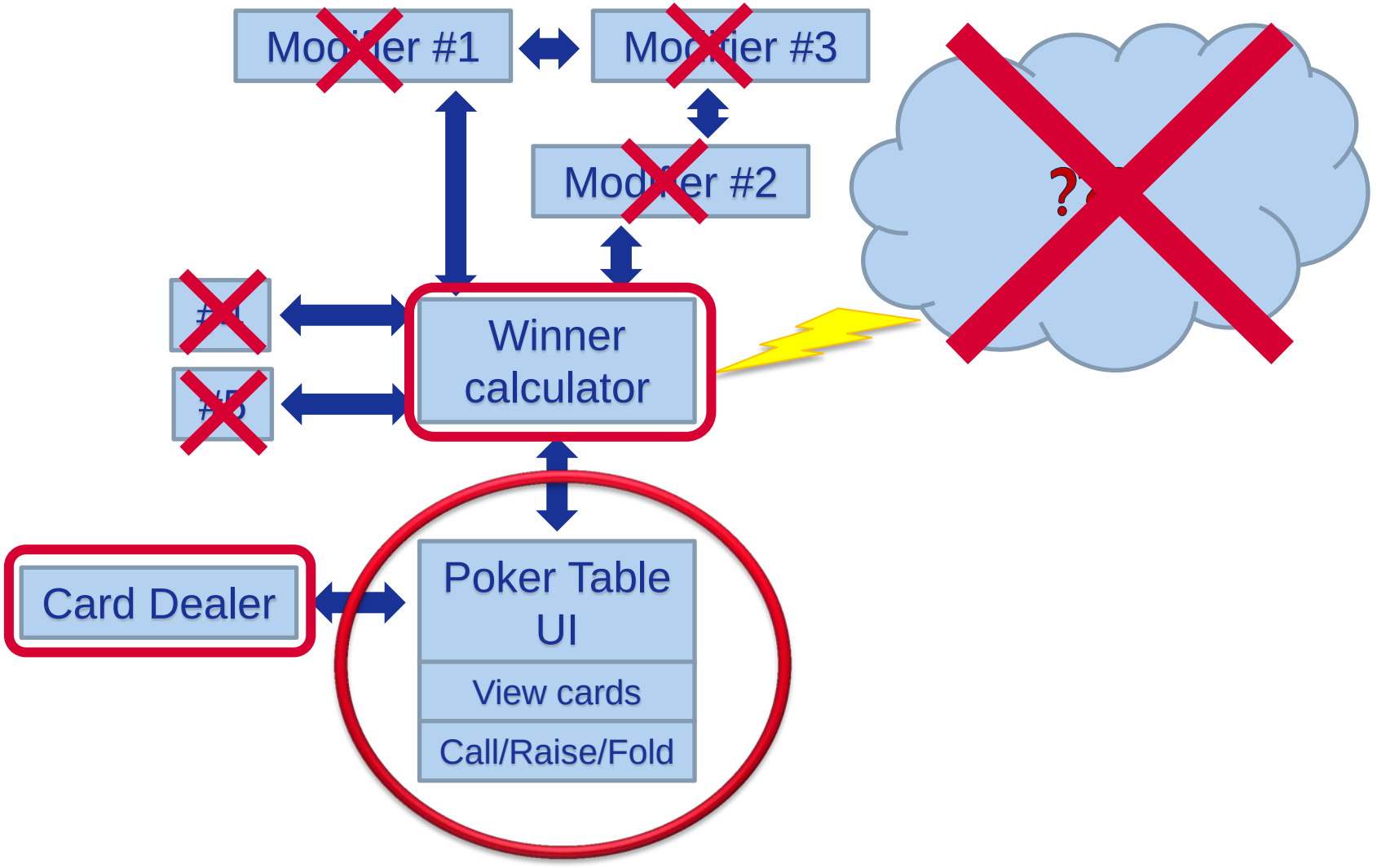
Conditional modifiers

- The number of hands played
- Even-numbered hands
- Specific cards drawn
- Specific cards that cancel previous modifiers
- Number of spectators
- Current date and time

Dragon Poker Game



Dragon Poker under test



Isolation: what's the profit?

- Reduce the number of tests
- Fast failure detection
- Simplified environment setup and maintenance

3 x 8 x 4 = 96

3 + 8 + 4 = 15

+ ? (integration)

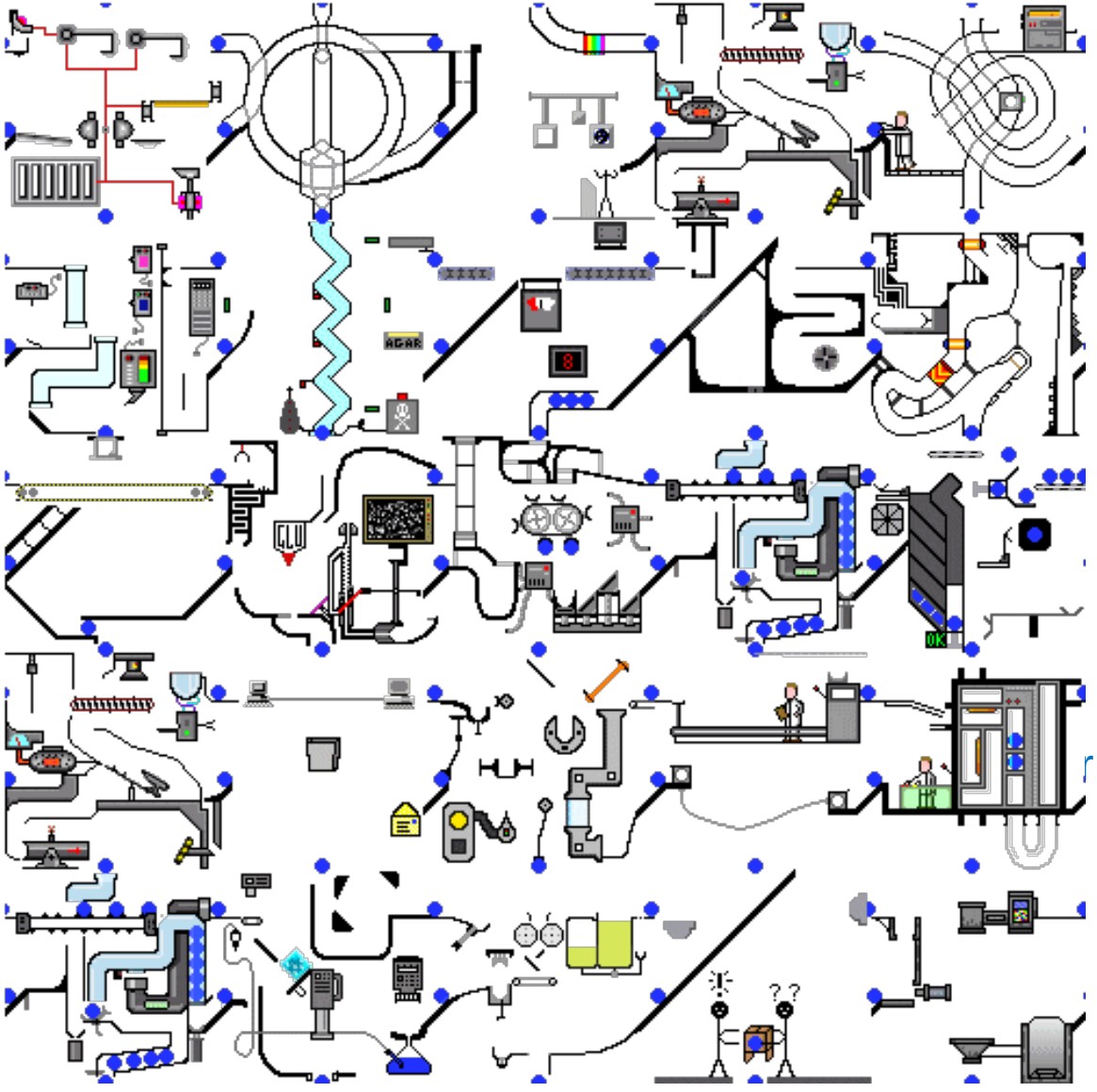
Simulator

- What for?
  - Developer to test UI with backend not ready
  - Quick demo for the team or business
  - Manual testing of cases hard to reproduce
  - Automated testing
- How?
  - Let’s pretend there’s backend
  - Build Simulator over API entities
  - Emulate Back End behavior
  - This kind of Simulator is a Stub

Simulator as a Stub

- Provide fixed output (based on input)
  - Follows business logic
  - Quick results
  - Limited flexibility
  - Trends to include all business logic in the end
  - High support costs

Simulator as a Stub: Automation



- More functionality
- More cases
- More inputs
- More responses
- More code
- And even more….

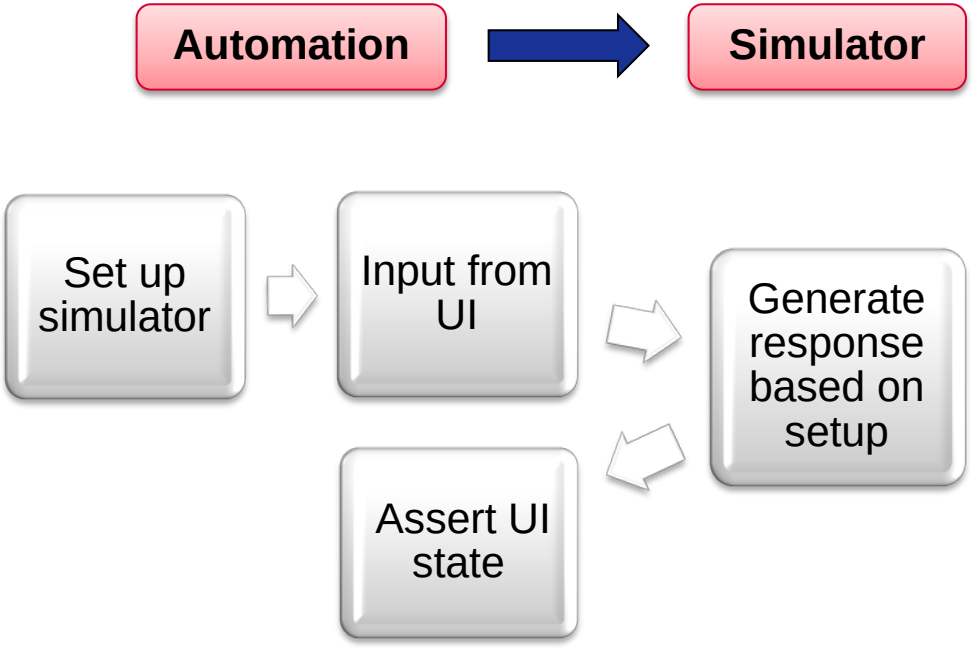
Configurable stubs

— Design stubs with behavior determined by configuration file (e.g. XML)
— Implement new stub behaviors as new configurations

OR

— Let automation set up Stub configuration

Simulator as a Configurable Stub: Automation



- Automation sets up the way Simulator responds to the input
- Automation manipulates UI controls to provide user input
- Simulator generates response based on automation setup
- Automation asserts UI state after response received

Configurable stubs

- Design stubs with behavior determined by configuration file (e.g. XML)
- Implement new stub behaviors as new configurations

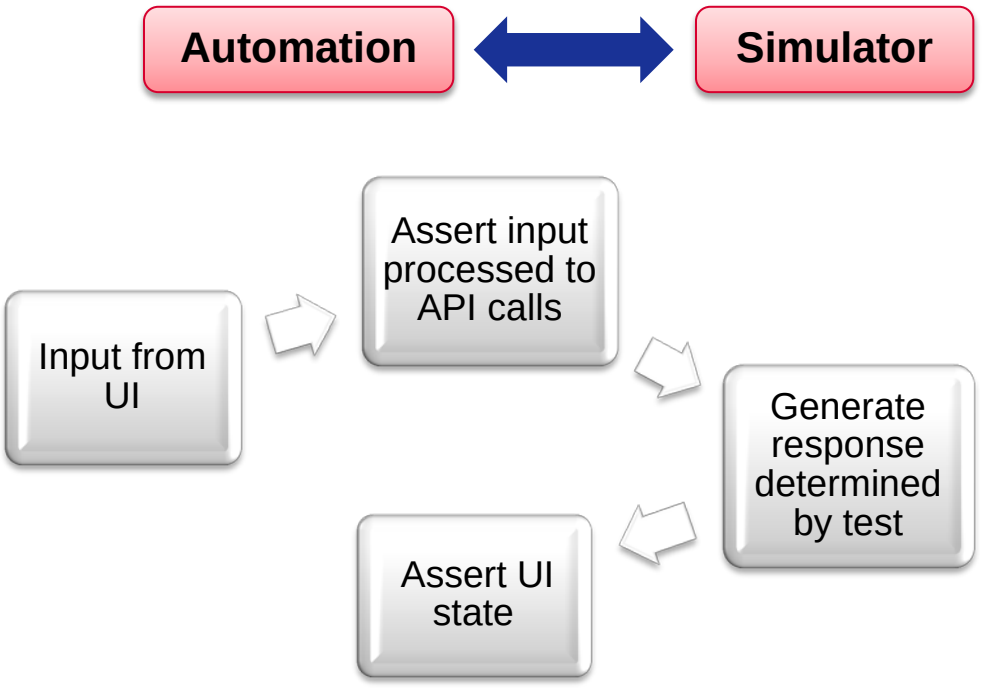
OR

- Let automation set up Stub configuration

OR

- Let automation determine Simulator behavior
  - Simulator as a Mock
  - Subsystems are designed to have automation backdoor

Simulator as a Mock: Automation



- Track and check requests to server
  - Check request sent
  - Check request parameters
- Simulate response from server
  - Provide specific values in response
  - Check UI formats and displays expected responses correctly

Simulator as a Mock: pro et contra

- Reduced Simulator complexity
- Reduced code base
- Reduced test support costs
- Less Simulator defects breaking automation
- Deeper understanding of how UI works for QA/FA

- QA needs to dig deep into application architecture
- Tests far away from business business scenarios
- Higher involvement costs
- How to demo?

Dragon Poker Simulator scenarios

- Every 5 hands, the sequence of cards is reversed, so the low cards are high and vice versa
  - **Stub: Play 6 hands sequentially, analyze cards dealt and winning hand**
  - **Configurable stub: Set up cards so that winner should be expected on hand N and check it's not**
  - **Mock: Set up 'This is hand N' mode**
- Red Dragons are wild on even-numbered hands
  - **Stub: Play odd/even hands sequentially**
  - **Configurable stub: use fixed card sets prepared**
  - **Mock: Set up 'This is hand N' mode and cards dealt**

Dragon Poker Simulator scenarios

- If there is a 10 showing in the first two face-up cards in any hand, then 7s will be dead.
- If another 10 appears, rule will be canceled out.
  - **Stub: Play several round so that there are combinations of 10's, 7's and analyze results**
  - **Configurable stub: use fixed card sets prepared**
  - **Mock: Automation sets up what card is next; then DDT**

Dragon Poker Simulator scenarios

- When played with spectators, 3s will be dead and considered blank.
  - **Stub: Set up environments with & w/o spectators**
  - **Configurable stub: Set up spectator count for test run**
  - **Mock: Automation sets up ‘Spectators’ modifier state**
- In months without an “R”, on dates with two numbers, the card values corresponding to the date switch places (e.g. On August 26, 2 become 6s and vice versa).
  - **Stub: Simply wait for the date or invent time machine**
  - **Configurable stub: Set up current date for test run**
  - **Mock: Automation sets up current date**

Simulator: which way?

There’s No Silver Bullet!

Q&A

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