Death to Test Cases!

PerfTestPlus

CAST 2022

Hands-On

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R.I.P.

Here lies Test Cases

"They had a good run!"

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HANDS-ON

Session Prep

Step 1: Get an internet-enabled device
(share with a neighbor, if needed)

Step 2: Open a browser and navigate to
https://opensource-demo.orangehrmlive.com

Step 3: Login using the ID and Password provided

Step 4: Document a Test Case for the login operation

Test Case Development Debrief

Q: Was this easy to do? Or hard?

Q: Were you able to complete the task in the time given?

Q: Given additional time, what would you have refined or added?

Q: Do you think all the Test Cases in this room are equivalent?

The Medical Examiner's Report:
accidental death due to misuse & neglect

Creates inattentional blindness

Pesticide paradox

Evolution is challenging

Constrained test execution

Limits test coverage

Excessive time to create AND maintain

TC was here

Definition and Semantics

Test Case

A set of input values, execution pre-conditions, expected results and execution post-conditions, developed for a particular objective or test condition, such as to exercise a particular program path or to verify compliance with a specific requirement.

Source: IEEE 610

Common Misuse

A set of step-by-step instructions for <u>executing</u> a Test Case.

a.k.a. Test Procedure

A **Test Procedure** specification describes how the tester will physically run the test, the physical set-up required, and the procedure steps to be followed.

Source: IEEE 829

Other related terms …

Test Suite

Test Script

Test Charter

Test Plan?

Commonly used test case template ...

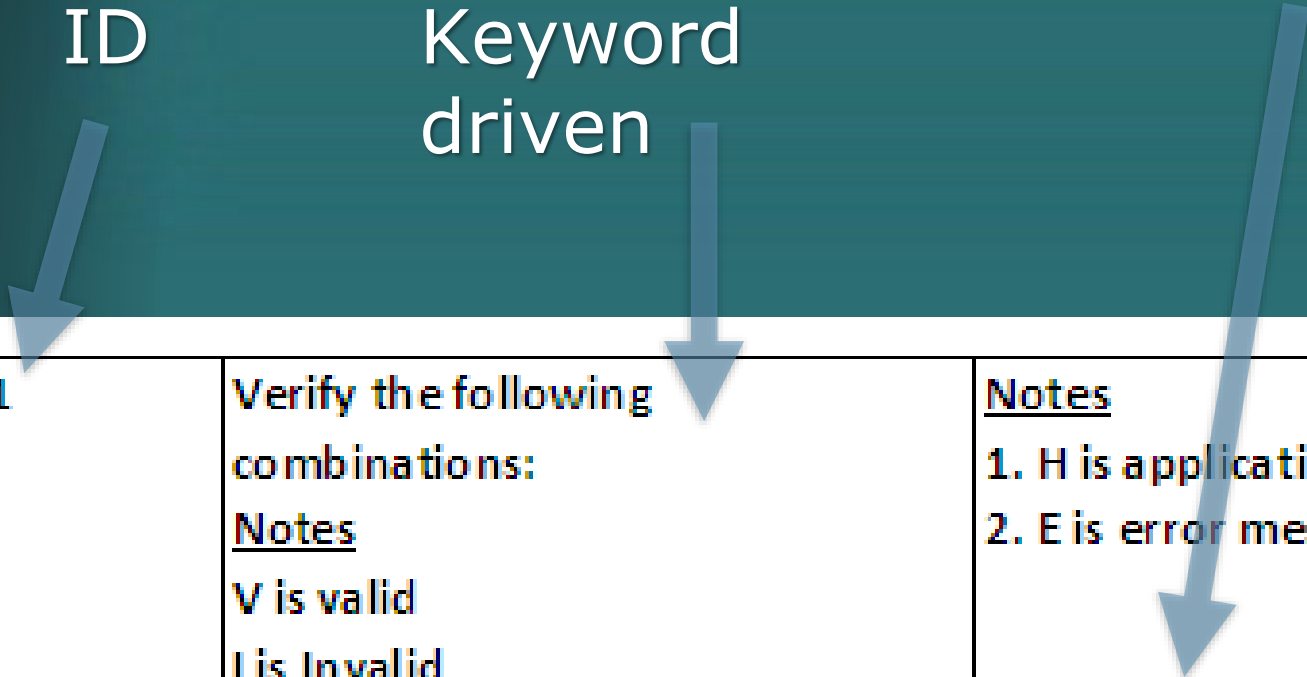|	Test Steps	Expected Result(s)
TC1	Enter a valid username and valid password. Click login button.	The user should log in the application. The application should display the home page with the name of the user.
TC2	Enter a valid username and invalid password. Click login button.	The user should not be allowed to log in to the application. The application should display an error message "..." and re-open the login page.
TC3	Enter a invalid username and invalid password. Click login button.	The user should not be allowed to log in to the application. The application should display an error message "..." and re-open the login page.

Test ID   Navigational
           instructions   Expected result (or test points)

Input data
(sometimes actual values)

< image courtesy of www.gurock.com >

An extension or alternative ...

Test ID

Data or Keyword driven

Expected result (or Oracle)

TC1	Verify the following combinations: Notes V is valid I is Invalid	Notes 1. H is application home page 2. E is error message
Username	Password	Expected Result(s)
-	-	E
-	I	E
-	V	E
I	-	E

Some comparisons ...

Login with valid credentials

Login with a valid username and valid password

1) Login with a valid username and valid password
2) Ensure the welcome screen displays properly

1) Login with USERNAME=test1, PASSWORD=pass1
2) Ensure the welcome screen displays the following:
- current date
- Hello "test1" msg appears

...

Let's Iterate …

Step 1: Think about the Test Case you wrote
(don't look at it!) ☺

Step 2: Rewrite it

Step 3: Compare the new test to the original …
did anything change?

Q: Which one do you like better? Why?

Why create Test Cases?

To document testing?

To ensure the tests are executed the SAME way every time?

To provide "evidence" of test?

To segment work into "easy to estimate" chunks?

To ensure that untrained testers can execute the tests?

For compliance/audit?

What is the real purpose of a Test Case?

To guide evaluation?

To enable consistency of test execution?

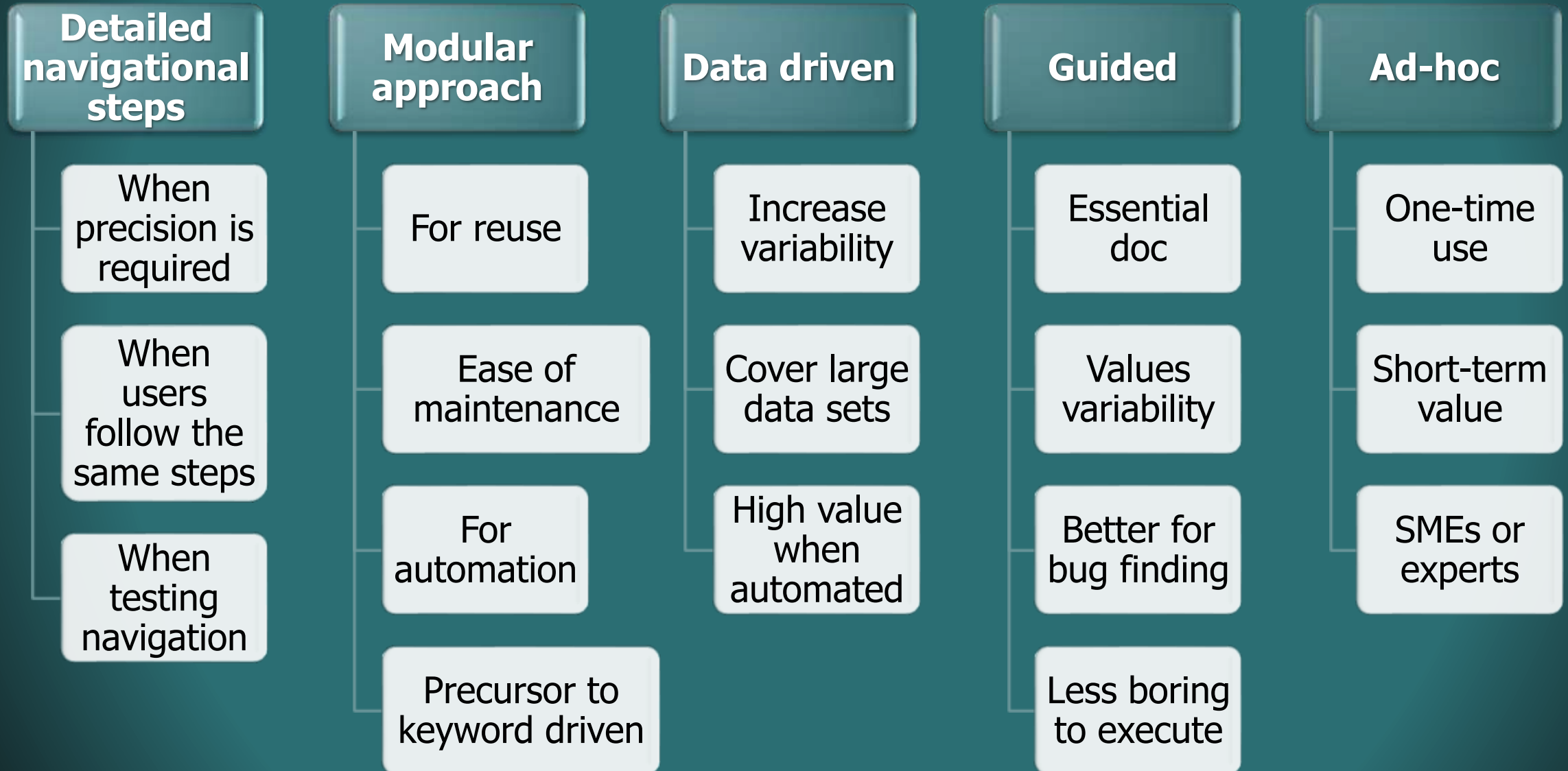To understand WHAT is being tested? (coverage?)

To find bugs?

To provide exemplars of HOW the system is supposed to work? (executable specifications)

What is essential?

KNOW THY GOAL *and Choose wisely!*

Detailed navigational steps	Modular approach	Data driven	Guided	Ad-hoc
When precision is required	For reuse	Increase variability	Essential doc	One-time use
When users follow the same steps	Ease of maintenance	Cover large data sets	Values variability	Short-term value
When testing navigation	For automation	High value when automated	Better for bug finding	SMEs or experts
	Precursor to keyword driven		Less boring to execute	

Some options ...

Analysis Artifacts	Checklists	Matrices	Outlines	High Formality
Architecture diagrams State diagrams Flowcharts Etc.	Lists of items to check (e.g. in a variety of configs) ❑ item 1 ❑ item 2	Tables with tests to run on one side and configurations in which to run them on another	1.1.1 test this 1.1.2 test that	Test Name: Purpose: Setup: . . . Etc.
Reminds testers of things to test; doesn't document individual test cases. *Requires expertise to use.*		100s of test cases/page. *Requires knowledge to use.*	5 – 15 test cases per page. *Requires knowledge or access to docs*	0.5 – 2 pages per test case. *Can be used with limited knowledge*

Recognize that testing the **same thing** does not require using the exact **same test**!

Let's explore ...

Low-Tech Test Doc Example ...

**Implies an iterative approach to test planning and design**

Enables exploratory or loosely structured testing

	A	B	C	D	E	F	G	H
1	Test Plan		Test Design	Oracles		Test Log		
2	(targets)				Actual results	Comments	Notes	Defect #'s
3		P	Valid files	No probs				
4	Feature 1		names:_____					
5		N	Invalid files	Errors				
6		C	Suspect operations	???				
7								
8	Feature 2							
9								
10								
11	Feature 3							
12								

A test coverage scheme including Positive / Negative / Crazy (or stress/robustness) tests
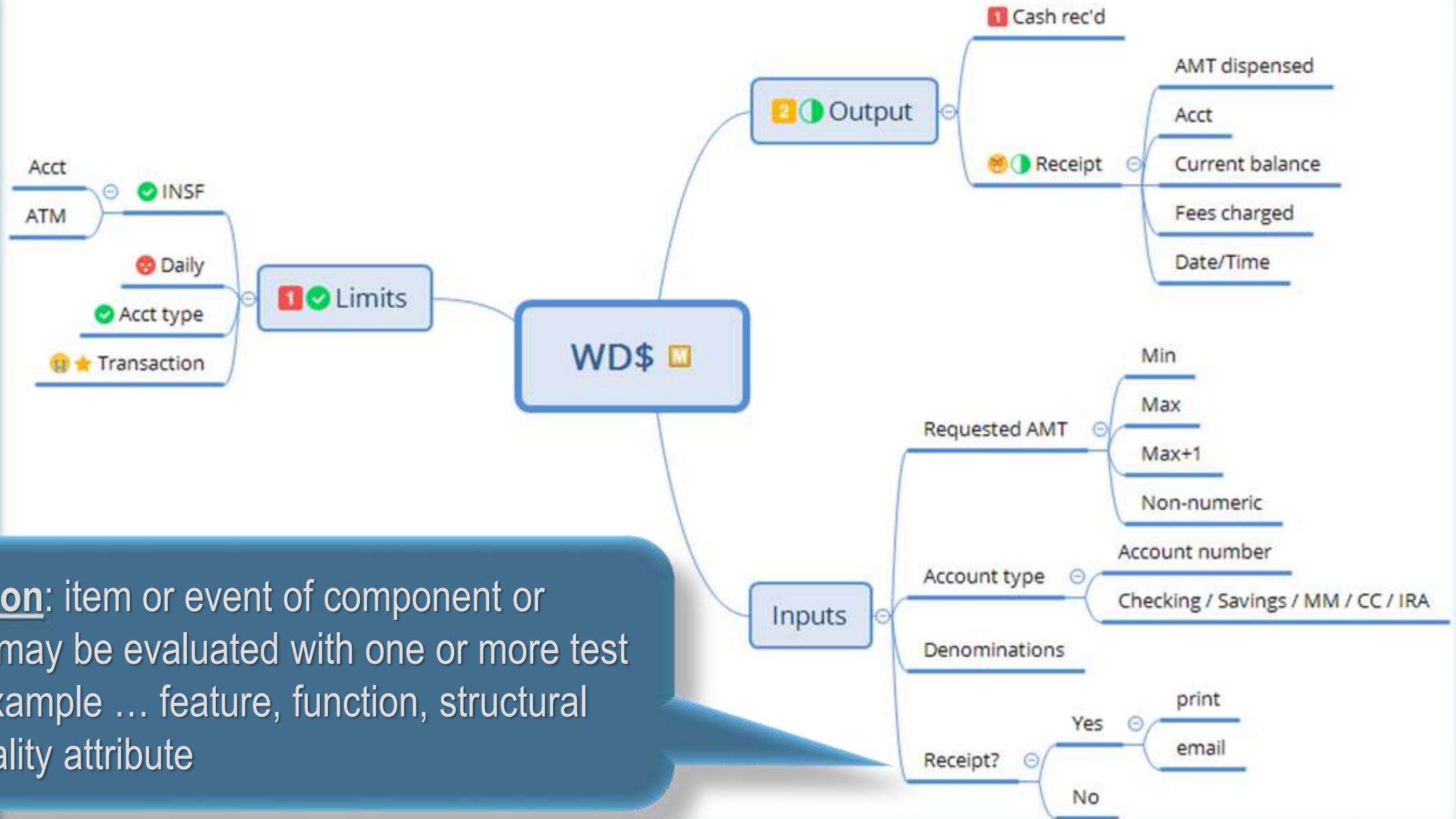
What about Mind Maps?
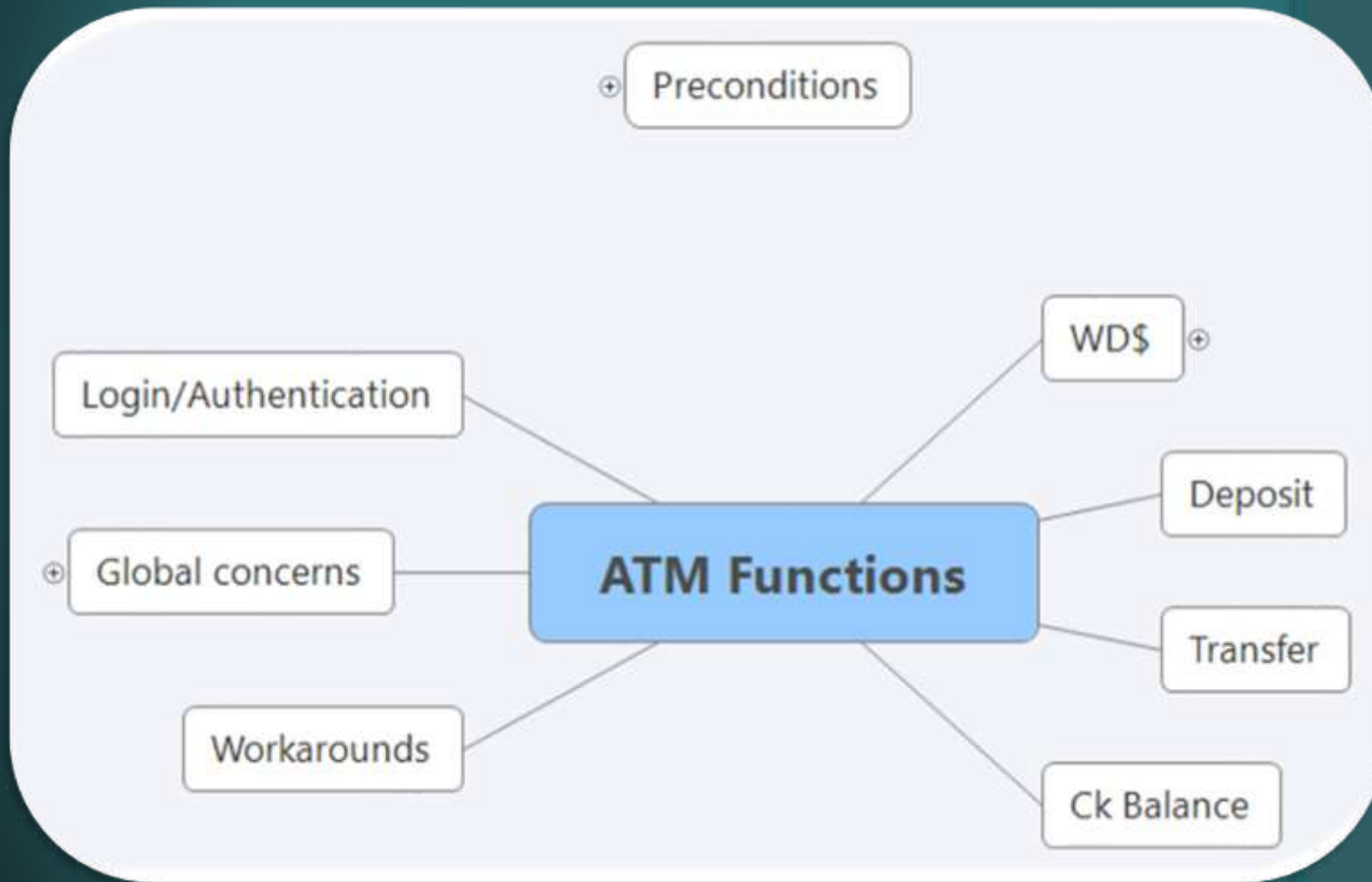
Good for brainstorming

Easy to create

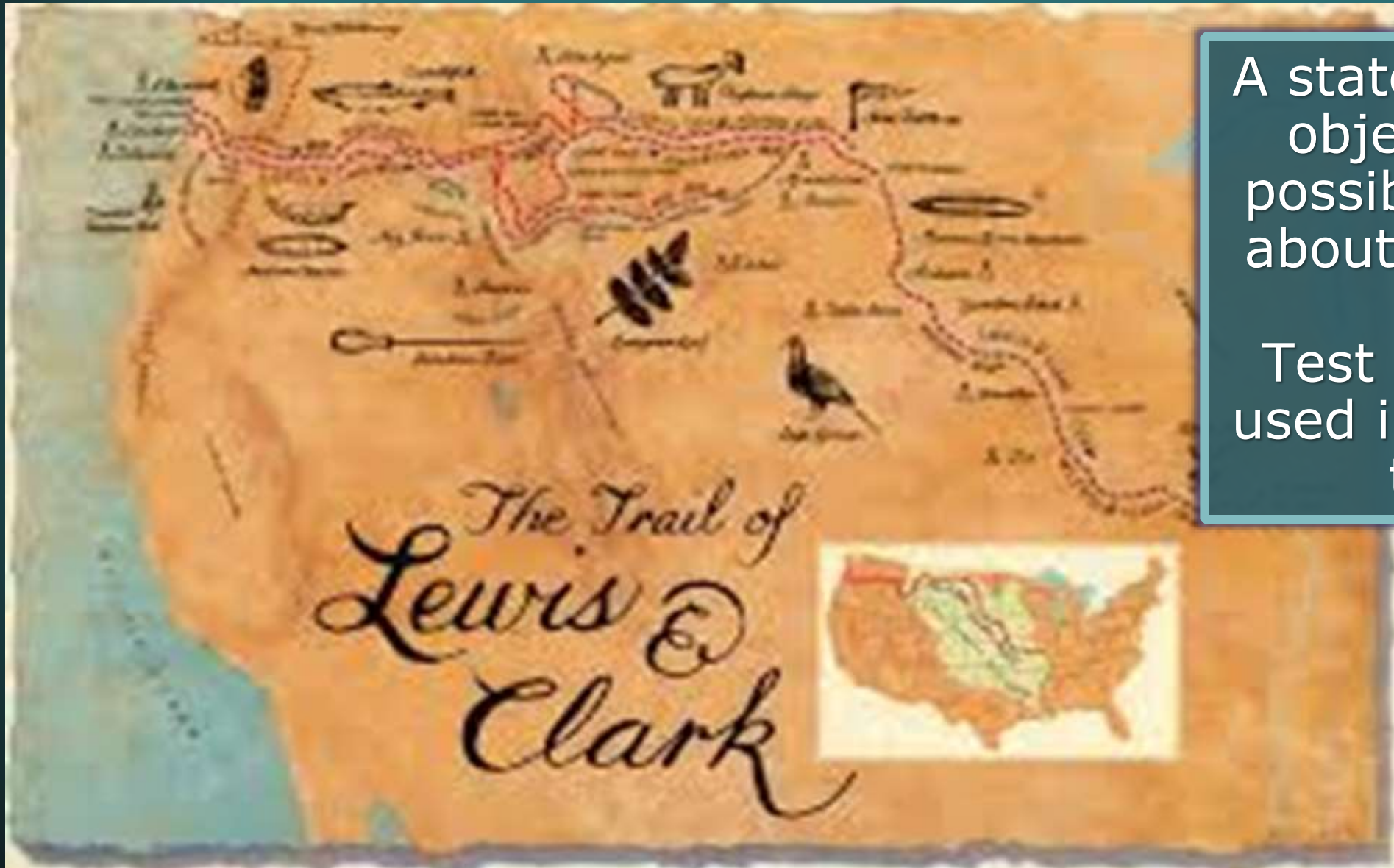Good basis for early test coverage reviews

Variable formatting

Easy to maintain

Test condition: item or event of component or system that may be evaluated with one or more test cases, for example … feature, function, structural element, quality attribute

Another option … Test Charters

A statement of test objectives, and possibly test ideas about how to test.

Test charters are used in exploratory testing.

The Trail of Lewis & Clark

Example Charter

Type	Priority	Estimate	References
Functional	High	30 minutes	Regression

Mission

Explore and verify the login feature of the application under test

Goals

1. Verify login with good username and password
2. Verify error handling when invalid password is provided for a good username
3. Verify error handling when invalid username is provided with a good password
4. Verify error handling when invalid username and invalid password are provided.
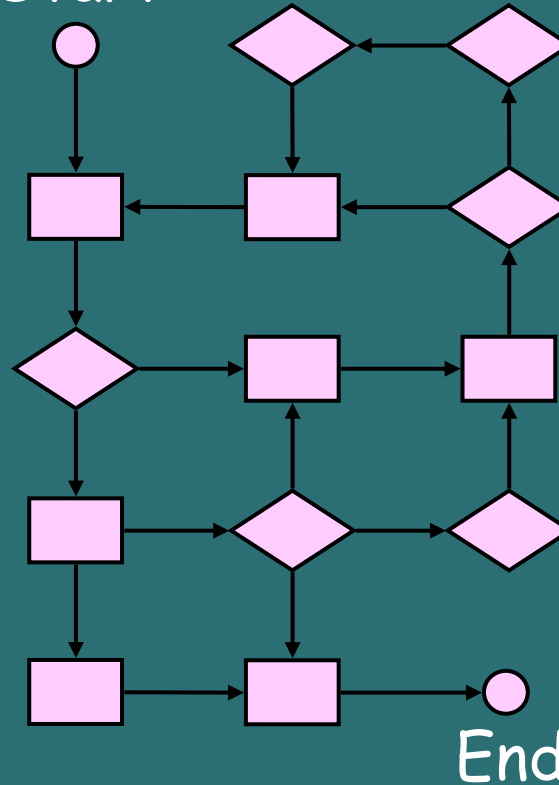
Scripted vs. Chatered Exploratory

Scripted

Exploratory

Start

Test 1

Test 2

Test 3

Test 4

Test 5

End

Session 1

Session 2

Session 3

Session 4

Session 5

One more time ...

Step 1: Think about the Test Cases you've written
(don't look at them!) ☺

Step 2: Rewrite the Test Case again

Step 3: Review one of your neighbor's Test Cases
and/or try to run it

Step 4: Provide feedback – 1 positive thing + 1 suggestion

How will you decide what's best?

GOAL: Reduce redundancy

- Opt for less detail
- Data driven & Keyword-driven
- Build in modular chunks (re-usable)

GOAL: Incrementally increase test coverage

- Opt for less detail
- Mind maps, checklists, charters
- Data driven and/or keyword driven (focus on re-use & evolving tests over time)

GOAL: Reduce Test Case creation/maintenance time & effort

- Opt for less detail
- Checklists, spreadsheets, mind maps, charters
- Software models, bug taxonomies, requirements (no doc)

Parting Thoughts ...

Observations from a career trainer and consultant

CHALLENGE EXERCISE:

propose one idea to help reframe your approach to test cases for greater efficiency and/or effectiveness

Confessions from a career tester

Thank you for participating today!

I am grateful to many people who have inspired my thinking and evolution.

Many ideas for this session were inspired and enhanced by:
Elisabeth Hendrickson, James Bach, Robert Sabourin, Cem Kaner, Scott Barber, and others

Comments? Questions?

Best wishes and Happy Testing!