

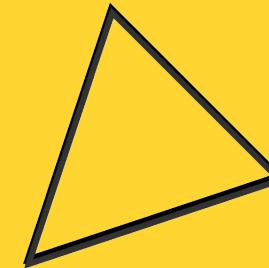


Agile Testing

Agile Testing to
Support Agile Development

Michelle Chua - Lagare

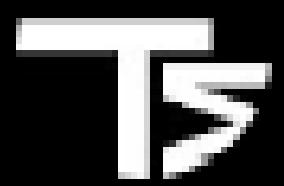
**QE 360, FOUNDER AND PRESIDENT
QE IS THE NEW QA, FOUNDER
AGILE TESTING EVANGELIST**





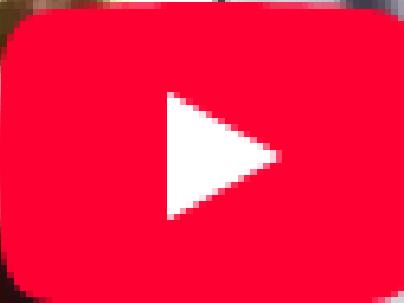
PONDER ON THIS

**IF WE ARE FOLLOWING AN
AGILE DEVELOPMENT
METHODOLOGY, HOW
SHOULD WE BE TESTING?**



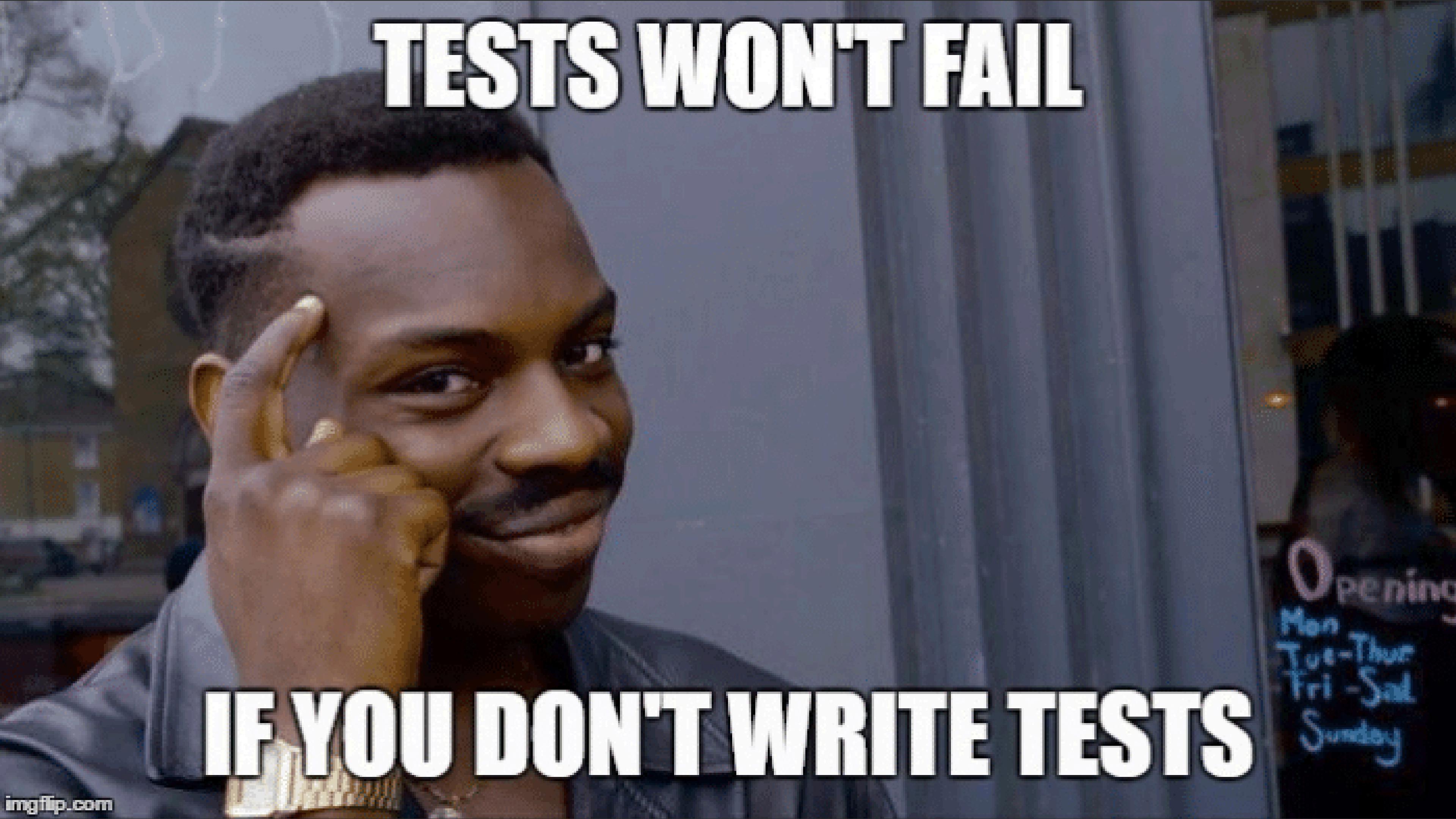
Devs watching QA test the product

Share



Watch on





TESTS WON'T FAIL

IF YOU DON'T WRITE TESTS

THERE ARE NO FINER QA TESTERS

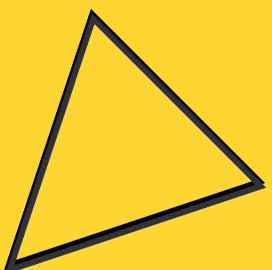


THAN THE CLIENTS THEMSELVES

Exploratory Testing Plus

TOPIC OUTLINE

- Traditional Testing
- Exploratory Testing
- Tools of the Trade
- Exploratory Testing Using Heuristics
- Creating Your Own Test Heuristics in Mnemonics
- Creating Test Charters Using Mind-mapping Tools
- Session-based Testing
- Test Sessions and Pair Testing
- Session-based Test Management
- Applying Agile Testing within Sprints
- Quality Metrics in Agile Development



MODULE 1

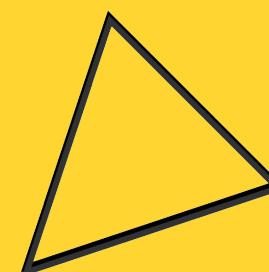
INTRO TO EXPLORATORY TESTING



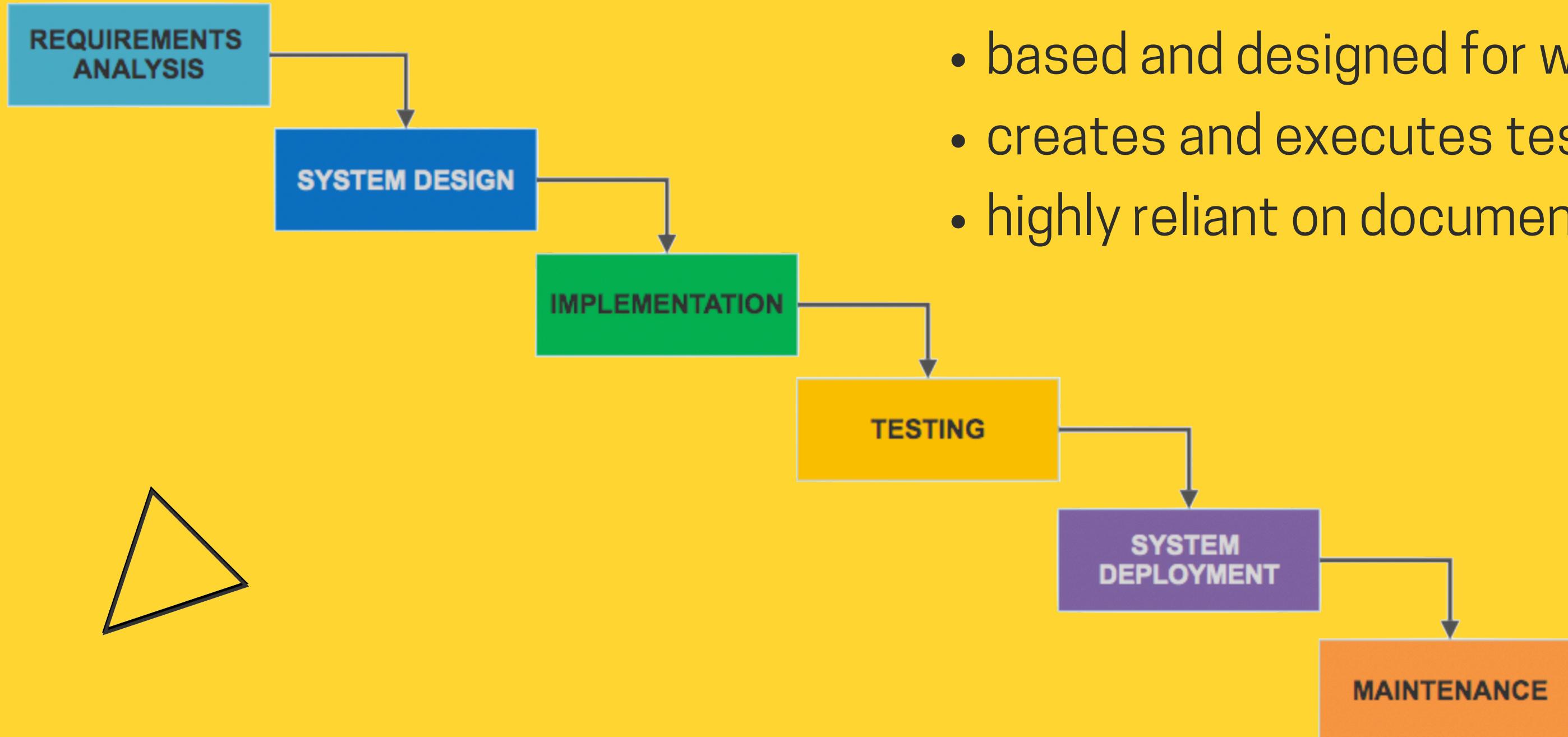


CHAPTER 1

Traditional Testing



Traditional Testing



- based and designed for waterfall methodology
- creates and executes test cases
- highly reliant on documentation

Basic Login Test Cases

5	Module Name	High level Requirement ID	Requirement Description	Author	Test Case IDs	Priority	Test Case Names	Pre-condition	Steps	Test Data	Expected Result
6	Login	ecomm-100 Buyer and seller can login to their accounts, and is give 3 failed attempts before being blocked for the day.	Buyer can login with registered username and matching password Buyer can not login with registered username and mismatching password Buyer can not login with a deleted account Buyer has 3 wrong login attempts already		TC-100.1.1 TC-100.1.2 TC-100.1.3 TC-100.1.4	P1 - Basic flows / main functionality P2 - Alternative flows P3 - Exception flows / edge cases P3 - Exception flows / edge cases		Buyer is a registered buyer on the e-commerce platform Buyer is a registered buyer on the e-commerce platform Buyer has a deleted account on the e-commerce platform Buyer has 3 wrong login attempts already	1. Go to amazon.com 2. Click Login link 3. Enter username and password 4. Click Sign-in button	User is redirected to the login screen Entered username is displayed Entered password becomes * per character User is redirected to his Amazon home page Welcome <username used> is displayed	
7											
8										User is redirected to the login screen	
9										Entered username is displayed Entered password becomes * per character	
10										User is redirected to his Amazon home page	
11										Welcome <username used> is displayed	
12											
13											
14										User is redirected to the login screen	
15										Entered username is displayed Entered password becomes * per character	
16										User is prompted with "Invalid username or password."	
17										User is not redirected to home page.	
18											
19											
20										User is prompted with "Invalid username or password."	
21										User is not redirected to home page.	
22											
23											
24										User is prompted with "There has been 3 invalid attempts on this account and has been temporarily locked."	
25										User is not redirected to home page.	

Kate
Chopin

TEST CASES

PROS

Complete steps

Very detailed

Easy to follow

CONS

Time consuming

Limited to what is specified

Testers get complacent



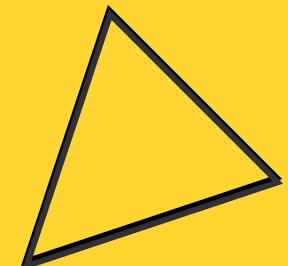
IS "WATERFALL TESTING"
OR TRADITIONAL TESTING
SUITABLE FOR AGILE
DEVELOPMENT?



CHAPTER 2

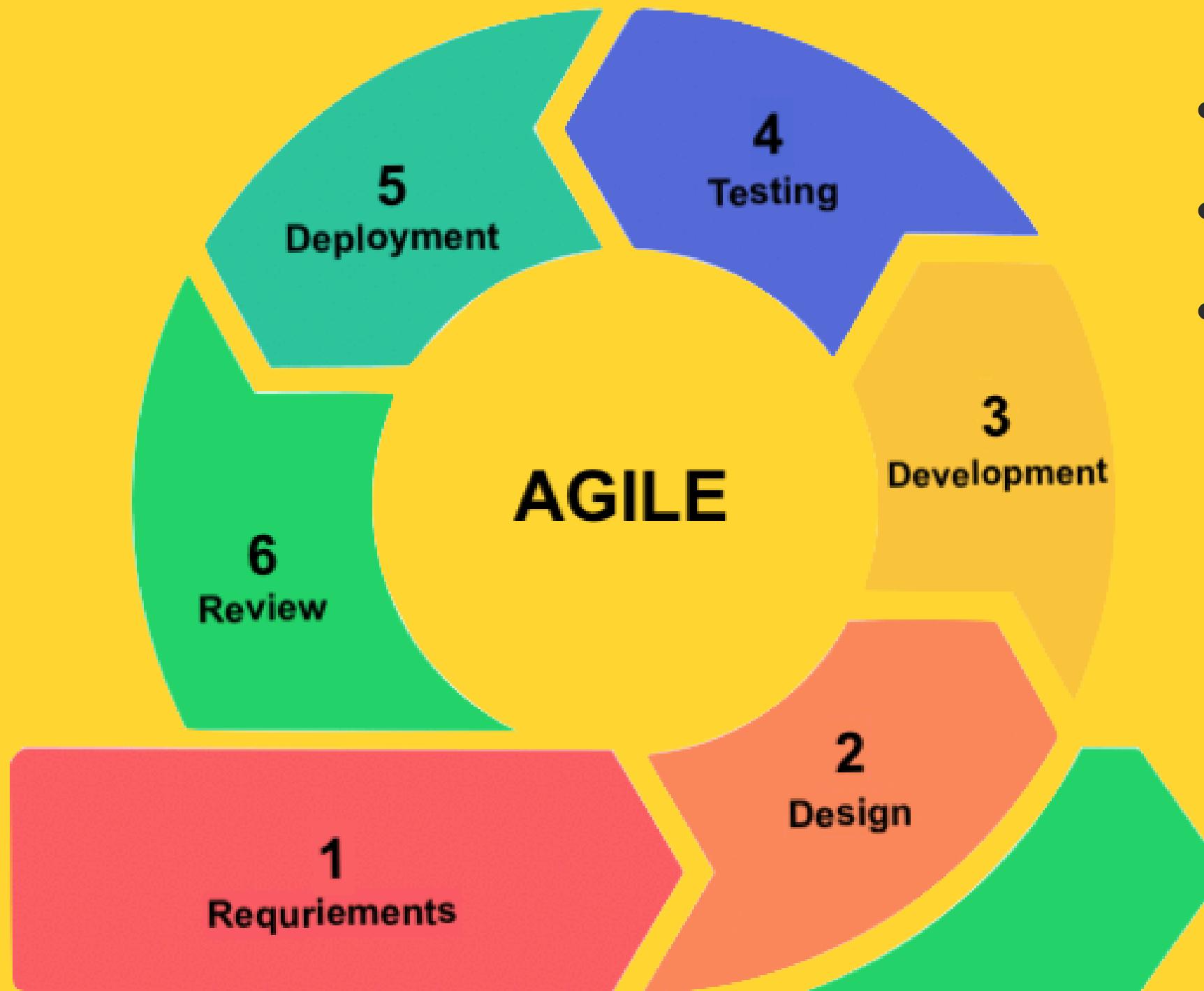
Exploratory Testing

Shifting Left





Agile Testing



- based and designed for agile development
- creates and executes test charters
- highly reliant on tester's creativity

TRADITIONAL TESTING

Intensive documentation

Automation is usually
"secondary"

Automation is usually given **to automation team**

Changes in requirements will
affect the entire SDLC

QAs are accountable for quality

Shift **right**

AGILE TESTING

Minimal documentation

Automation can be part of the
Definition of Done

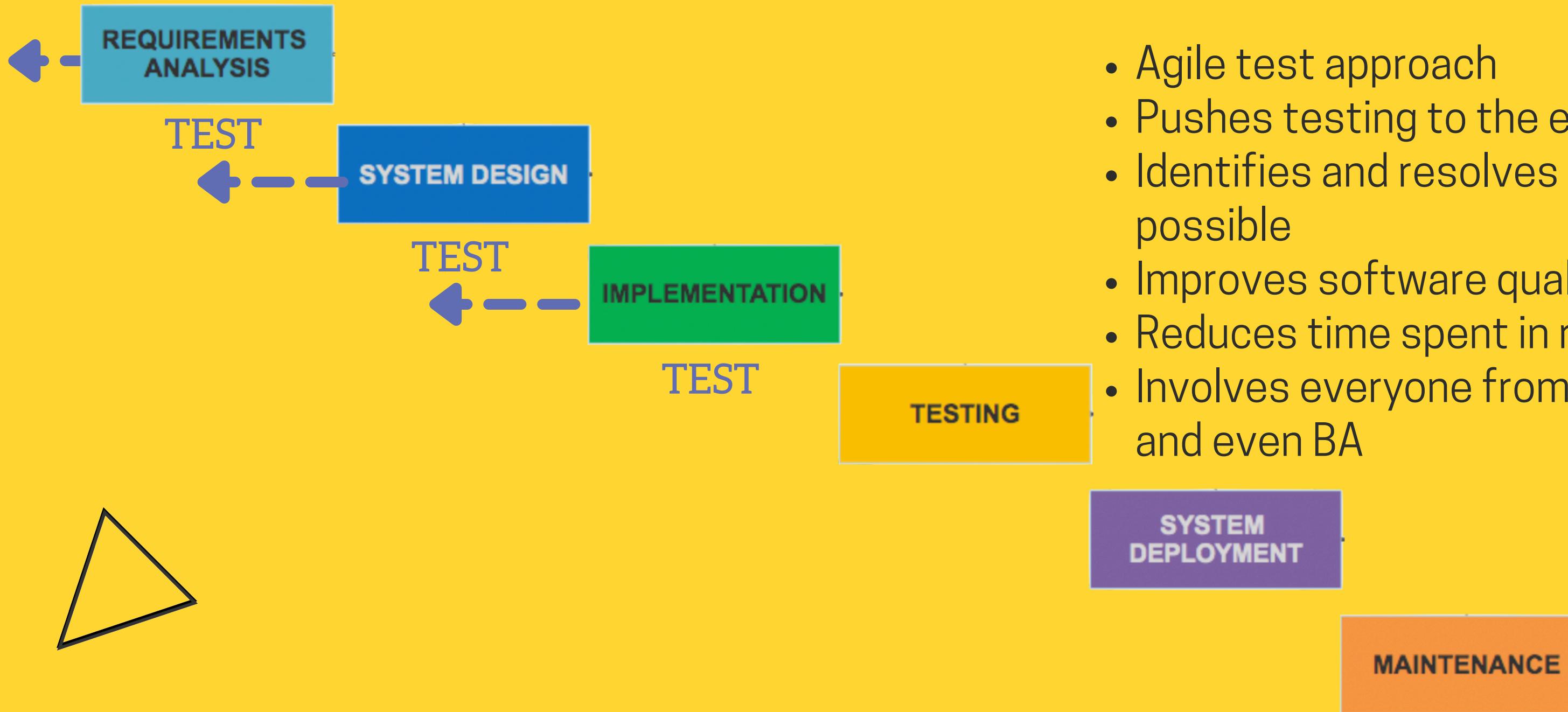
Automation is done by **anyone within the team**

Requirement changes **can be introduced** in a healthy way

Everyone is accountable for
the quality

Shift **left**

Shift Left Testing



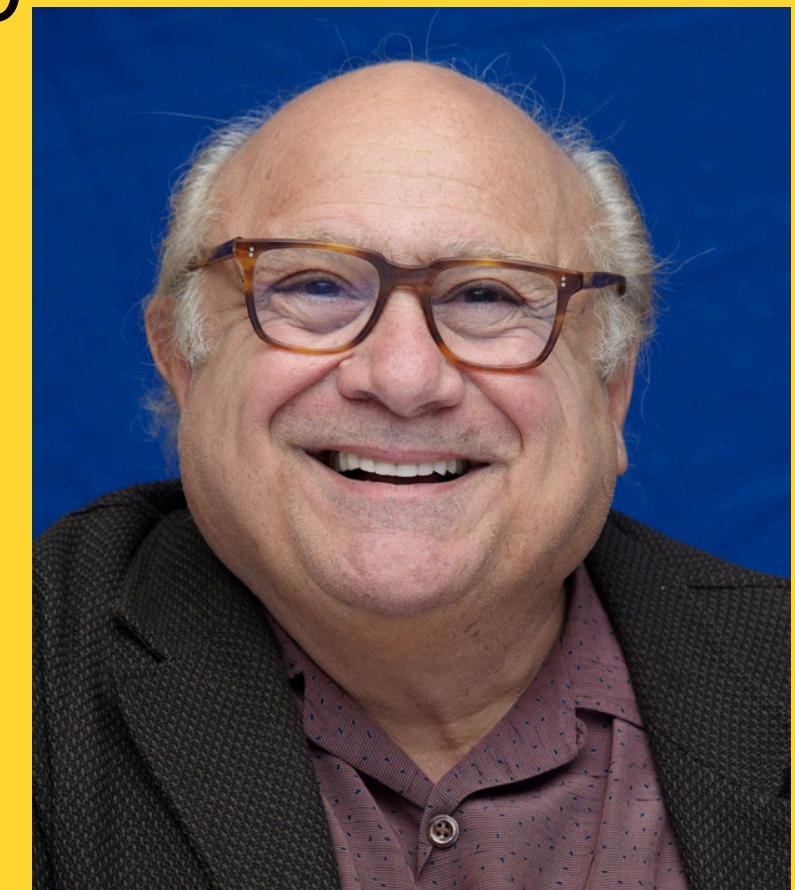
- Agile test approach
 - Pushes testing to the earlier stages (left)
 - Identifies and resolves bugs as early as possible
 - Improves software quality
 - Reduces time spent in resolving bugs
 - Involves everyone from Scrum Team, PO, and even BA





Exploratory Testing

Simultaneously learning about the software under test
while **designing** and **executing** tests,
using **feedback** from the last test to
inform the next
– Cem Kaner, 1980's



Exploratory Testing



**Simultaneous LEARNING,
test DESIGN,
and test EXECUTION
- James Bach**

EXPLORATORY TESTING

IS

- Agile testing method
- Sprint context as priority
- Time flexibility
- Test Charters
- More time for test execution
- "EXPLORE" the application

IS NOT

- Ad hoc testing
- Random / unguided testing
- Unstructured testing
- Undocumented testing
- Done only when you have time

EXPLORATORY TESTING

PROS

- Less **time** on prep
- More time on actual testing
- **Flexible** - high level / low level details of tests
- **Focuses** on what's important
- Uncovers **more bugs**
- **Less** prone to being **immune** to tired, old test cases

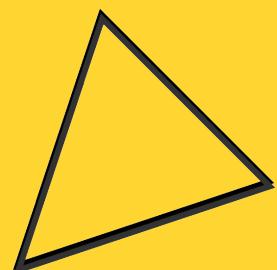
CONS

- Demands **testing expertise**
- Tester should have system's **domain knowledge**
- **Difficult to reproduce** steps
- Harder to spot **conflicting requirements**

Test Charter



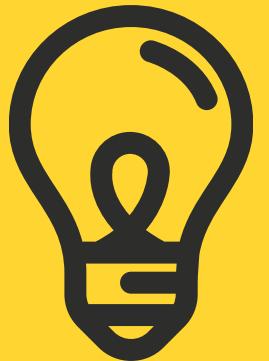
**is the counterpart of Test Case
for Exploratory Testing, where
goals and ideas on testing are
indicated.**



TEST CASES VS TEST CHARTERS

	TEST CASES	TEST CHARTERS
METHODOLOGY	Waterfall	Agile
DETAILS	More	Less
EXECUTION	Written test cases	Charter being explored
BASIS	Requirement specifications	Sprint context, risks, and explorations
TOOLS	Test Case Management	Mind mapping

Exploratory Testing



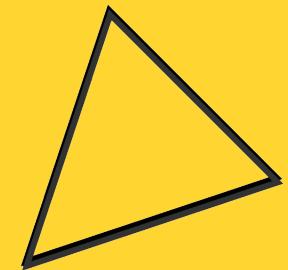
**Simultaneous LEARNING,
test DESIGN,
and test EXECUTION
- James Bach**





CHAPTER 3

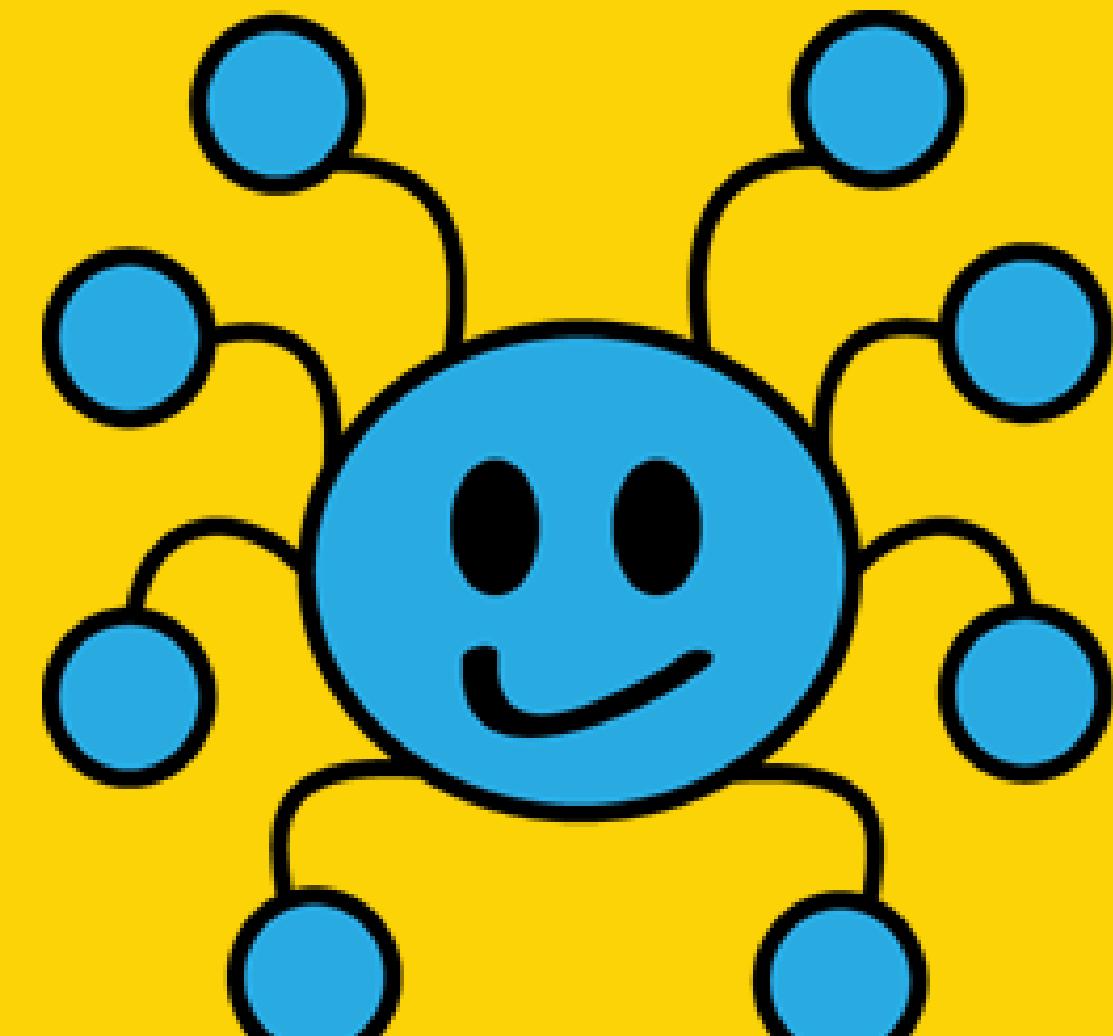
Tools of the Trade



EXPLORATORY TESTING TOOLS



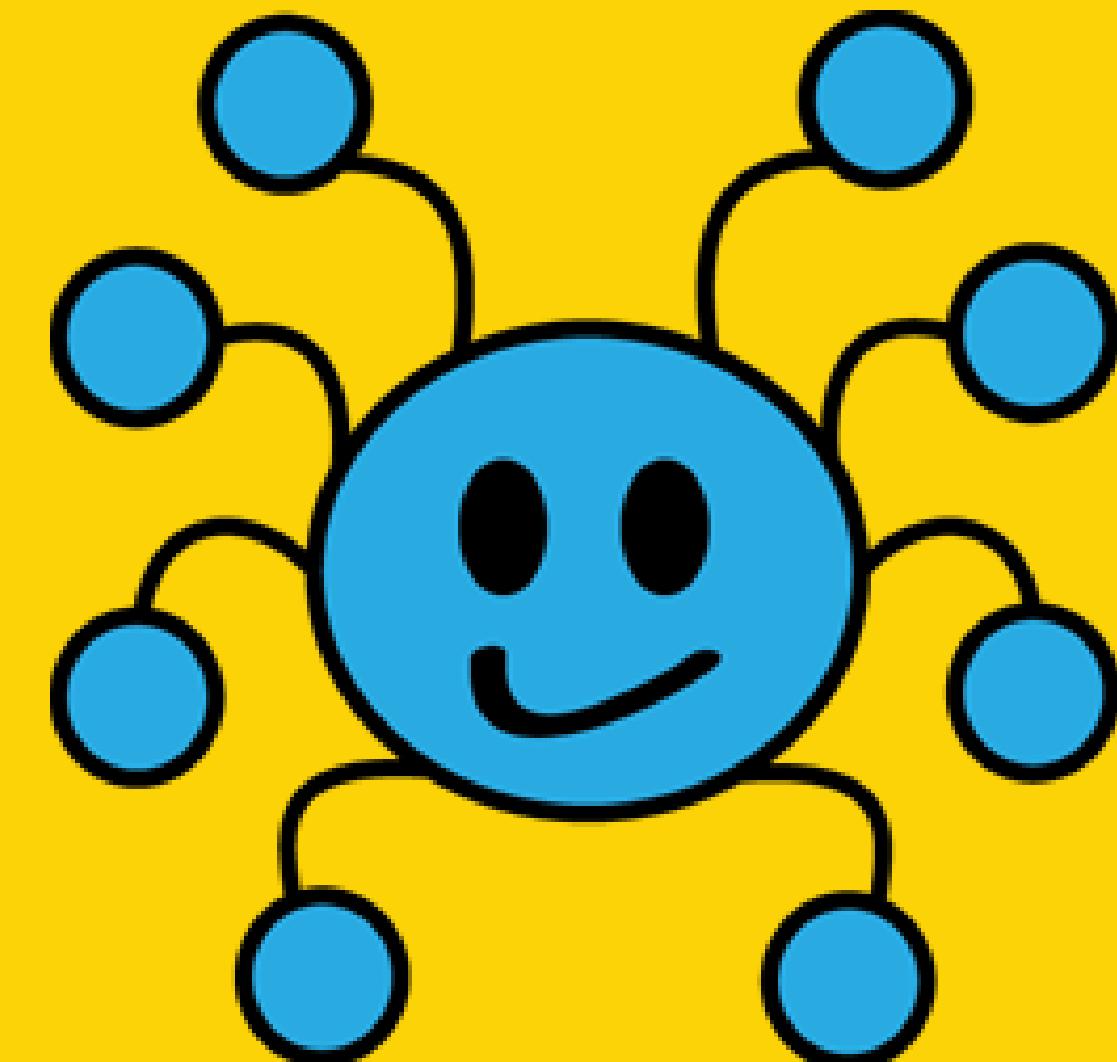
MURAL

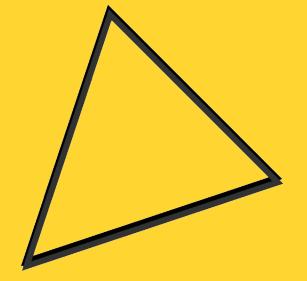


MINDMUP



MINDMUP DEMO





CHAPTER 4

LEARN



LEARNING THE SYSTEM UNDER TEST





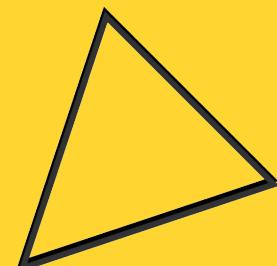
a. Basic / Simple Scenarios



START BY DOING BASIC USER ACTIONS TO SEE WHAT THE SUT DOES

Are you exploring "Fund Transfer"?

- Transfer minimum amount
- Transfer within balance amount
- Transfer to the same bank



Are you exploring "Pay Bills"?

- Pay existing billers
- Bills within balance

Mifos X

Clients Accounting Reports Admin

All

mifos

Welcome, mifos

Home Dashboard

Search activities

You can navigate your way through MifosX using:

←the shortcuts to the left ↑the menu at the top ↑the search tool at the top-right

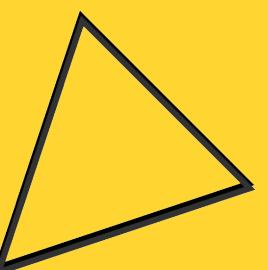
Mifos 

Release Version: mobidev.18.08.RELEASE | Mifos X Release Date: 17/Aug/2018



Smoke Testing



- A.K.A. Build Verification Testing
 - Non-exhaustive set of tests
 - Ensures that most important functions work
 - PASS? Go ahead with further testing
FAIL? halt testing and ask for a new build with the required fixes
 - Done after every build deployment
 - Duration – 5 – 15 mins of testing
 - Automation candidate? - YES
- 



Smoke Test Charters

- main features only
- happy path only





ACTIVITY

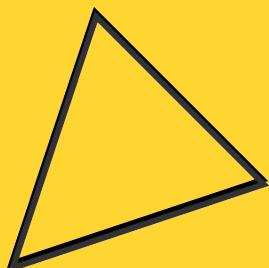
FROM THEORY TO PRACTICE



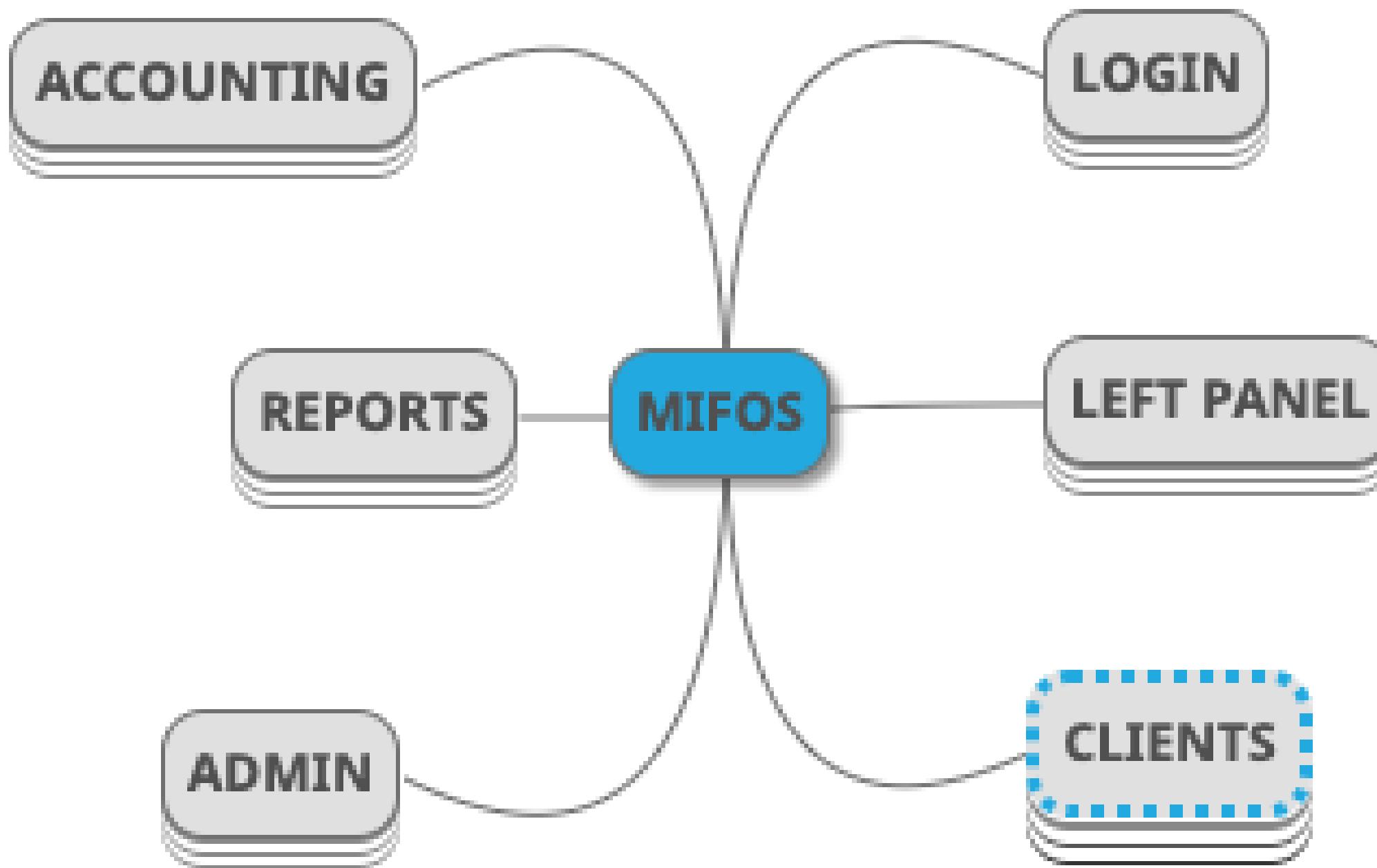
1. Go to mindmup.com
2. Create a new mindmap with filename <Group Name>: <SUT> Smoke Tests
3. Make the parent node into <SUT>
4. From the parent node, press TAB to add the module to test
5. Type in the name of the module
6. Press ENTER to create a sibling of the module.
7. Type in the name of the module
8. Repeat until all major modules are added
9. To add the basic test scenarios, click on the node where you want to attach a child node and press TAB, and type in the test scenario
10. On the second layer of each module, add basic test scenarios.
11. Put the link of your mindmap on Google Classroom

Stick to main feature tests

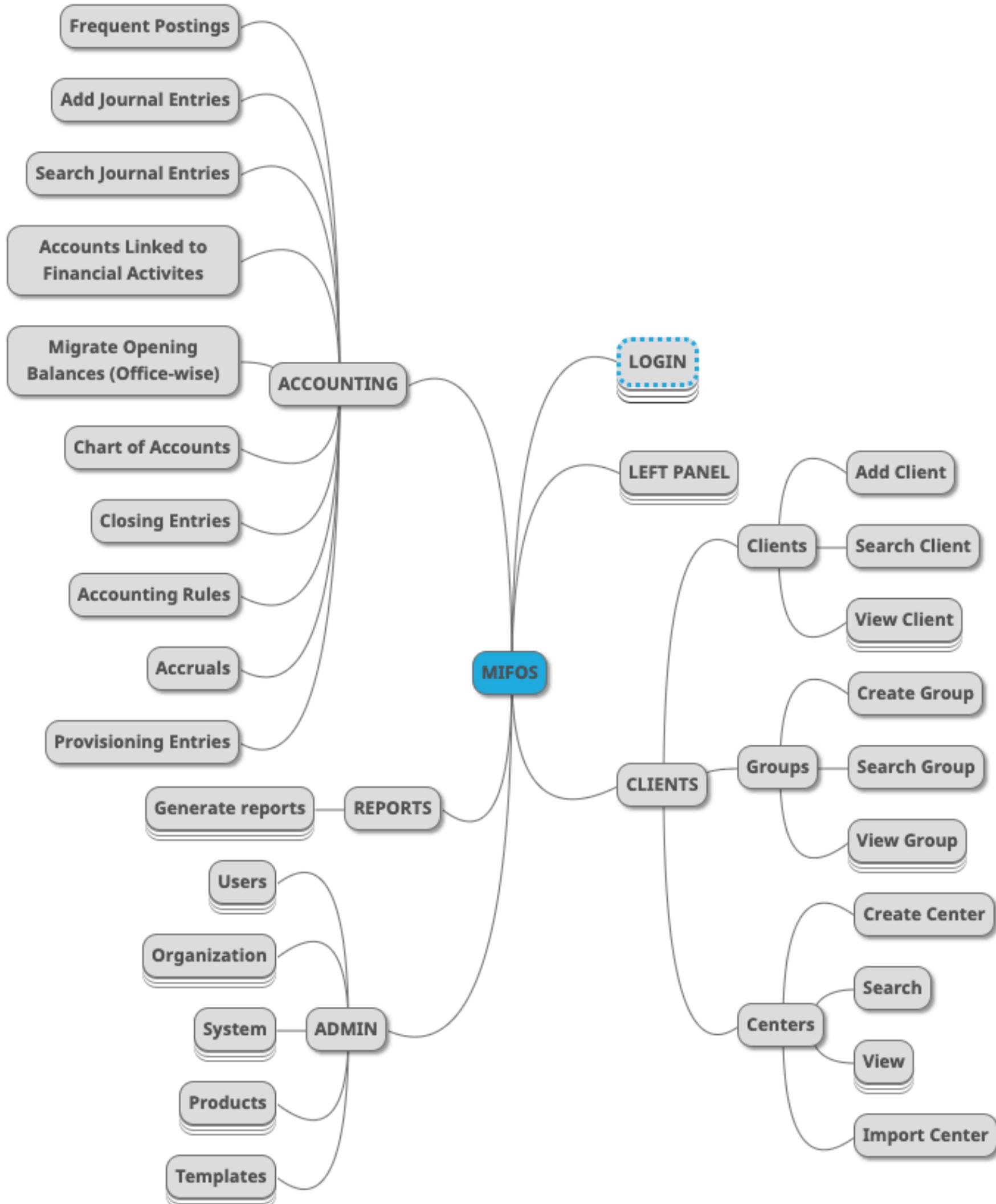
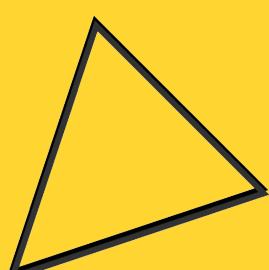
Make sure that your smoke test is something you can execute in 5-15 mins



MODULES

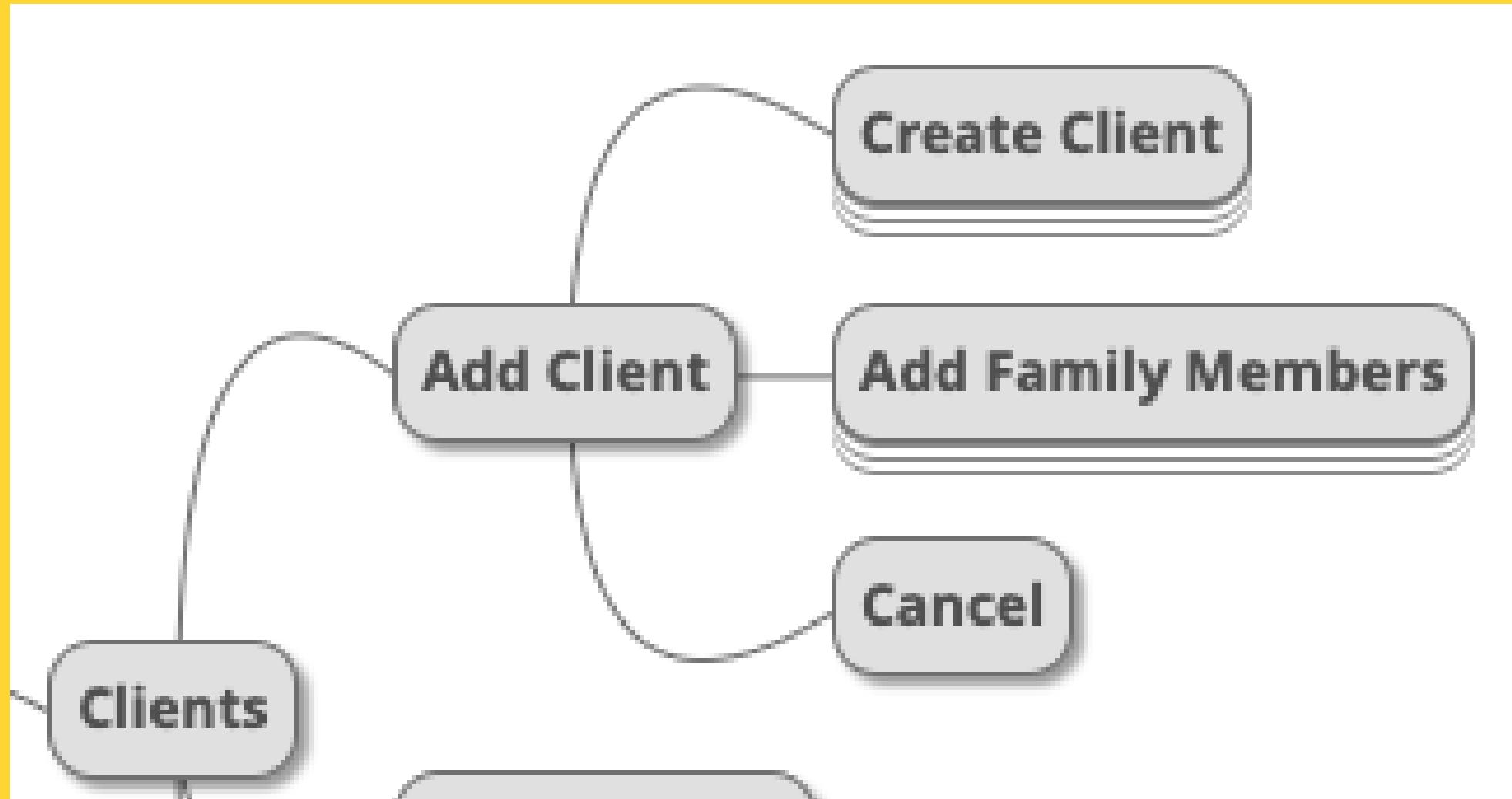


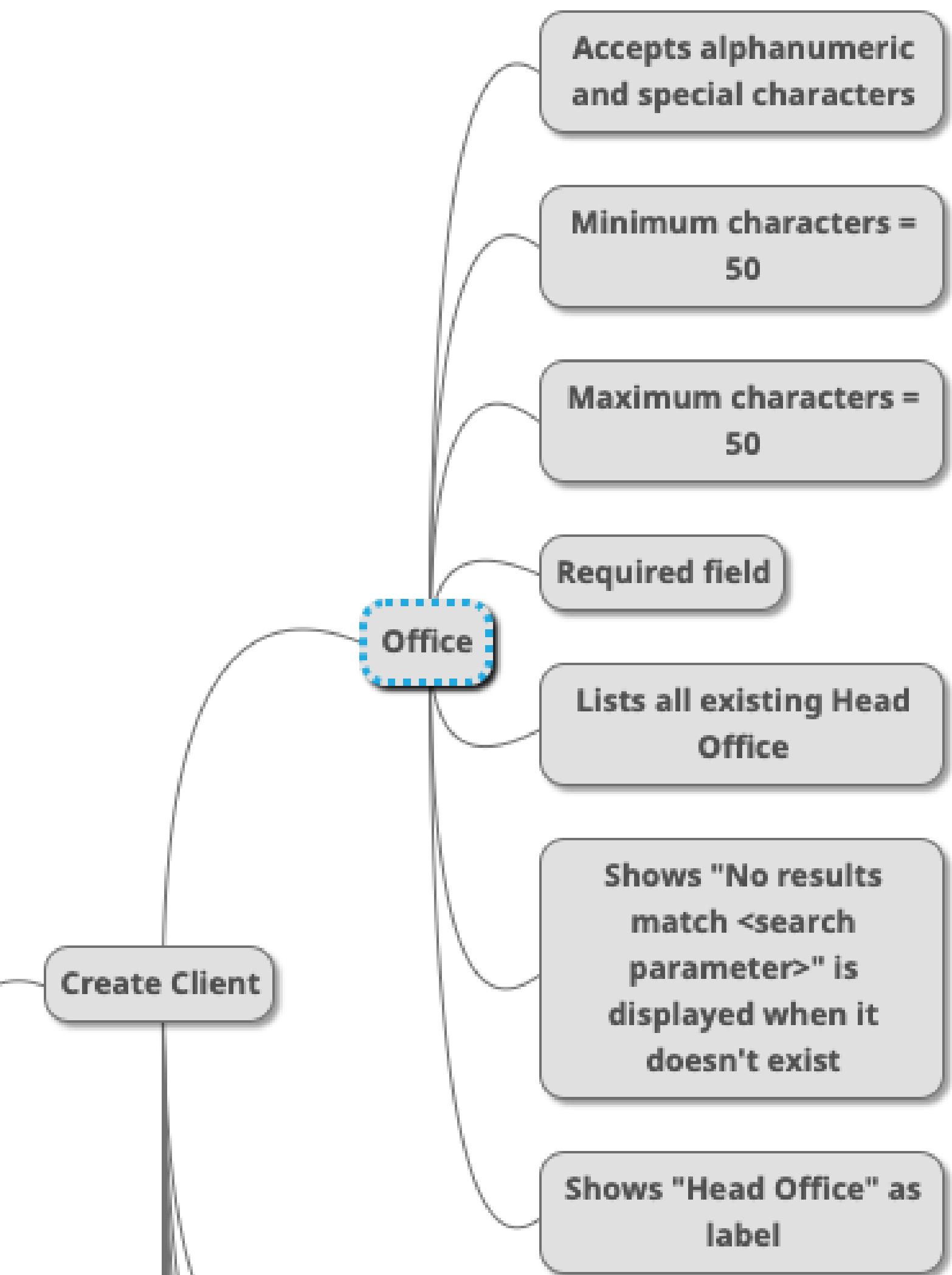
PAGES





FEATURES





ASSERTIONS



b. NOUNS and VERBS

NOUNS - THINGS THAT IT MANIPULATES, MANAGES, AND INTERACTS WITH

VERBS - ACTIONS YOU DO IN THE SYSTEM, OR WHAT IT CAN TAKE

List of Clients

Filter display by name/client/sta

Find by name/mobile/client/externa

 Show Closed

Import Clients

+ Create Client

Name	Client #	External Id	Status	Office	Staff
Client2 Done	000000003			Head Office	
Client3 Done	000000004			Head Office	
Client4 Done	000000005			Head Office	
Client5 Done	000000006			Head Office	
Dop Diaz	000000008			Head Office	
Dop Diaz	000000009			Head Office	
Dop Diaz	000000010			Head Office	
Rekyn Yodel Gnik	000000007			Head Office	
RJ Del Rosario Lingat	000000021	2123213		Head Office	
Sample client 2 Done	000000002			Head Office	
Sample client Done	000000001			Head Office	



b. NOUNS and VERBS

NOUNS - THINGS THAT IT MANIPULATES, MANAGES, AND INTERACTS WITH

Name	Client #	External ID
Status	Office	Staff
Closed	Clients	Mobile

VERBS - ACTIONS YOU DO IN THE SYSTEM, OR WHAT IT CAN TAKE

Search	Show	Import
Create	Filter	

b. NOUNS and VERBS





ACTIVITY

FROM THEORY TO PRACTICE



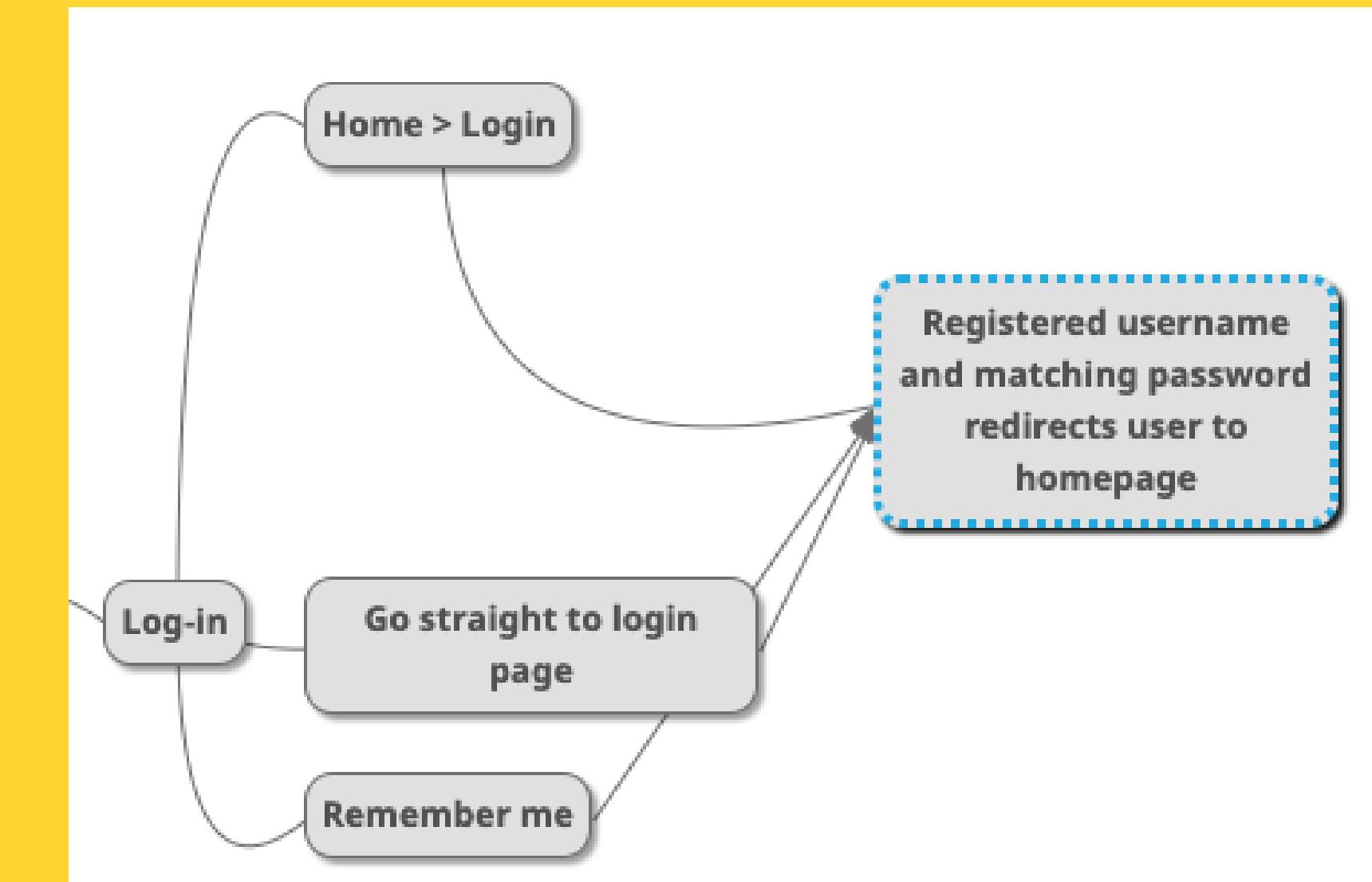


c. Alternative Paths

- OTHER MEANS OF USING A FEATURE
- NOT A NEGATIVE TEST

EXPLORING LOGIN INSTEAD OF HOME > LOGIN

- GO STRAIGHT TO LOGIN PAGE
- REMEMBER ME FOR DAYS/WEEK





c. Alternative Paths

- OTHER MEANS OF USING A FEATURE
- NOT A NEGATIVE TEST

EXPLORING LOGIN

INSTEAD OF HOME > LOGIN

- GO STRAIGHT TO LOGIN PAGE
- REMEMBER ME FOR DAYS/WEEK

EXPLORING DATE OF BIRTH FIELD

INSTEAD OF SELECTING MONTH, DATE,
AND YEAR

- TYPE IN
- EDIT BIRTH DATE
- PASTE BIRTH DATE

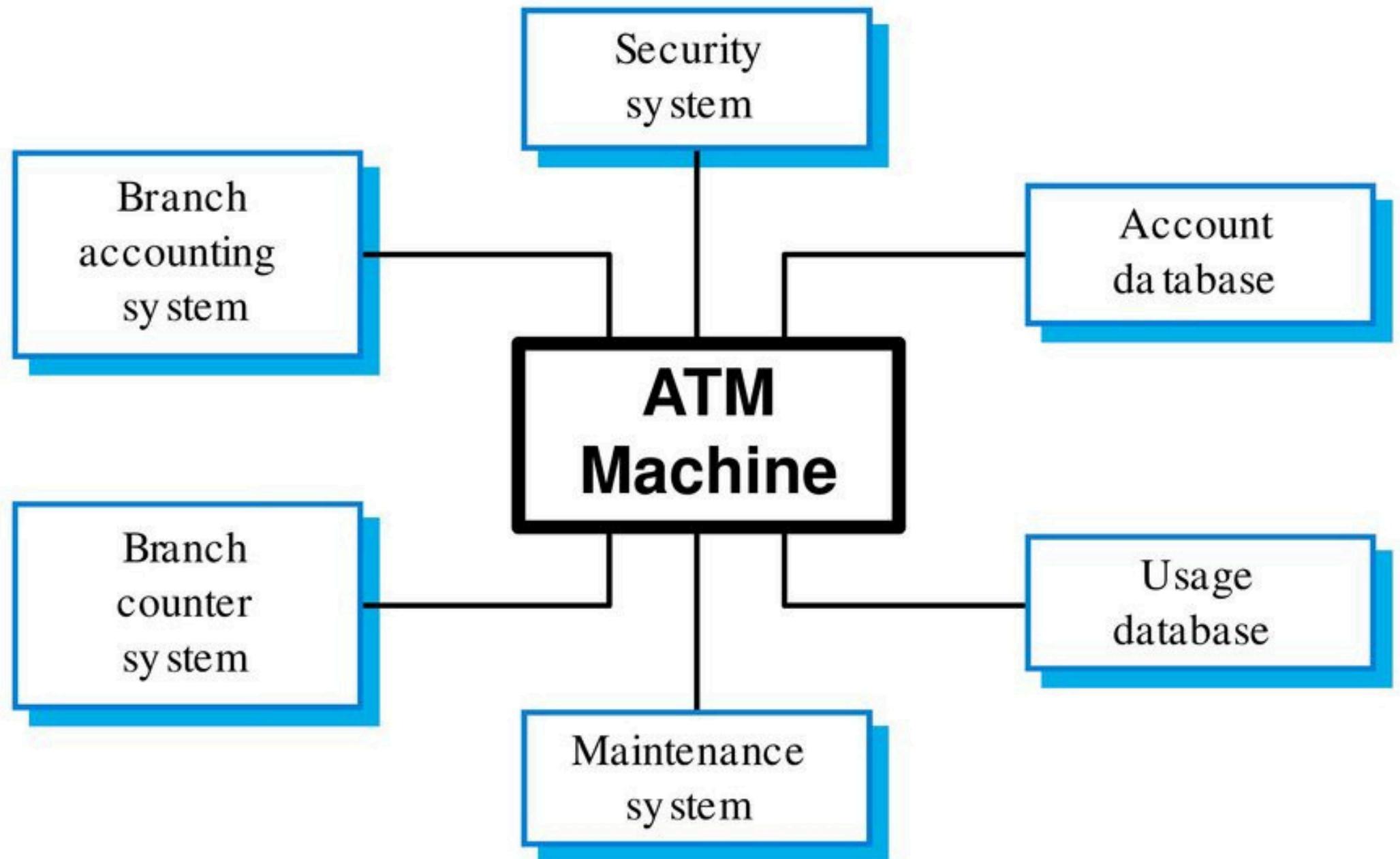


ACTIVITY

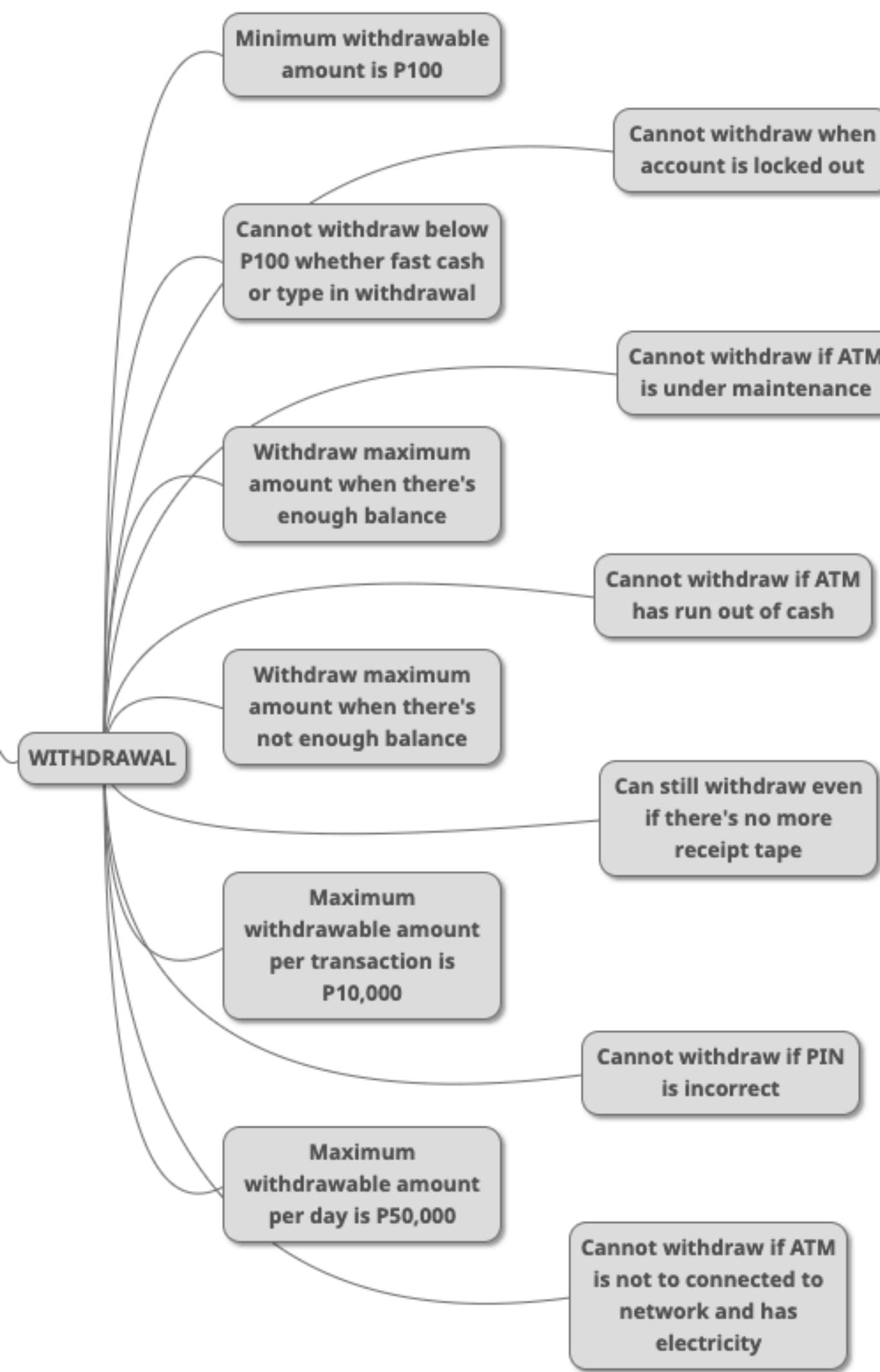
FROM THEORY TO PRACTICE



d. Context Diagram



**EXTERNAL RESOURCES
OR DEPENDENCIES**



Tests showing dependencies





ACTIVITY

FROM THEORY TO PRACTICE





e. Variables

THINGS YOU CAN VARY/CHANGE OR CAUSE TO BE CHANGED

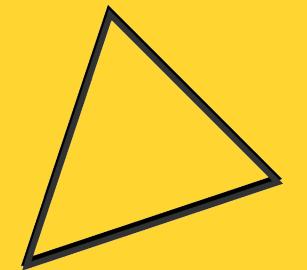
- **OBVIOUSLY CHANGEABLE VALUE IN A FIELD**
 - **QUANTITY**
 - **AMOUNT**
 - **PRICE**
- **THINGS THAT CAN ONLY BE CONTROLLED INDIRECTLY**
 - **NUMBER OF USERS LOGGED IN AT ANY GIVEN TIME**
 - **NUMBER OF RESULTS RETURNED BY A SEARCH**



ACTIVITY

FROM THEORY TO PRACTICE

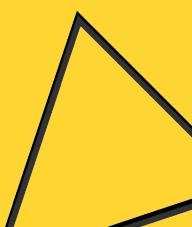




CHAPTER 5

DESIGN

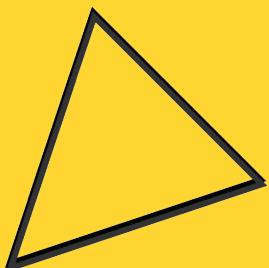
DESIGNING TEST CHARTERS



Test Charter



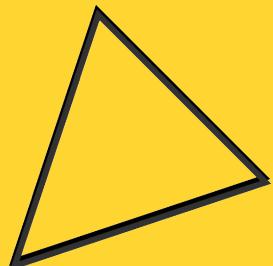
**is the counterpart of Test Case
for Exploratory Testing, where
goals and ideas on testing are
indicated.**



Test Charter is not about

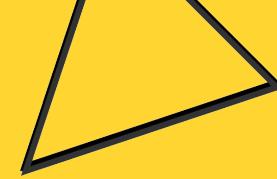


- **Test Plans**
- **Test Strategies**
- **Test Cases**
- **Test Procedures**

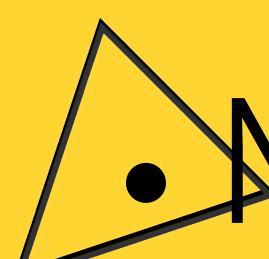


Test Charter is about

- Less documentation
- We don't document each and every test case



Test Charter

- **Simple statements** of the **information** that we hope to **discover through exploration**
 - Shows **what you will work** on and **how you will work**
- 
- Needs understanding of your **client's needs**

Essential Elements of Test Charters





RISK



- ***WHY AM I RUNNING THIS TEST?***
- ***WHAT COULD GO WRONG?***
- ***WHAT AM I LOOKING FOR?***



COVERAGE

- ***WHAT AM I TESTING?***
- ***WHICH FEATURES, SCREENS, ARTIFACTS, OR AREAS OF THE PRODUCT SHOULD I BE TOUCHING WHILE TESTING?***

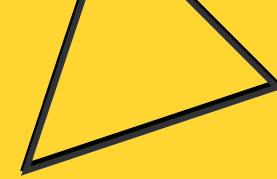


TIMEFRAME

- ***HOW LONG SHOULD IT TAKE TO PERFORM THIS TESTING?***
 - USUALLY 30, 45, 60 MINS
- ***ARE THERE SETUP TASKS TO DO BEFORE I OFFICIALLY START?***
 - TEST DATA, ACCESS
- ***WHAT DO I NEED TO DO WHEN I'M DONE?***
 - UPDATE TESTS? FILE BUGS? SWAP? (PAIR TESTING) NEXT TEST CHARTER?

Test Charter Format





Test Charter Format

Explore **area**

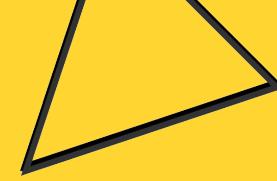
With **resources, constraints, tools, etc**

To discover **information**



Test Charter Example

Explore **fund transfer**
With a **savings account without any
balance**
To discover if it's **possible to withdraw
money**



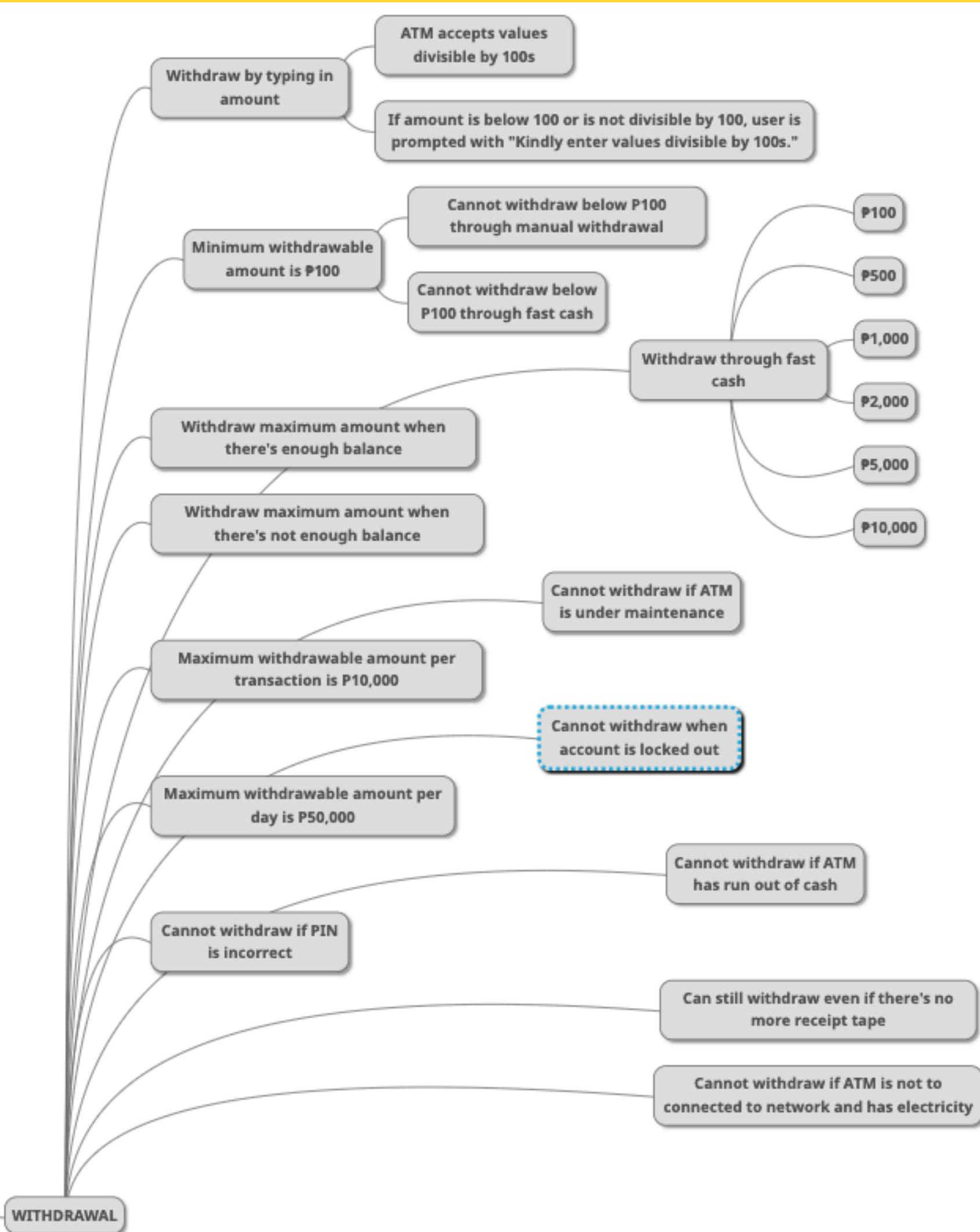
Is Test Charter format required?

No.

All we need is to indicate a **way to go to the feature** being tested AND the **assertion**.



Functional Test Charters



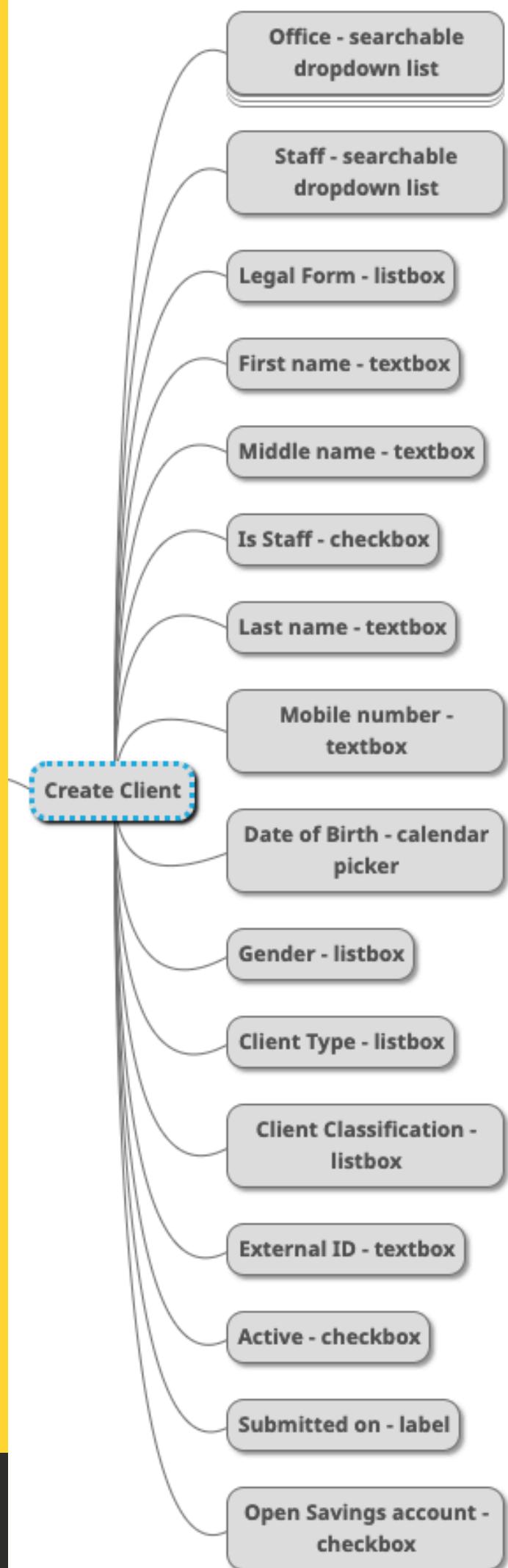
Page and Element Test Charters



- Fields to display upon page load / redirection
- Type of elements
- Required? Error message when a required field is not provided?
- Default value
- Min / Max values
- Acceptable values - alpha, numeric, special characters

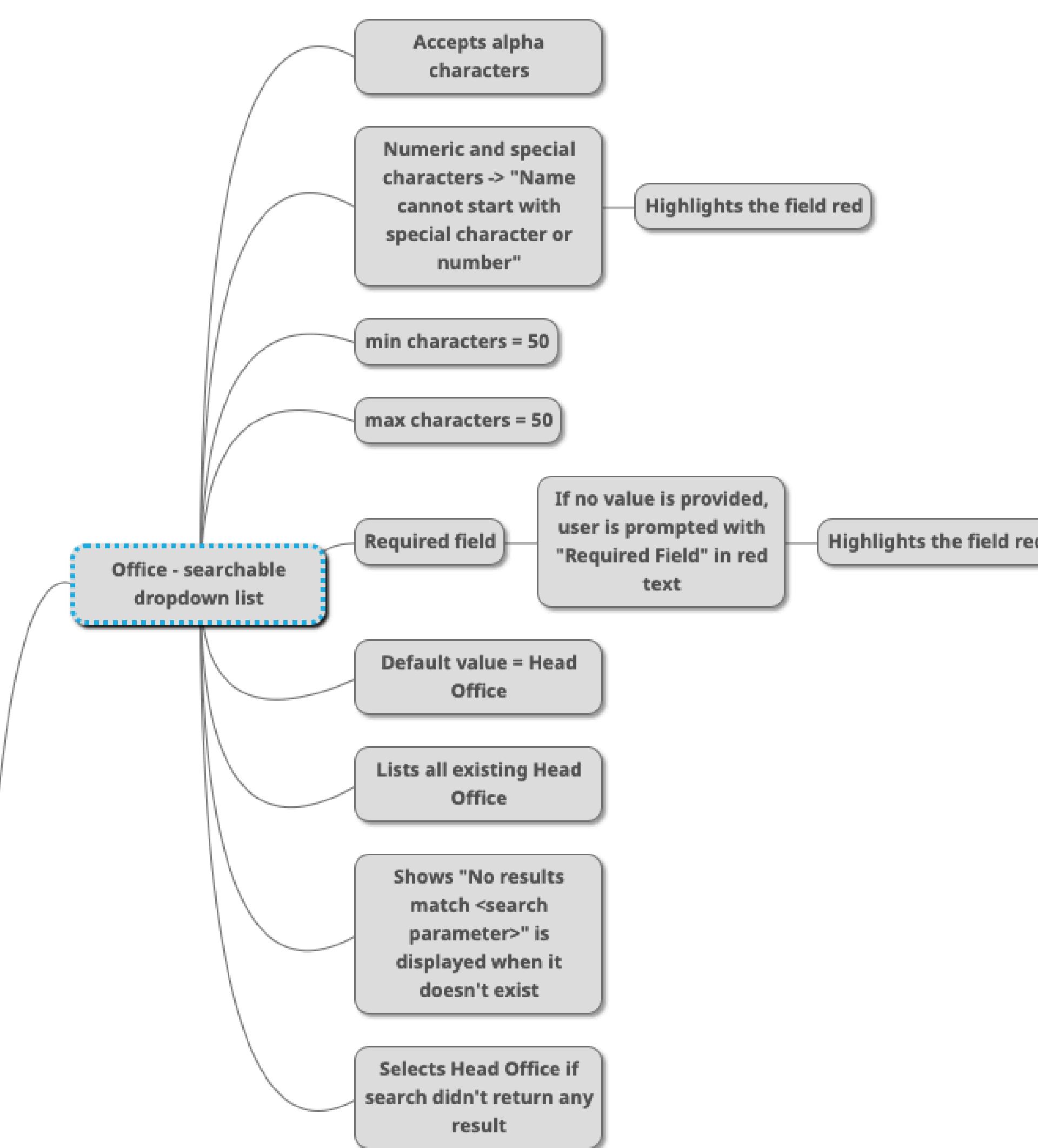


Upon loading or Page Assertions





Element Assertions





ACTIVITY

FROM THEORY TO PRACTICE



Where do test charters come from?





User Stories

Based on User Story Narrative

Based on Acceptance Criteria

Screen mockups

User Story for Login

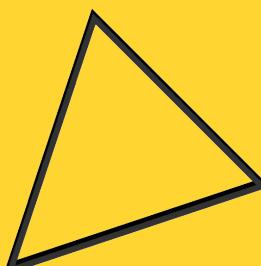


Story Narrative:

As a Super User

I want to login on to Mifos

So that I can access its various modules and features



Acceptance Criteria:

- User can login at: <https://test.qe-360.com:8443/community-app/#/>
- User is redirected to home page upon successful login
- The username is reflected on the top right corner upon login
- Upon clicking User Profile, it shows the correct details of the logged-in user
- If the username or password is incorrect, the user is prompted with "Please try again, your credentials are not valid."
- After three failed login attempts within one hour, the user is locked out for 30 minutes and prompted with "You are temporarily locked out for 30 minutes."

User Story for Login



Mifos

USERNAME

A green border highlights the input field.

PASSWORD

A red border highlights the input field.

Sign In

Mifos  Clients  Accounting  Reports  Admin 

Click or press alt+x to Search All

 User Profile

View Permissions Change Password

User ID	1
User Name	mifos
Office	Head Office
Status	Authenticated
Language	English
Primary Email	demomfi@mifos.org

Role	Description
Super user	This role provides all application permissions.

Stakeholder Questions



- What happens if we have more than 5000 records?
- What happens if we add Member Get Member?
- What if we integrate with a 3rd-party API for payments?



Quality Attributes

- Explore the features associated with users, groups, and security to find security loopholes
- Explore accessibility challenges for the blind, mute, and deaf
- Explore portability issues when migrating from desktop to web application



Risks

Imagine the worst thing that could possibly happen, and consider what might contribute to it happening?

- Using 3rd-party payment gateways
- Exposing API to clients
- Collecting Personal Identifiable Information



Any other need for info

Testing yields information. Charters can come from any information needed

- What would happen if I do this... or this...
- What if I process this even if it's not acceptable
- When would the report generation finish if I upload this big of a file?