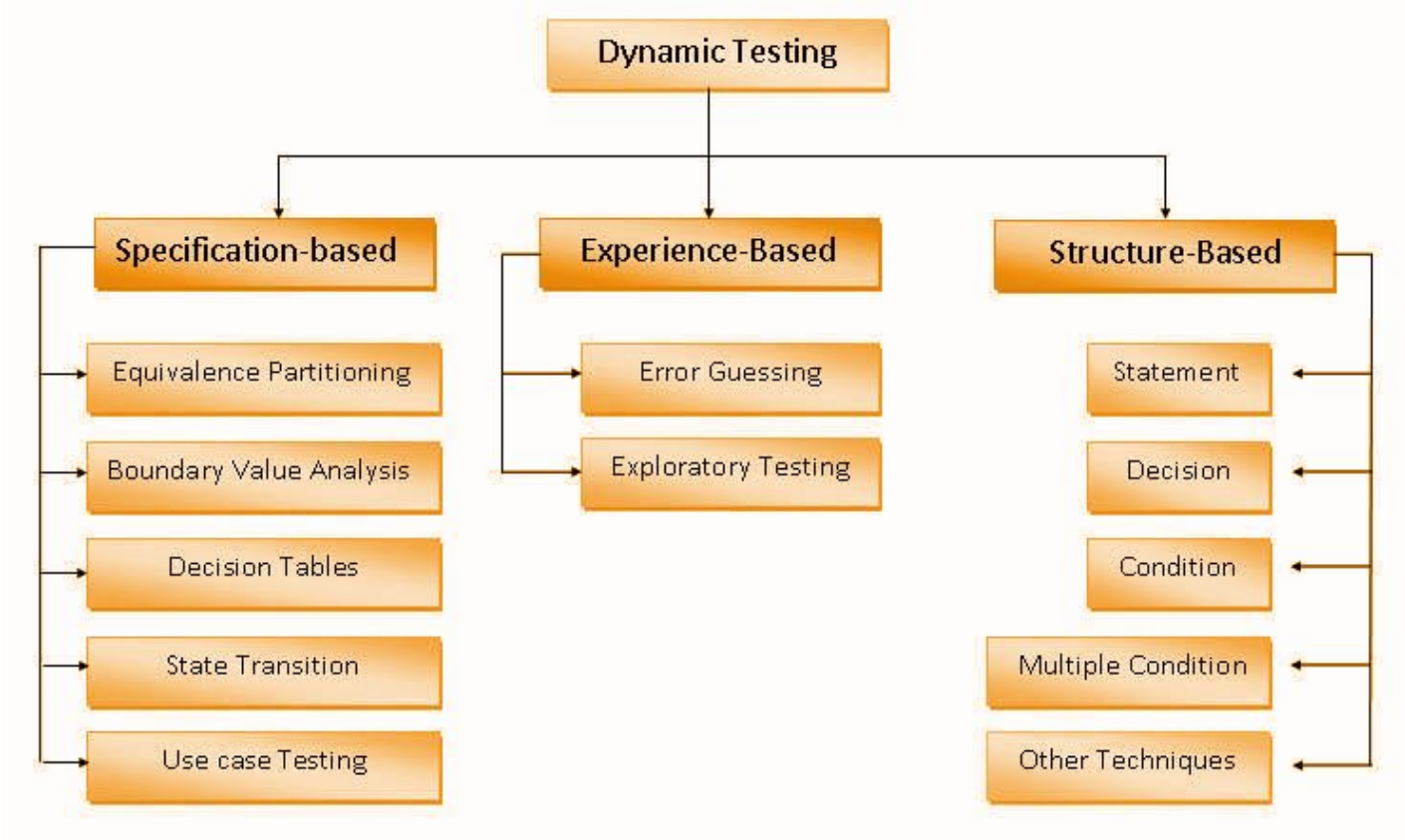
Analysis and Design Techniques

Ice Breaker

Spin the wheel!

Today's **Agenda**

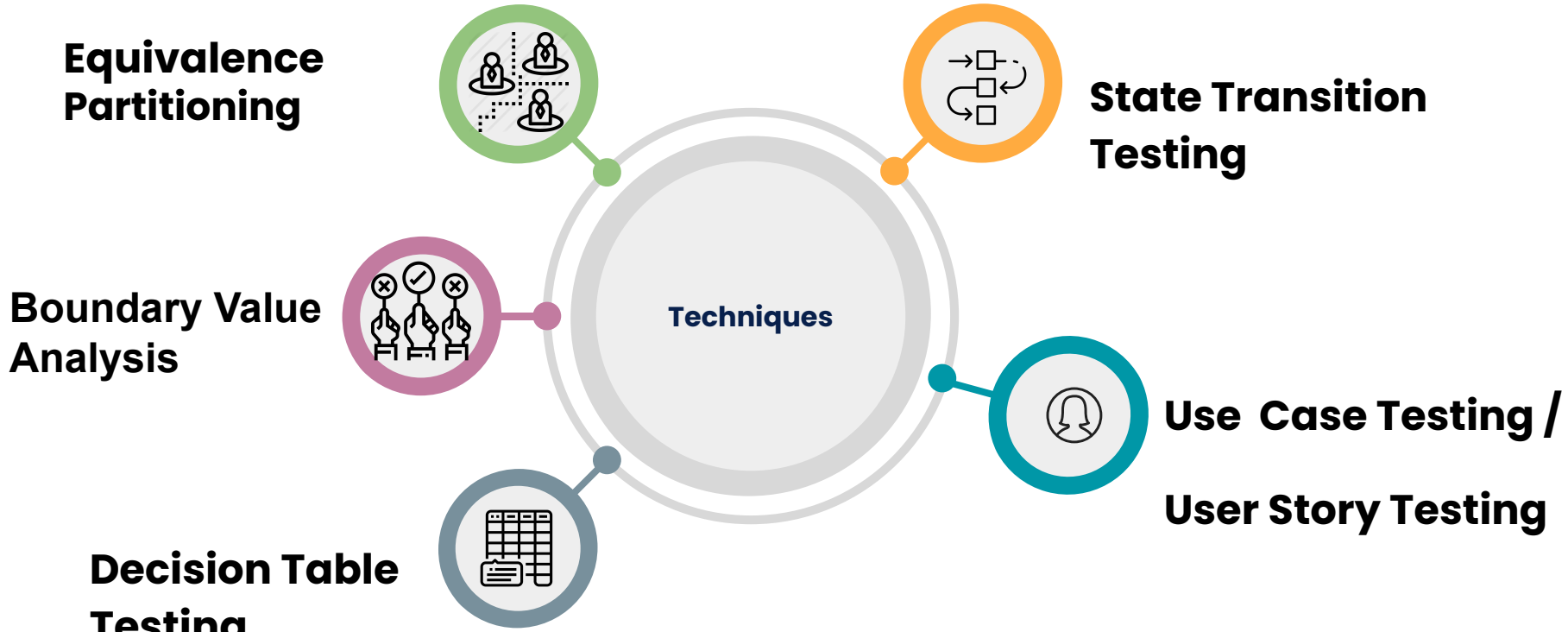
- Dynamic Testing
- Specification - Based Techniques
  - Equivalence Partitioning
  - Boundary Value Analysis
  - Decision Table Testing
  - State Transition Testing
  - Use Case Testing
- Activity


Dynamic Testing
Specification-based
Experience-Based
Structure-Based
Equivalence Partitioning
Boundary Value Analysis
Decision Tables
State Transition
Use case Testing
Error Guessing
Exploratory Testing
Statement
Decision
Condition
Multiple Condition
Other Techniques

Specification - Based

Techniques

Specification - Based Techniques



Equivalence Partitioning

Test cases are designed to execute representatives from equivalence partitions. **It is usually to COVER TEST DATA CONDITIONS**

Technique

1. IDENTIFY equivalence partitions whether VALID or INVALID
2. Get a REPRESENTATIVE per ach partition
3. CREATE a test case FOR EACH equivalence partition

A representative in a test case should BEHAVE AS SAME AS any of its partition.
THEREFORE If one test case belonging to an equivalence partition detects a defect, all other test cases in the same equivalence partition ARE LIKELY to detect the same defect .

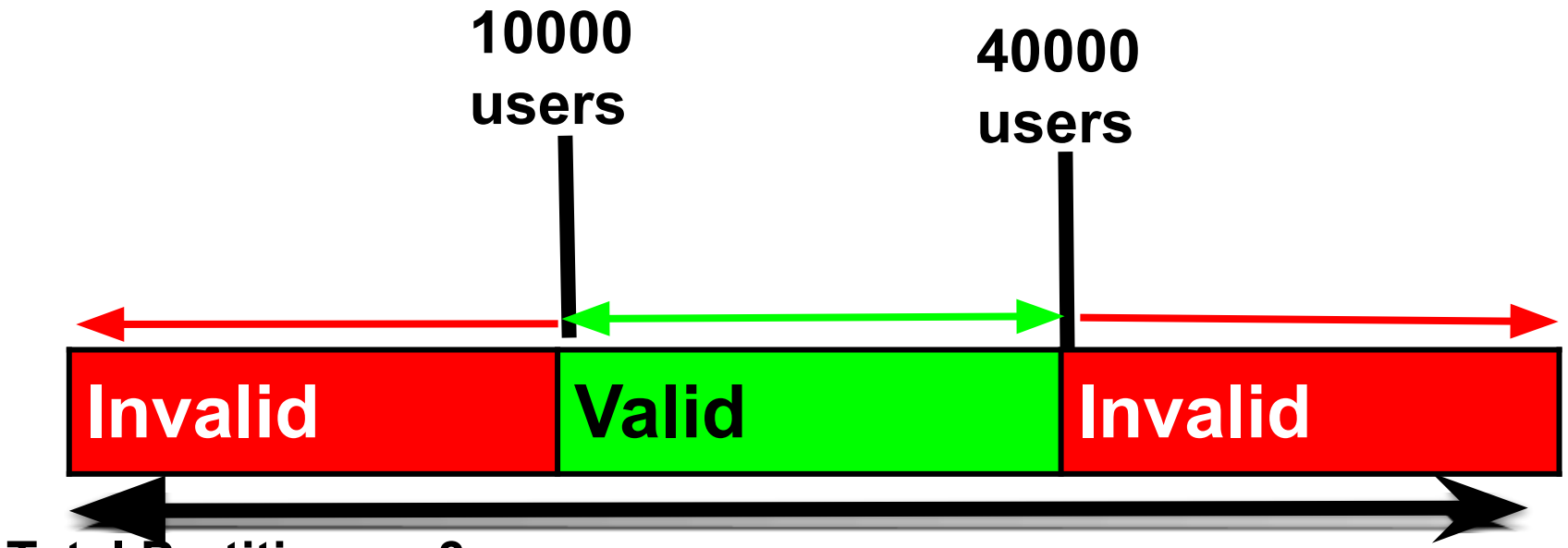
Equivalence Partitioning

Example 1:

Acceptance Criteria 1:
Given that a MercadoLibre Editor user belonging Globant
And the Editor user launches a Featured section
And the Featured section is willing to reach between 10000 and 40000 regular users
When the Editor user confirms the promotion* of Feature section
Then the MercadoLibre application is going to charge 10 USD to Globant

***A promotion is the payment Companies do to MercadoLibre in exchange of advertising**

Equivalence Partitioning



Total Partitions = 3
Total Test Cases = 3

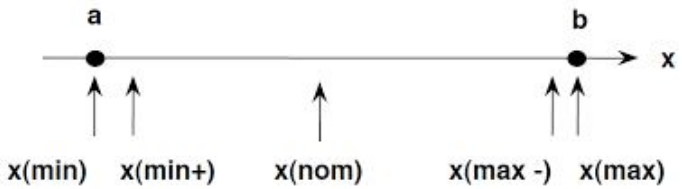
Boundary Value Analysis

Technique in which test cases are designed **BASED ON** boundary values*.

*A **BOUNDARY VALUE** is an input or output value which is **ON THE EDGE OF** an **EQUIVALENCE PARTITION** or at the smallest incremental distance on either side of an edge.

BVA is based on testing the boundary values of valid and invalid partitions. Boundaries are an area where testing is likely to **YIELD DEFECTS (HARDCODE)**.

BVA is an **EXTENSION** **of** Equivalence partitioning**.**



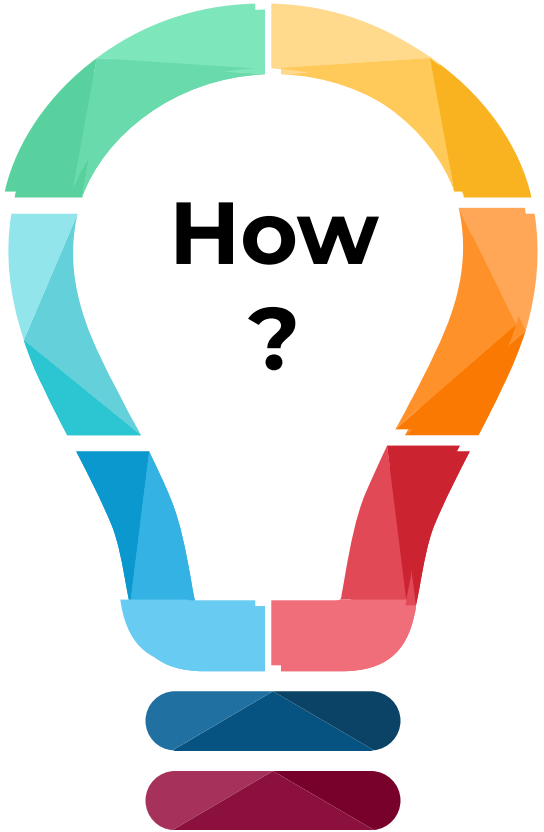
Boundary Value Analysis

Step 1
Identify either valid or invalid equivalence partitions

Step 2
Get the minimum increment

Step 3
Identify the boundaries of each equivalence partition

Step 4
Create test cases for each boundary based on increments



Boundary Value Analysis

Example 1:

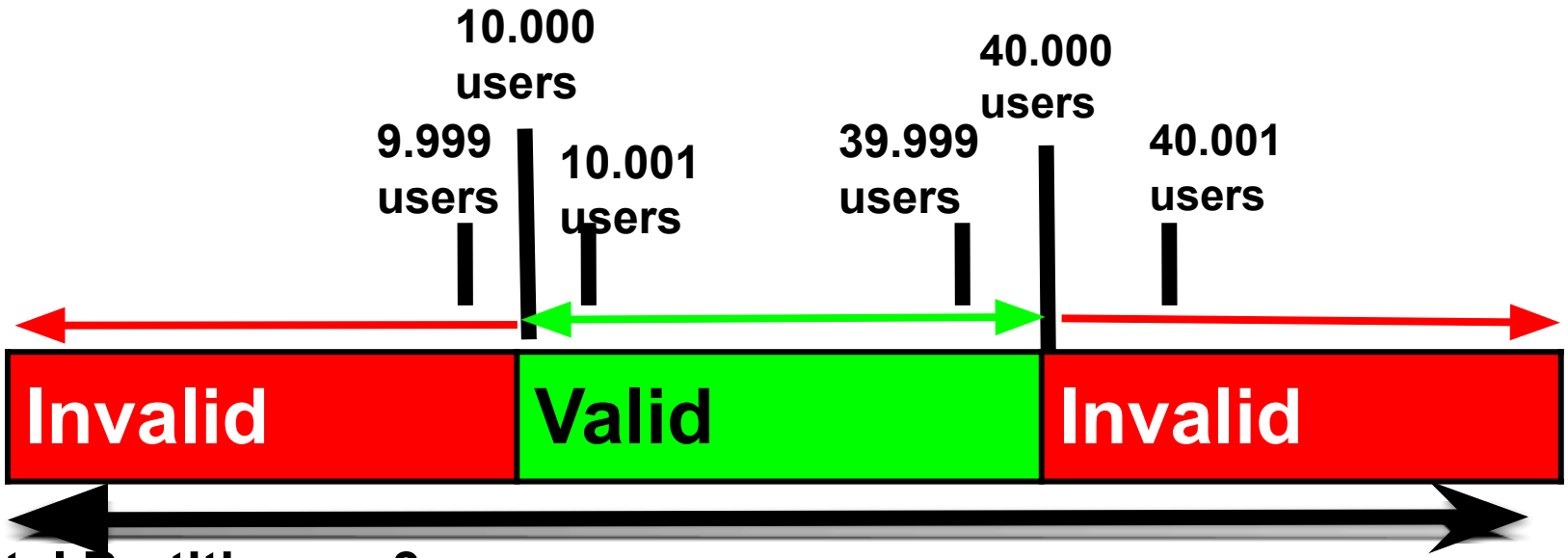
Acceptance Criteria 1:

Given that a **MercadoLibre Editor** user belonging Globant
And the Editor user launches a featured section
And the Featured section is willing to reach between 10000 and 40000 regular users
When the Editor user confirms the promotion* of Featured section
Then the MercadoLibre application is going to charge 10 USD to Globant

Acceptance Criteria 2:

Given that a **MercadoLibre Editor** user belonging Globant
And the Editor user launches a Featured section
And the Featured section is willing to reach more than 40000 regular users
When the Editor user confirms the promotion* of Featured section
Then the MercadoLibre application is going to charge 25 USD to Globant

Boundary Value Analysis



Total Partitions = 3

Total Test Cases = 6

Decision Table Testing

- Technique in which test cases are designed **to execute the combinations** of inputs **(CONDITIONS)** shown in a decision table.
- Decision tables are used to record **COMPLEX BUSINESS RULES** need to be implemented and, of course, tested.
- They may be applied to all situations when **THE ACTION OF THE SOFTWARE** depends on **SEVERAL LOGICAL DECISIONS.**
- The **INPUT CONDITIONS** and **ACTIONS** are most often stated in such a way that they can either be **TRUE OR FALSE**

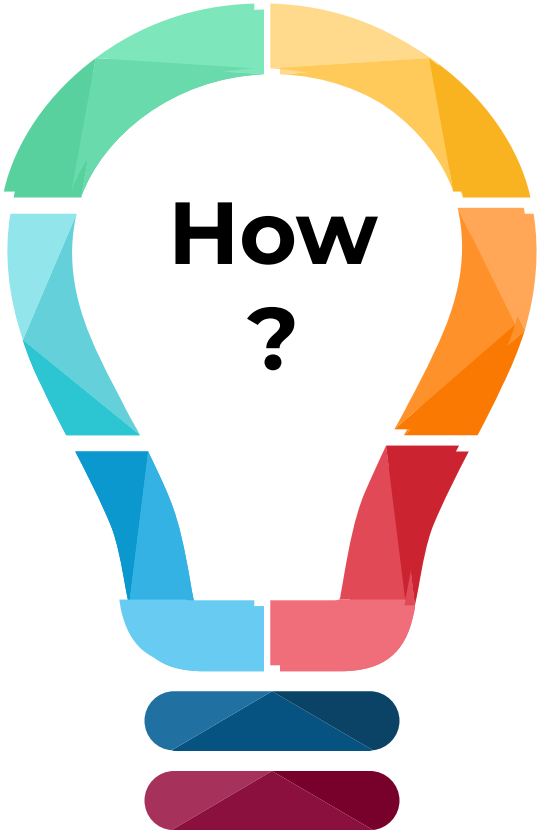
Decision Table Testing

Step 1
Identify Conditions and Actions

Step 2
Create the decision table with RULES based on combination of conditions

Step 3
Each RULE (vertical column) becomes a test

Step 4
Optional: If condition is more complex, more test cases are needed



Decision Table Testing

Example:

Acceptance Criteria 1:

Given that a MercadoLibre user is level 3 in Mercado Puntos
When the user send the purchase greater than $70.000
Then MercadoLibre send the product to the user for free

Acceptance Criteria 2:

Given that a MercadoLibre user is level 3 in Mercado Puntos
When the user send the purchase less than $70.000
Then MercadoLibre send the product to the user with % off shipping

Decision Table Testing

Condition	Rule 1	Rule 2	Rule 3	Rule 4
User is level 3	T	T	F	F
Purchase greater than $70.000	F	T	F	T
Action				
Free shipping on products	F	T	F	F
% off shipping on products	T	F	F	F

State Transition Testing

Technique in which test cases are designed to execute **VALID AND INVALID STATE TRANSITIONS**

State-Transition diagrams are used to document **Test object** and has four basic parts:

- The software (test object) **STATES**
- The **TRANSITIONS** from one state to another.
- The **EVENTS** that cause a transition.
- The **ACTIONS** that result from a transition.

The entry point on the diagram is shown by a black dot
The exit point is shown by a bulls-eye symbol.

State Transition Testing

LEVEL 1
ALL STATES are VISITED at LEAST ONCE

LEVEL 2
ALL EVENTS are TRIGGERED at LEAST ONCE

LEVEL 3
ALL TRANSACTIONS are EXERCISED at LEAST ONCE

4
ALL PATHS (ACTIONS) are EXECUTED at LEAST ONCE

State Transition Testing

CASE:

A user wants to
Buy Now an item

State Transition Testing - Example 1

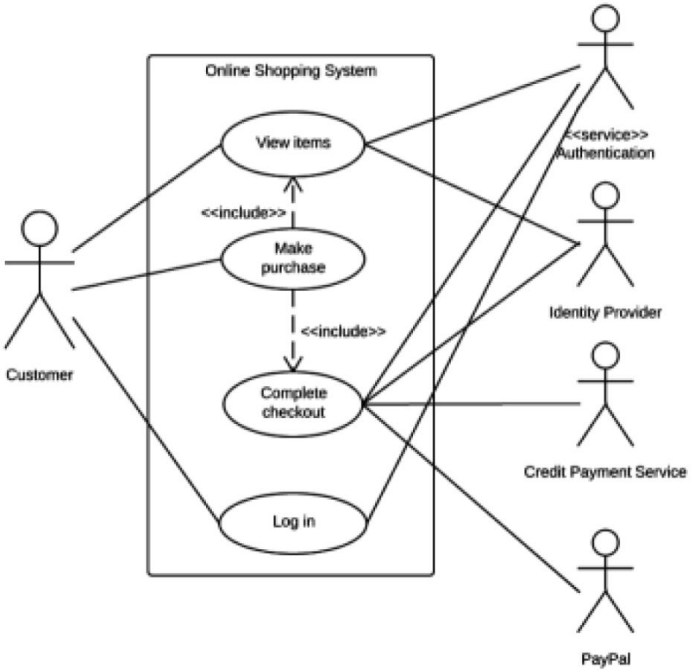
Use Case Testing

Technique in which test cases are designed to execute **USER SCENARIOS.**

System Requirements are documented in **USE CASE DIAGRAMS.** A use case is a sequence of transactions in a dialogue between an user and the system with a tangible result.

Use Cases serve as the foundation for developing test cases at the system and acceptance level. They describe the process flows through a system based on its most likely use.

Use Case Testing



Use case diagram of online shopping mall system

source :
https://www.chegg.com/homework-help/questions-and-answers/4-find-actor-s-following-use-case-diagram-explain-roles-actor-8-marks--q49301638

User Story Testing

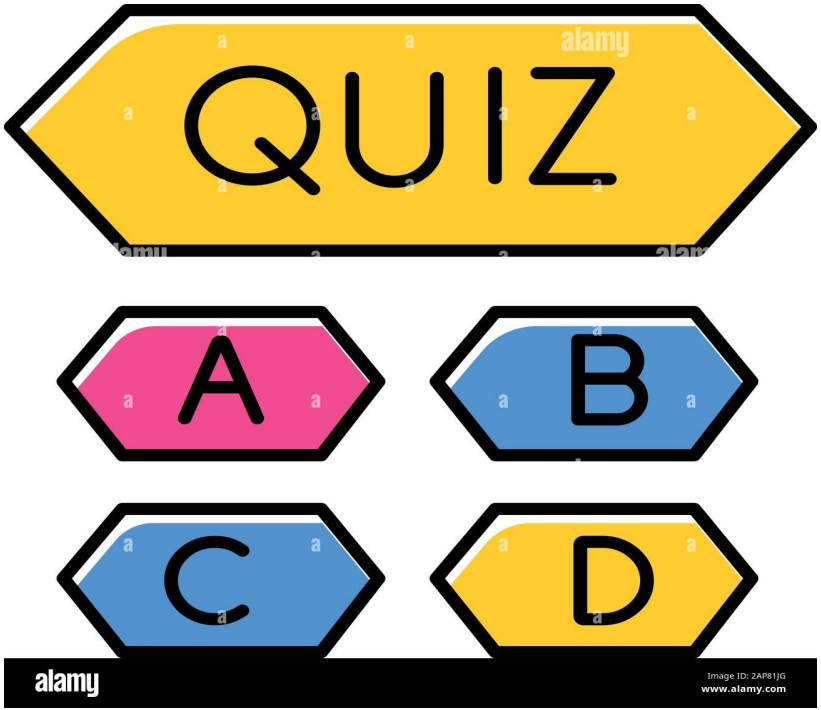
The user case testing evolves to User Story Testing. It means that user's perspective remains but shorter requirements were needed under Agile methodologies

Technique:

Experts judgements , and all previous design testing techniques to determine the number of necessary test cases.

Activity

Activity



Answer the questions on the form. Please read well the questions before answering

Thank You!