



Workshop: Use Case Modeling Guidelines

- Use Case Overview
- Step-by-Step
- Use Case Testing
- Hints and Tricks

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Workshop Plan

**In this workshop you
will learn how to:**

- Scope use case scenarios
- Author complete use cases
- Ensure high quality use cases



Main Message

A high quality **use case** is an **art**, but **validation** is a **science**. Content, scope and completeness, are the focus. Use case development is a team activity.

Tales From the Trenches



Not every one speaks the same language



Use Case Overview

Section One

- Defining a use case
- Identify use cases
- Structure of a use case

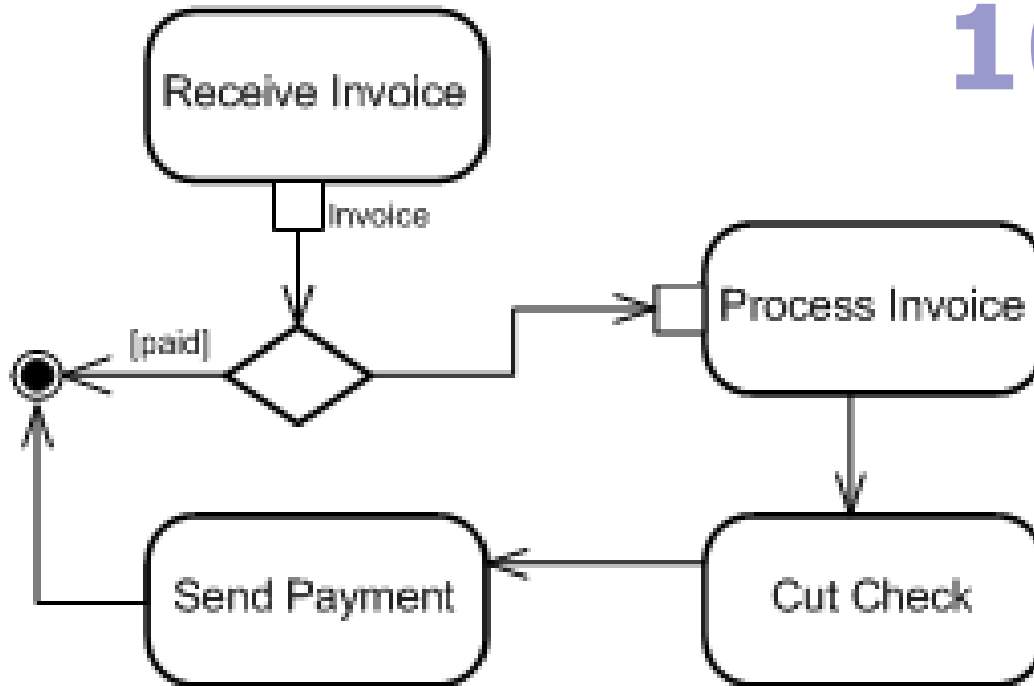
Defining Use Cases

How the system **should** respond.

- Input
- Script
- Output

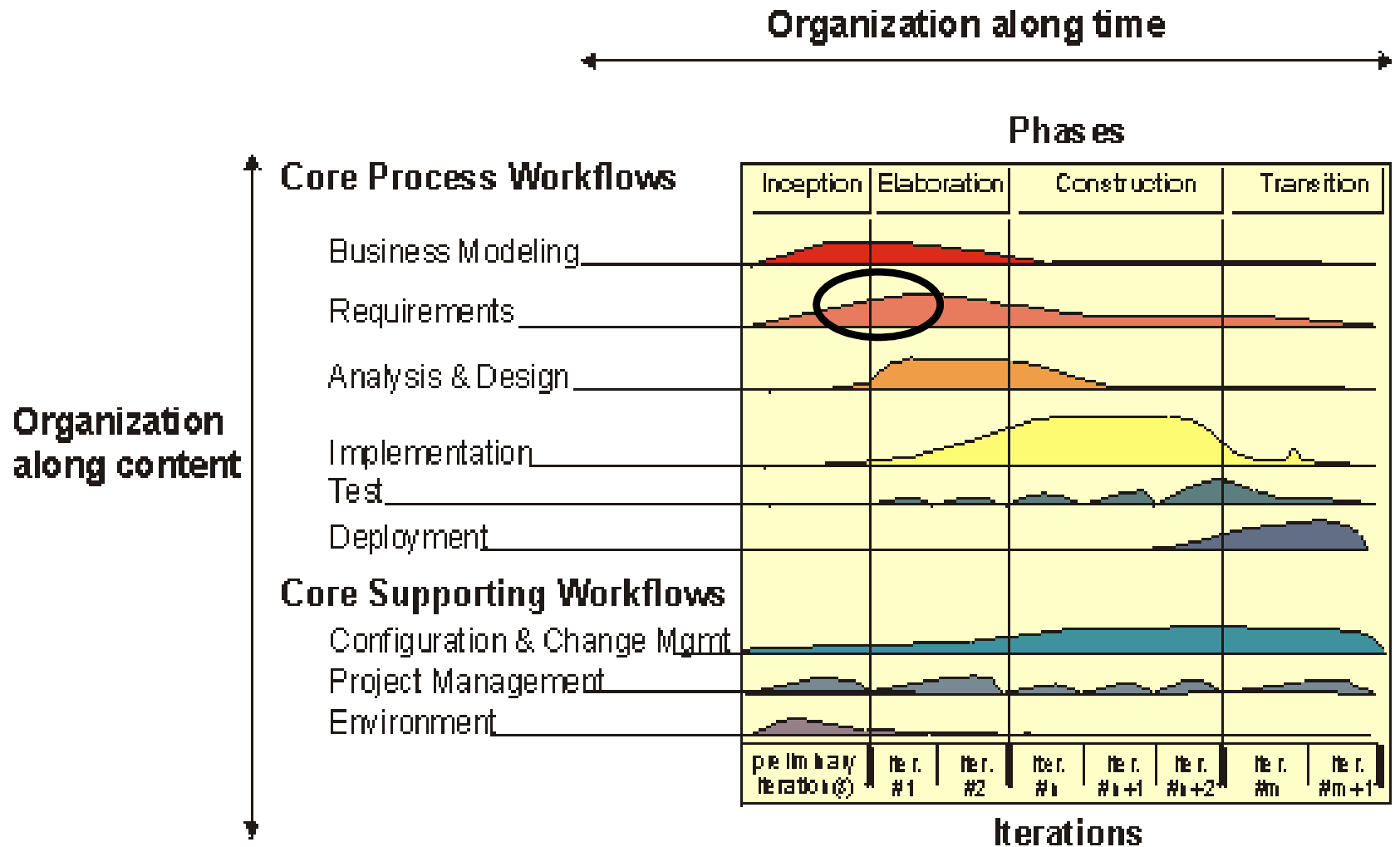
If something goes wrong during the script, can it be fixed?

A Picture Speaks a 1000...



- Two ways to complete a use case:
2. Word
 3. Diagram

Use Case Perspective





The Three Levels

- High level outline
- Step – by – step
- Precise details

See Manual, Appendix C

Breakfast

Sample business modeling use case:

2. Make breakfast
3. Sit down
4. Eat breakfast
5. Clean up

Sample requirements use case: Clean Up

7. Bring dishes to sink
8. Wash dishes
9. Dry dishes
10. Put dishes away

Sample design use case: Wash Dishes

12. Turn water on to 25 PSI pressure with equal measurement hot and cold water
13. Apply ¼ oz. liquid dish soap to blue sponge
14. Apply soapy side of sponge to dish and move sponge clockwise beginning in the center, until outer edge covered with soap.
15. Hold dish under faucet for 10 seconds at a 45-degree angle to the floor then turn water off.

You Try

Write a use case lunch or dinner

- Business mode level
- Requirements level

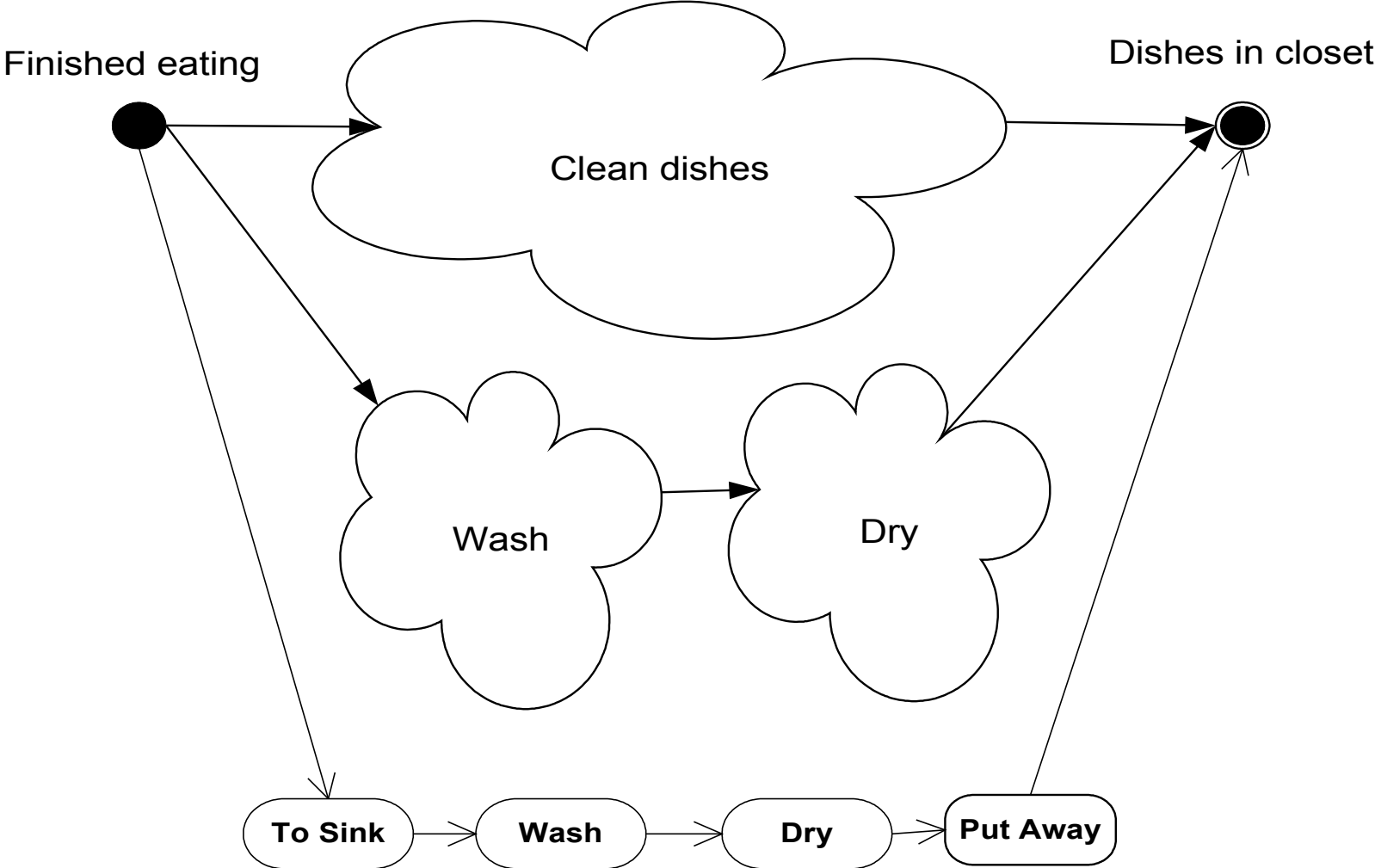


Scope and Goals

User Goal Use Cases

- Get the right scope
- Get the right depth
- System is a “black box”

Get the Scope





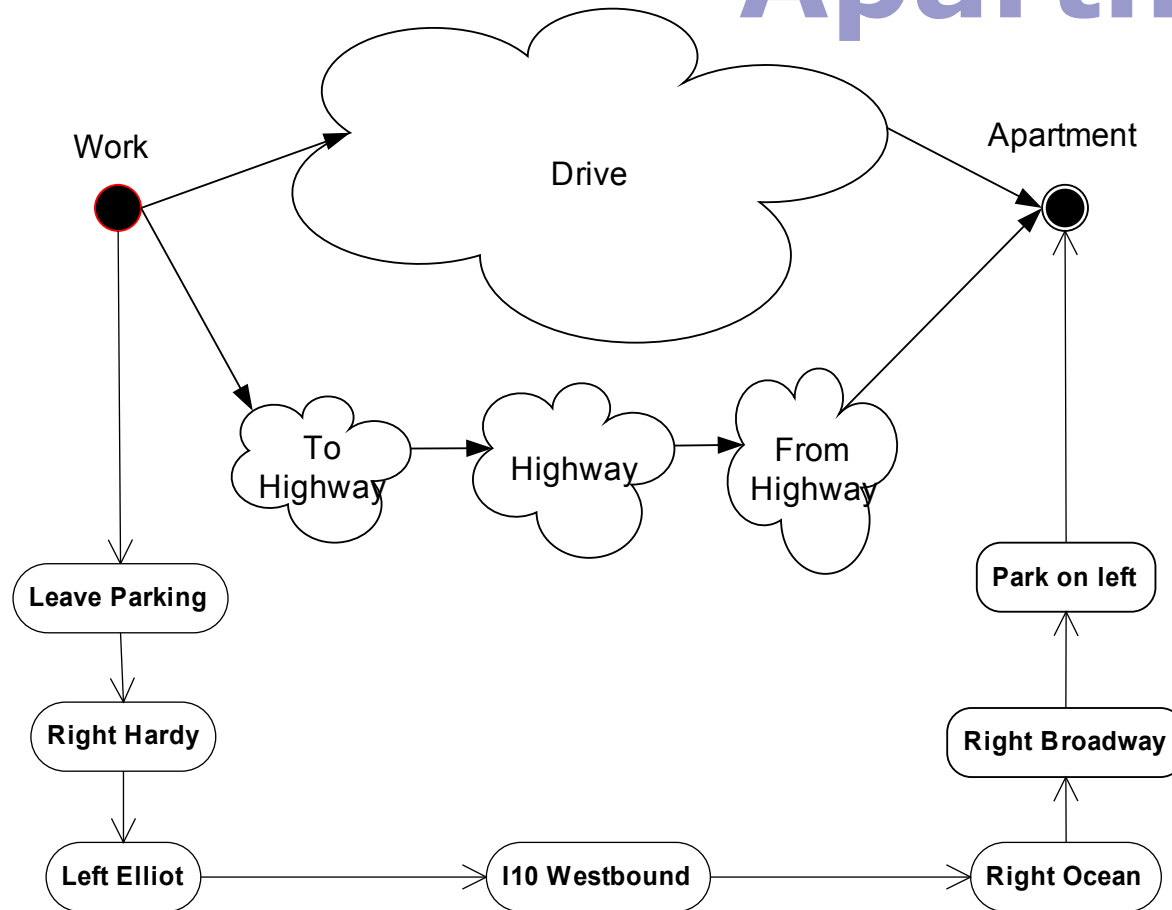
You Try

Write getting from work to a destination

- Business mode level
- Requirements level

See Manual, Appendix D for requirement level

Directions to My Apartment



Get the Right Depth

Primary actor (actress)
and supporting actors.

The steps to meet
the objective





Construction Set

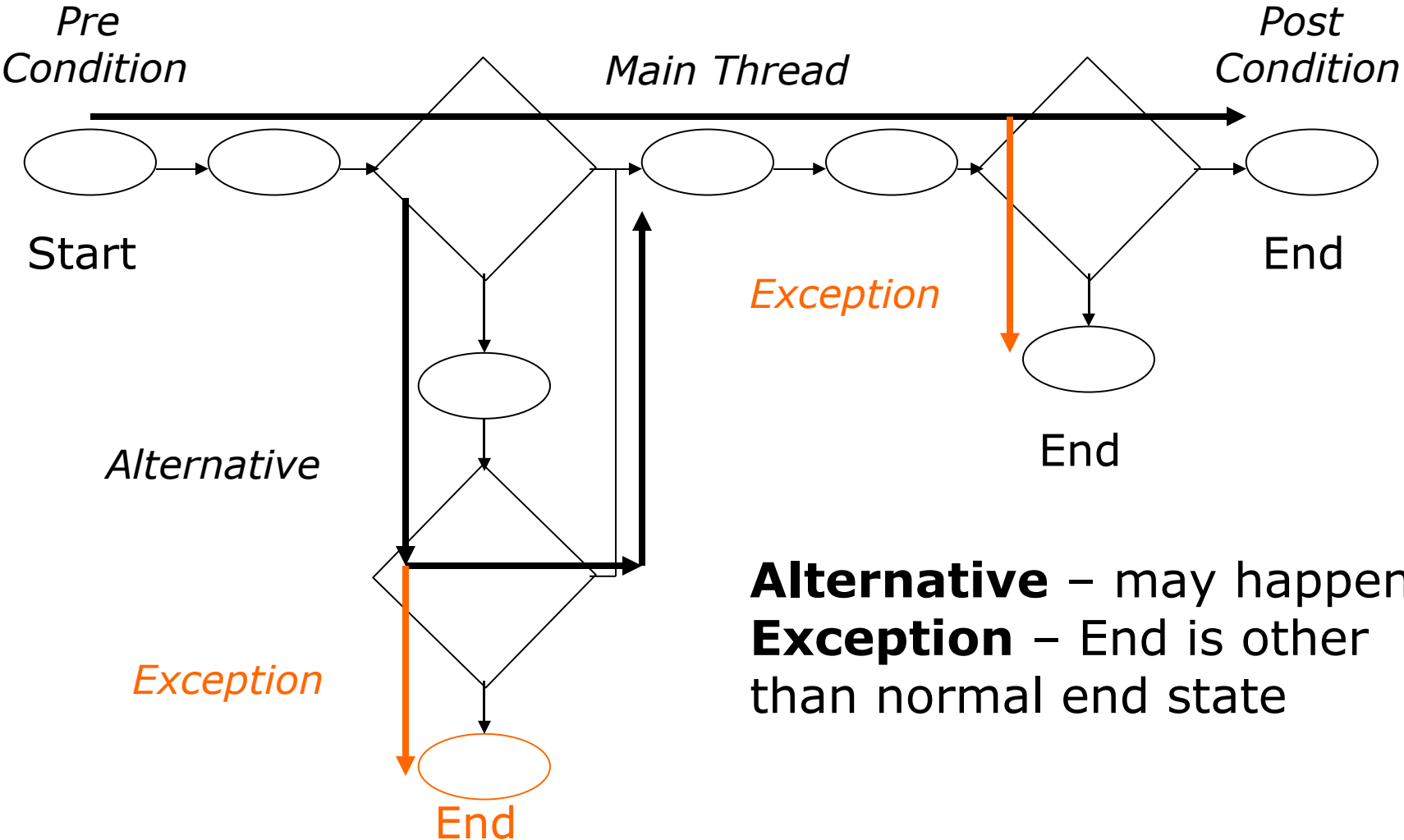
In the Use Case

- Pre Condition
 - Gate
 - (Assumption)
- Post Condition
- Description
- Main Thread
- Alternative Threads
- Exception Threads

About the Use Case

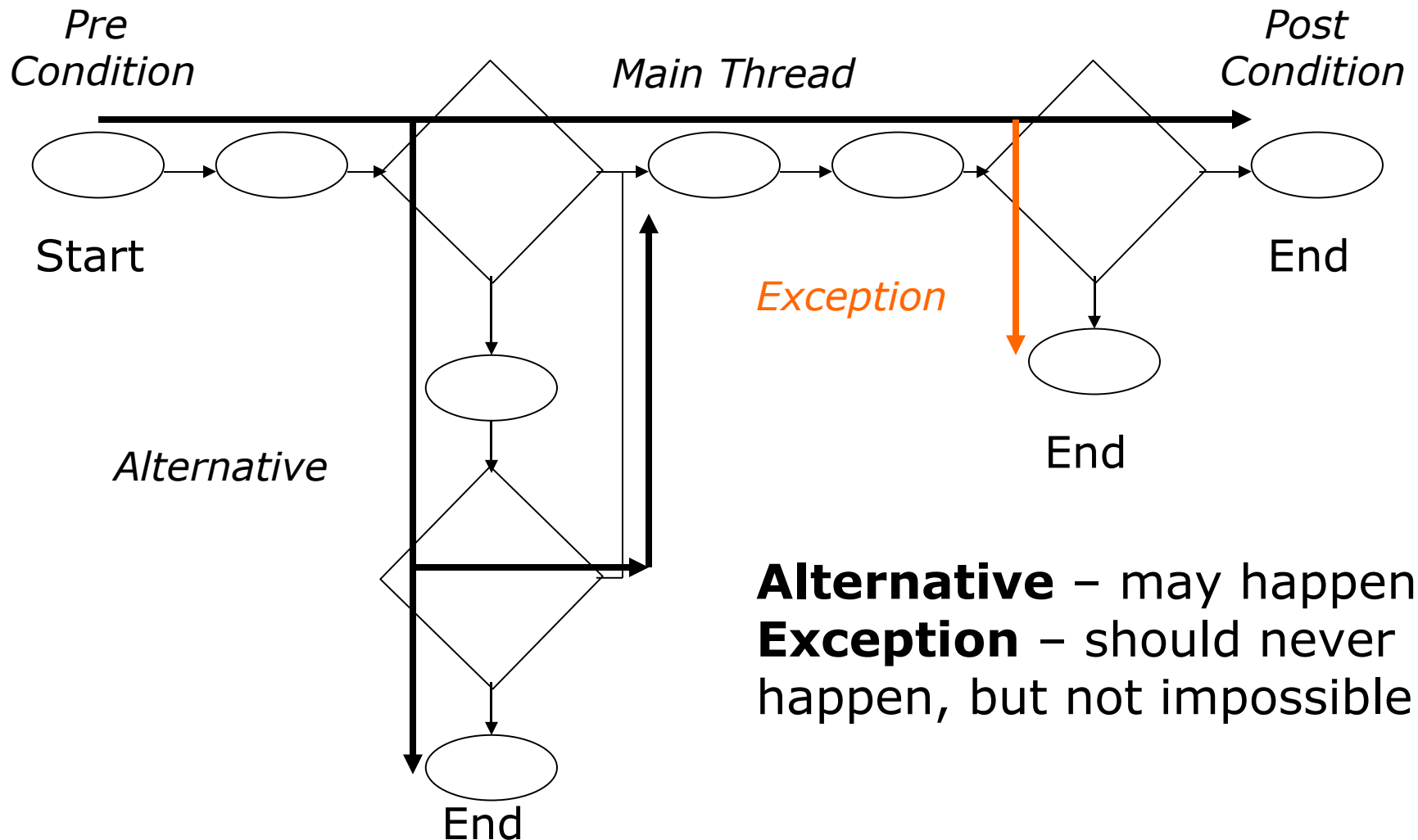
- Naming Convention
- Business Rules
- Non Functional

Use Case



Alternative – may happen
Exception – End is other than normal end state

Use Case : Alternative



Alternative – may happen
Exception – should never happen, but not impossible

Step-By-Step

Steps in Authoring a Use Case

2. Identify Start and End Points
3. Describe the Use Case
4. Create Name and Assign ID
5. Identify Actor (s)
6. Primary Scenario
7. Alternative Scenarios
8. Exceptions
9. Map Business Rules
10. Use Case Review



Define the Objective

Step 1

Identify

- Primary Actor - The Focus
- Start Point – Pre Condition
- End Point – Post Condition



Describe the Use Case

Step 2

Sentence or Paragraph

- Abstract of what use case will do
- Keep it current as use case evolves
- What not why



Name and ID

Step 3

A good name tells it all.

- Begin With a Strong Verb
- Use Domain Terminology

Examples Good names:

- Buy Ballet Ticket
- Write Workshop
- Drive to Apartment
- Prepare Lasagna

Identify Actor (s)

Step 4

Identify

- Primary Actor – Initiates and responsible
- Supporting Actor (s)
 - Roles
 - Other systems

Never include the system under discussion



Primary Scenario

Step 5

- Step-by-step how to successfully accomplish the objective
- Better to be vague than detailed.

Details can always be added later



Alternative Scenarios

Step 6

Part of scenario

- Interrupts the flow
- Handle a problem
- Return to the primary scenario

Like a commercial on TV



Exceptions

Step 7

Usually causes the process to fail to meet the objective. Sometimes can return to the flow, most times a different post condition.

An exception may be business logic or system failure



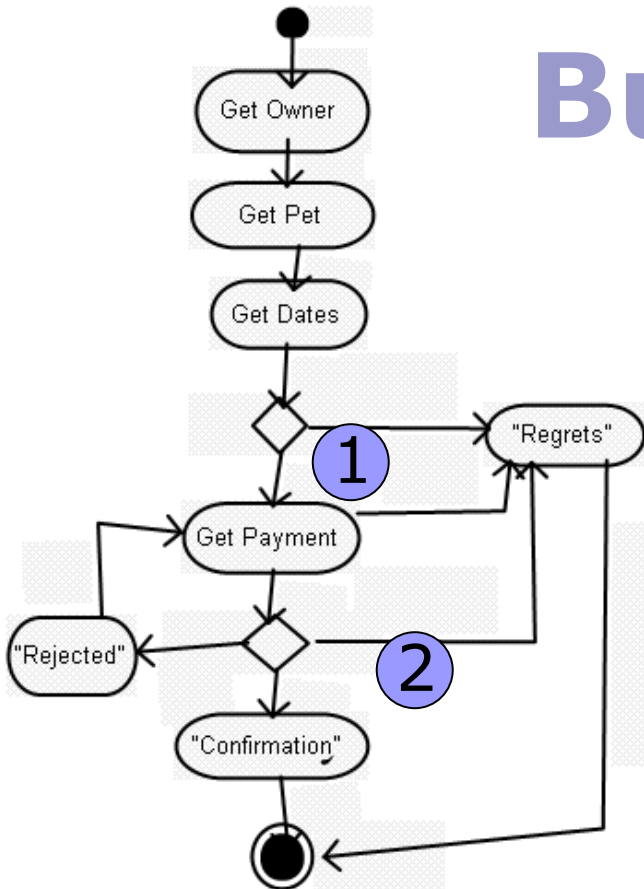
Map Business Rules

Step 8

- Usually decision branching, alternative and exception, are business rules.
- May also be a step.

Rules applied to the use case.

Business Rules at Decision Points



Business use case will expose where business rule is required

- 1 Owner must pay
- 2 Payment must be valid

Business rules have input and output, part of a business use case.



Review Process

Step 9

Three Reviews

- Buddy review
- Formal review
- Approval review



Putting it All Together

Making Lasagna – Appendix E

What are:

Pre Conditions –

Post Conditions –



Putting it All Together

Making Lasagna – Step 1

What are:

Pre Conditions – Ingredients readily available. Stove and oven to cook

Post Conditions – Lasagna ready to eat



Putting it All Together

Making Lasagna – Step 2

Describe the use case



Putting it All Together

Making Lasagna – Step 2

Description:

Prepare vegetarian lasagna from fresh vegetables, cheese and noodles. Bake in oven and serve.



Putting it All Together

Making Lasagna – Step 3

Create a descriptive use case name



Putting it All Together

Making Lasagna – Step 3

Name:

Prepare Vegetarian Lasagna



Putting it All Together

Making Lasagna – Step 4

Identify actors -



Putting it All Together

Making Lasagna – Step 4

Identify **actors** - Chef



Putting it All Together

Making Lasagna – Step 5

Primary Scenario

Putting it All Together

Making Lasagna – Step 5

Primary Scenario:

Heat olive oil in pan

Add onions, garlic, tomatoes, mushrooms to heated olive oil

Boil noodles in water

Cover tray with noodles

Cover noodles with tomato sauce

Cover sauce with cheese

Place in oven until light brown

Serve when cool



Putting it All Together

Making Lasagna – Step 6

Create an alternative

Putting it All Together

Making Lasagna – Step 6

Create an **alternative**: Noodles don't need boiling

Skip boiling noodles in pot, return to cover tray with noodles



Putting it All Together

Making Lasagna – Step 7

Create an exception



Putting it All Together

Making Lasagna – Step 7

Create an **exception**: Cheese spoiled

Cut noodles into thin strips

Add sauce to thin strips

Post Condition

Serve as spaghetti



Putting it All Together

Making Lasagna – Step 8

Link business rule



Putting it All Together

Making Lasagna -

Link business rule:

Step 8
BR-Kitchen-01: Every minute check
contents on stove



Putting it All Together

Making Lasagna – Step 9

Use case review



Putting it All Together

Making Lasagna – Step 9

Use case review:
Simulate tasting?

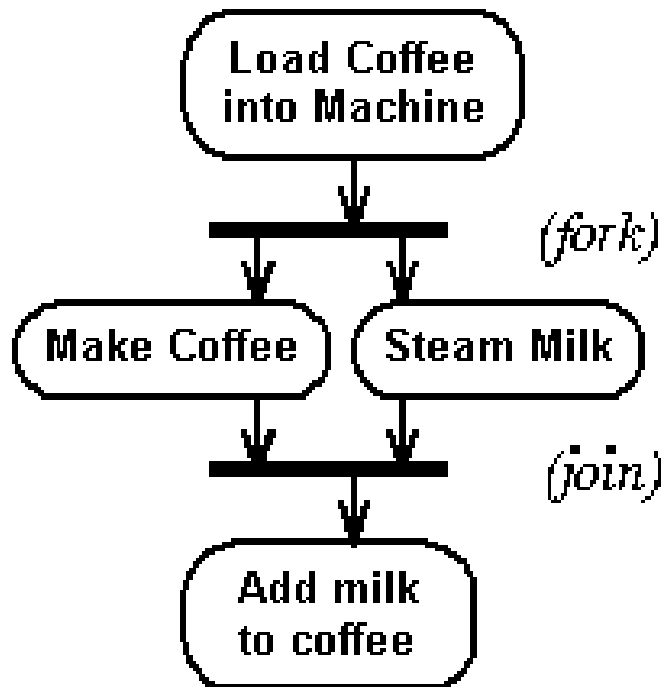


Use Case Testing

Steps in Use Case Testing

- Check with end use
 - Activity diagram
 - Use case step through
- Buddy review
- Formal review
- Review committee
- QA Test cases
- Full coverage maps

Activity Drawing



Easy to understand
Clarifies the process
Difficult to master
Don't be formal

Review with the end user



Buddy Review

Sanity Check

- Major Errors
- Readability
- Increase confidence

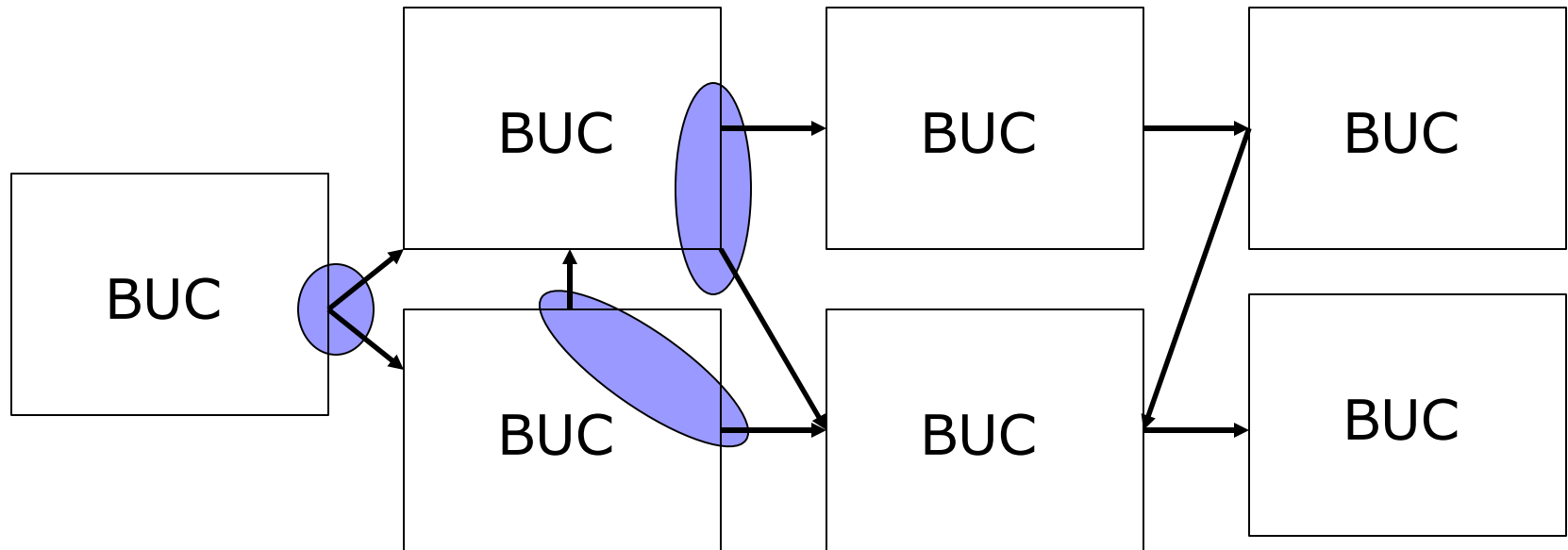


Formal Review

Formal...

- Review committee
- Tracking of defects
- Validation that defects fixed
- Approval

Use Case Maps



 Business rules that control flow

Tales From the Trenches



Q/A Test Plan



Q/A Test Plan

Q/A builds a test plan based on pre and post conditions. Q/A is responsible for testing test plan and B/A responsible for testing Q/A test plan.



Do's and Don'ts

You already heard them except:
Document storage and version
control **MUST** be managed.

These documents are as
important as source code!

Misuse Case

A requirement for use cases against hacking?

- How might this be applied in a use case.
- Security applied now is less expensive than later.
- Anticipated the problem!

Summary

Use cases are modular

- Single entry point
- Clearly defined steps
- One or few clearly defined exit points

Use cases must be validated

- Write clearly, many people will review it.
- Practice activity diagrams, they will add clarity
- Use case writing is an art, use case review is a science

Think beyond

- Business rules are integrated with use cases
- use cases are linked to other use cases
- There is use and misuse, think defensive

Use Cases: More Than Nine Steps



It's the recipe for success