CS445 / ECE451 / CS645 / SE463

Software Requirements Specification & Analysis

Scenarios

Scenarios

A scenario is one full execution path through a use case, listing only observable actions

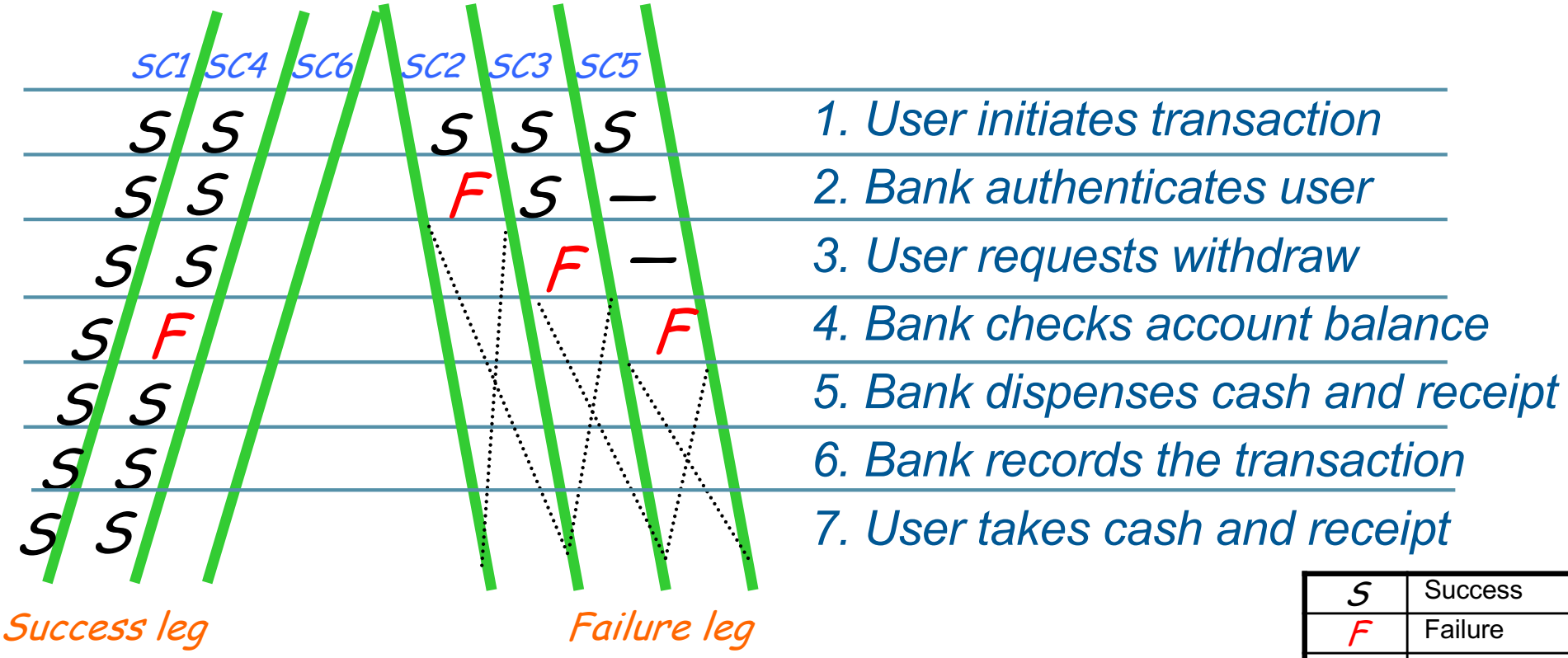
- interactions between the System and external actors

Banking Scenario

1. User initiates transaction
2. Bank authenticates user
3. User requests to withdraw funds, specifies amount
4. Bank checks that the account has sufficient funds
5. Bank dispenses cash and receipt
6. Bank records the transaction
7. User takes cash and receipt and leaves

Use cases vs. Scenarios

A use case is a collection of success & failure scenarios, each initiated by an external actor to achieve a particular goal



S	Success
F	Failure
—	Don't care

Template

- **Use Case Name**
- **Scenario Name and Number:**
- **Trigger:**
- **Preconditions:** Conditions that must exist before the use case is valid.
- **Stakeholders:**
- **Postcondition**:

Rockit Example

Use Case Name: Send Freeform Query

Scenario Name and Number: Send Freeform Query (SFQ1)

Trigger: User enters unformatted Query

Preconditions: User is an authenticated subscriber

Stakeholders: Users, expert on SMS

Postcondition: User receives response to query

Main Scenario (Rockit)

User	Rockit	Internet API	SMS
1. Enters unformatted query			
	2. Poses a rephrased query via Google Search API		
		3. Sends top-ranked non-ad response to Rockit	
	4. Sends a rephrased response to user's SMS		
			5. Sends message to the user

More Complex Actions

- If (conditional statement)
- For (iteration expression)
- While (conditional iteration)
- Go To UC*n*

User	Rockit	Internet API	SMS
1. Enters arbitrary unformatted query			
	2. Poses a rephrased query via Google Search API		
	3. While waiting for response, play music for user		
		4. Sends top-ranked non-ad response to Rockit	

Alternatives

User	Rockit	Internet API	SMS
1. Enters arbitrary unformatted query			
	2. Poses a rephrased query via Google Search API		
		3. Google API ends top-ranked non-ad response to Rockit	
	4. Sends a rephrased response to user's SMS		
			5. Sends message to the user
Alternative 1 – Rockit has a cached response to query			
A1.1. Selects query from cache			
	A1.2. Sends cached response to user's SMS API		
			A1.3. Goto Step 5
Alternative 2 – User submits weather-based unformatted query			
A2.1. Enters weather unformatted query			
	A2.2. Poses a rephrased query via Weather API		

Exceptions

User	Rockit	Internet API	SMS
1. Enters arbitrary unformatted query			
	2. Poses a rephrased query via Google Search API		
		3. Google API ends top-ranked non-ad response to Rockit	
	4. Sends a rephrased response to user's SMS		
			5. Sends message to the user
Exception 1 – User sends query in an unsupported language			
	E1.2. Fails to parse query; constructs an error message and sends the message to SMS		
			E1.3. Goto Step 5
Exception 2 – Internet fails to respond to query			
	E2.2. Times out waiting for response from Internet; constructs an error message and sends the message to SMS		
			E2.3. Goto Step 5

Example: Meeting Scheduler

Normal Case Steps:

Initiator	Meeting Scheduler	Participant
1. Requests meeting, specifying participants (important, active, ordinary), agenda, date range		
	2. Sends email to participants, asking about their availability	
	3. Sends email to active participants, asking about their equipment requirements	
		4. Participant replies with available dates and times
		5. Active participant relies with equipment requirements
	6. Reserves equipment	
	7. When all participants have replied, finds conflict-free date, time, and room for meeting	
	8. Sends meeting information to all participants, and to initiator	

Alternatives and Exceptions

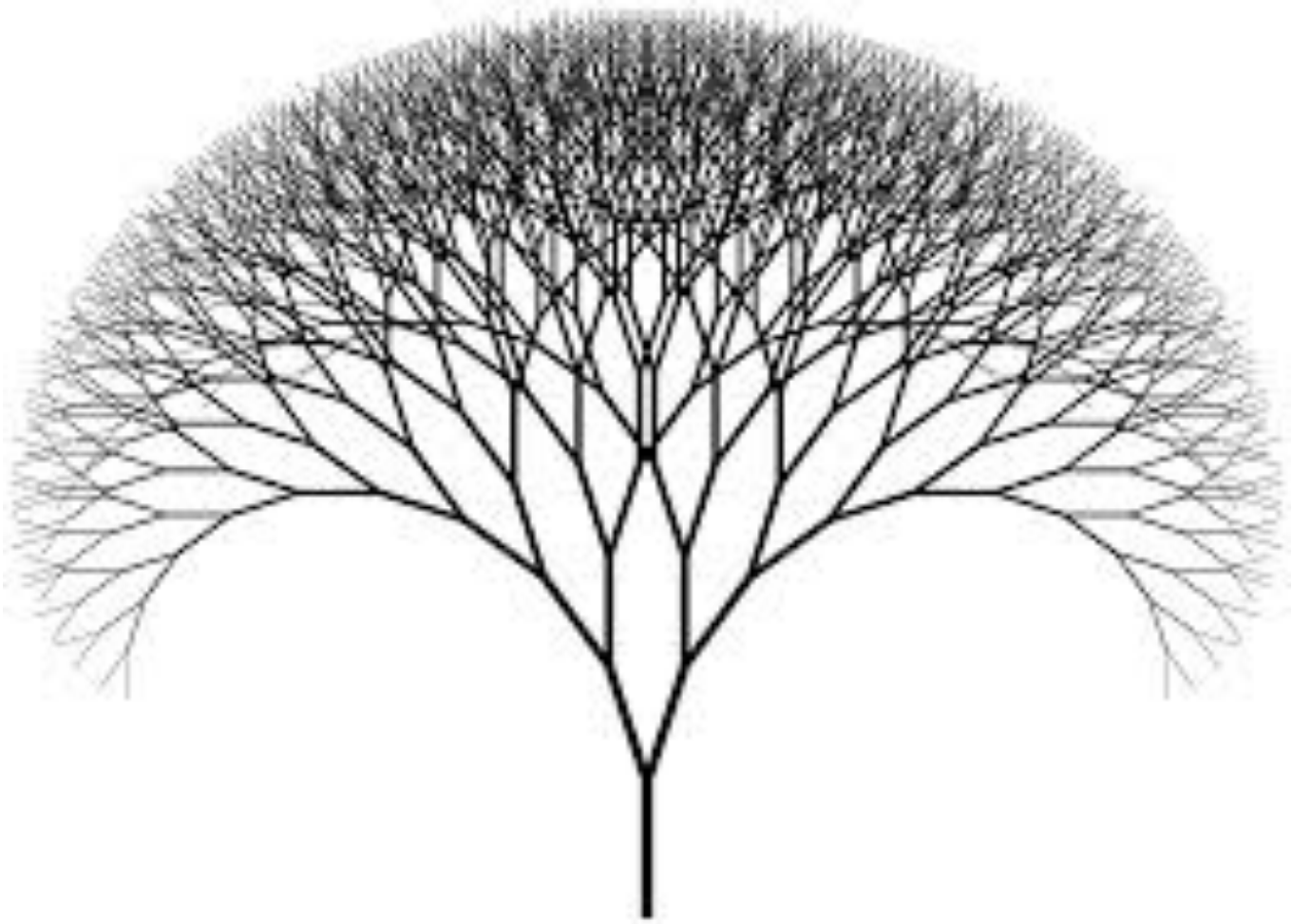
Possible outcomes

- No conflicts
- Non responder
- Late-coming participant
- Dropout
- Substitute active participant
- Participant changes preferences before meeting is scheduled
- Scheduled meeting bumped by more important meeting
- There are conflicts among participants' availability, so the initiator extends date range
- There are conflicts among participants' availability, so the initiator disinvites participants
- Weak date conflict; participants asked to exclude fewer dates
- Room conflict
- Conflict arises after meeting is scheduled
- Meeting cancelled

Exceptions

User	Rockit	Internet API	SMS
1. Enters arbitrary unformatted query			
	2. Poses a rephrased query via Google Search API		
		3. Google API ends top-ranked non-ad response to Rockit	
	4. Sends a rephrased response to user's SMS		
			5. Sends message to the user
Exception 1 – User sends query in an unsupported language			
	E1.**2**. Fails to parse query; constructs an error message and sends the message to SMS		
			E1.3. Goto Step 5
Exception 2 – Internet fails to respond to query			
	E2.2. Times out waiting for response from Internet; constructs an error message and sends the message to SMS		
			E2.3. Goto Step 5

Alternatives and Exceptions



References

Alistair Cockburn, Paul Bramble, Andy Pols, Steve Adolph., *Patterns for Effective Use Cases,* Addison- Wesley Professional, 2002.

- Chapter 6: ”Steps and Scenarios"