CS2062 Object Oriented Software Development

Lecture 3

Use Cases and Domain Classes

Events and Use Cases

- Use case
  - Activity the system carries out
  - Entry point into the modeling process

- How to identify use cases?
  - Event decomposition
  - Elementary business process (EBP)
    - Is a task performed by one person in one time in response to a business event
    - Leaves the system in a stable state after completion

Elementary Business Processes

- Enter a customer name in a form
- Add a new customer
- Working with customers all day

USER/ACTOR	USER GOAL
Order clerk	Look up item availability Create new order Update order
Shipping clerk	Record order fulfillment Record back order
Merchandising manager	Create special promotion Produce catalog activity report

Identifying Use Cases by Focusing on Users and their Goals

# Event Decomposition

- Event decomposition
  - Develops use cases based on system response to events
  - Perceives system as black box interfacing with external environment
  - Keeps focus on EBPs and business requirements
- Result of the decomposition:
  - List of use cases triggered by business events
  - Use cases at the right level of analysis

Types of Events

- External Events

  - Occur outside the system

  - Usually caused by external agent

- Temporal Events

  - Occurs when system reaches a point (deadline) in time

- State Events

  - Asynchronous events responding to system trigger

  Events in your phone

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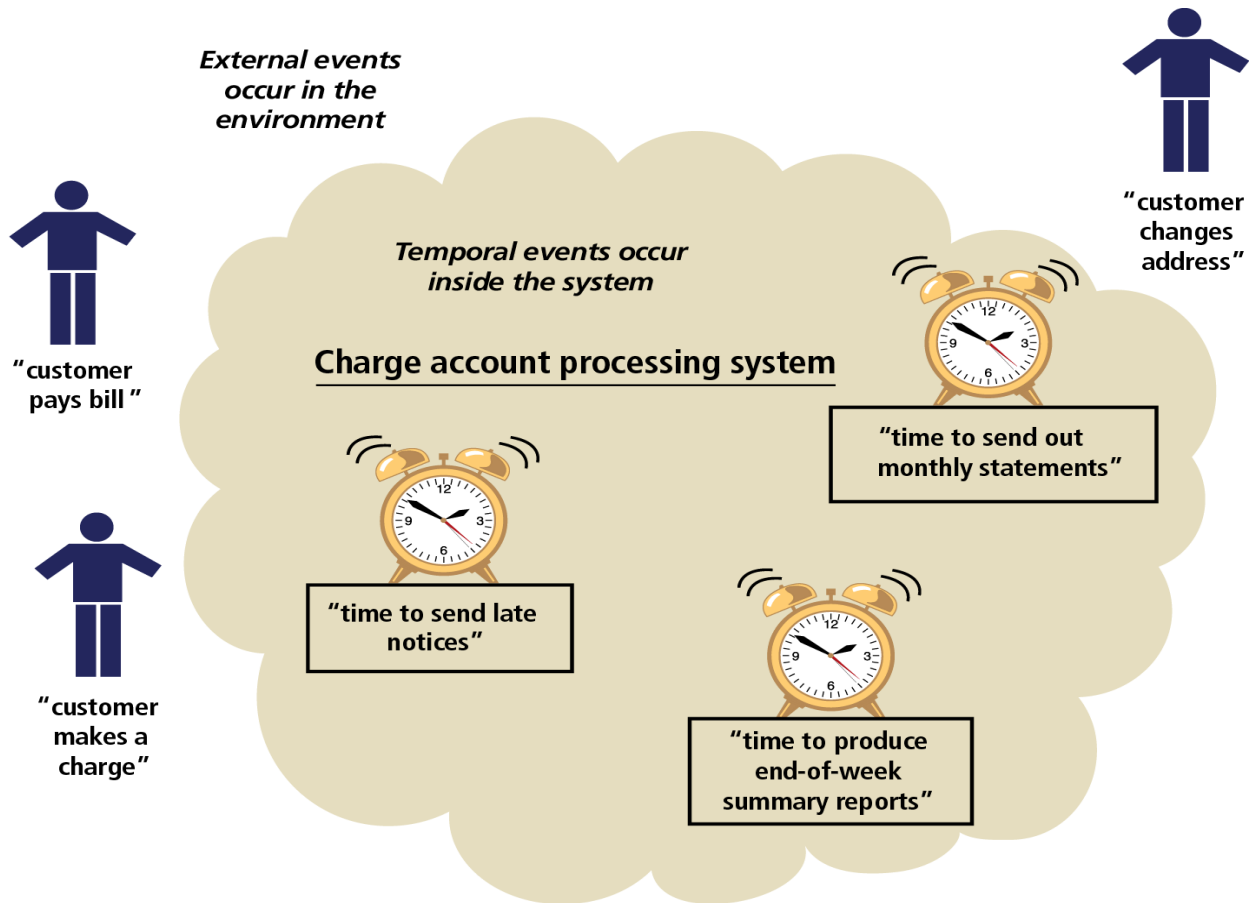
Events Affecting a Charge Account Processing System that Lead to Use Cases

External Events to Look for Include:
✓External agent wants something
   resulting in a transaction
✓External agent wants some information
✓Data changed need to be updated
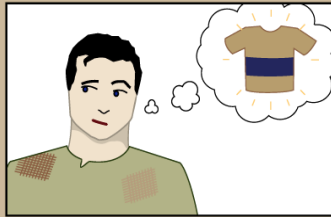✓Management wants some information

External Event Checklist

Temporal Events to Look for Include:

✓Internal outputs needed

  ✓Management reports (summary or exception)

  ✓Operational reports (detailed transactions)

  ✓Internal statements and documents (including payroll)

✓External outputs needed
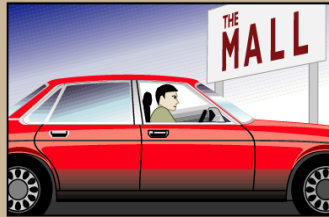
  ✓Statements, status reports, bills, reminders

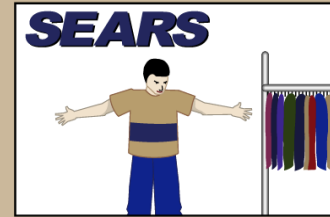Temporal Event Checklist

Identifying Events

- Distinguish events from prior conditions and responses

    - Can the transaction complete without interruption?

    - Is the system waiting for next transaction?

- Trace sequence of events initiated by external agent

    - Isolate events that actually touch the system
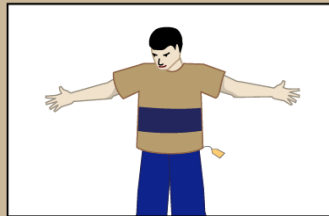
Sequence of actions that leads to one event affecting the system

Identifying Events (continued)

- Identify technology dependent events
  - Example: logon depending on system controls
- Defer specifying technology dependent events
- Perfect technology assumption:
  - Separates technology dependent events from functional requirements
    - Unlimited processing and storage capacity
    - Equipment does not malfunction
    - Users have ideal skill sets

Looking At Each Event and the Resulting Use Case

- Enter use cases in an event table

- Event table includes rows and columns

  - Each row is a record linking an event to a use case

  - Columns represent key information

The event that causes the system to do something.

Source: For an external event, the external agent is the source of the data entering the system.

Response: What output (if any) is produced by the system?

Event	Trigger	Source	Use Case	Response	Destination
Customer wants to check item availability	Item inquiry	Customer	Look up item availability	Item availability details	Customer

Trigger: How does the system know the event occurred? For external events, the trigger is data entering the system. For temporal events, it is a definition of the point in time that triggers the system processing.

Use Case: What does the system do when the event occurs? The use case is what is important to define for functional requirements.

Destination: What external agent gets the output produced?

Information about each Event and the Resulting Use Case in an Event Table