Perkuliahan ke-11

Object Oriented Analysis

Use case scenario

Yadhi Aditya Permana, S.T., M.Kom.

D3 Teknik Informatika
Politeknik Negeri Bandung

Last Week

- OOA
- UML Notation
- Use case diagram

Today...

01

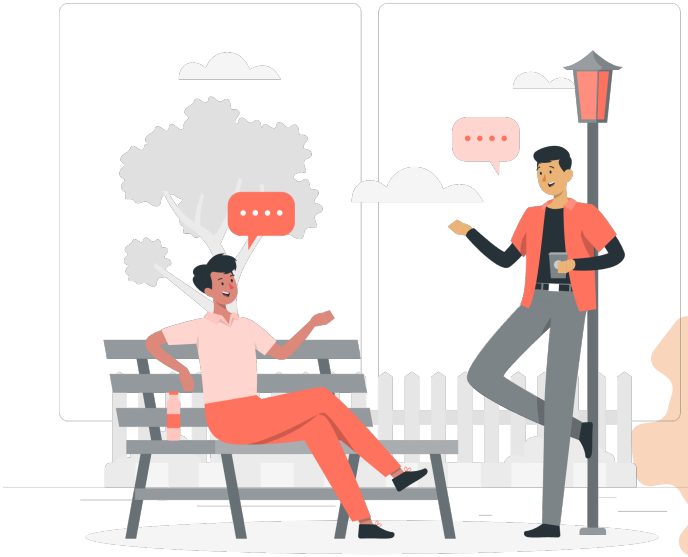
Use case scenario

02

Practice

03

Presentation

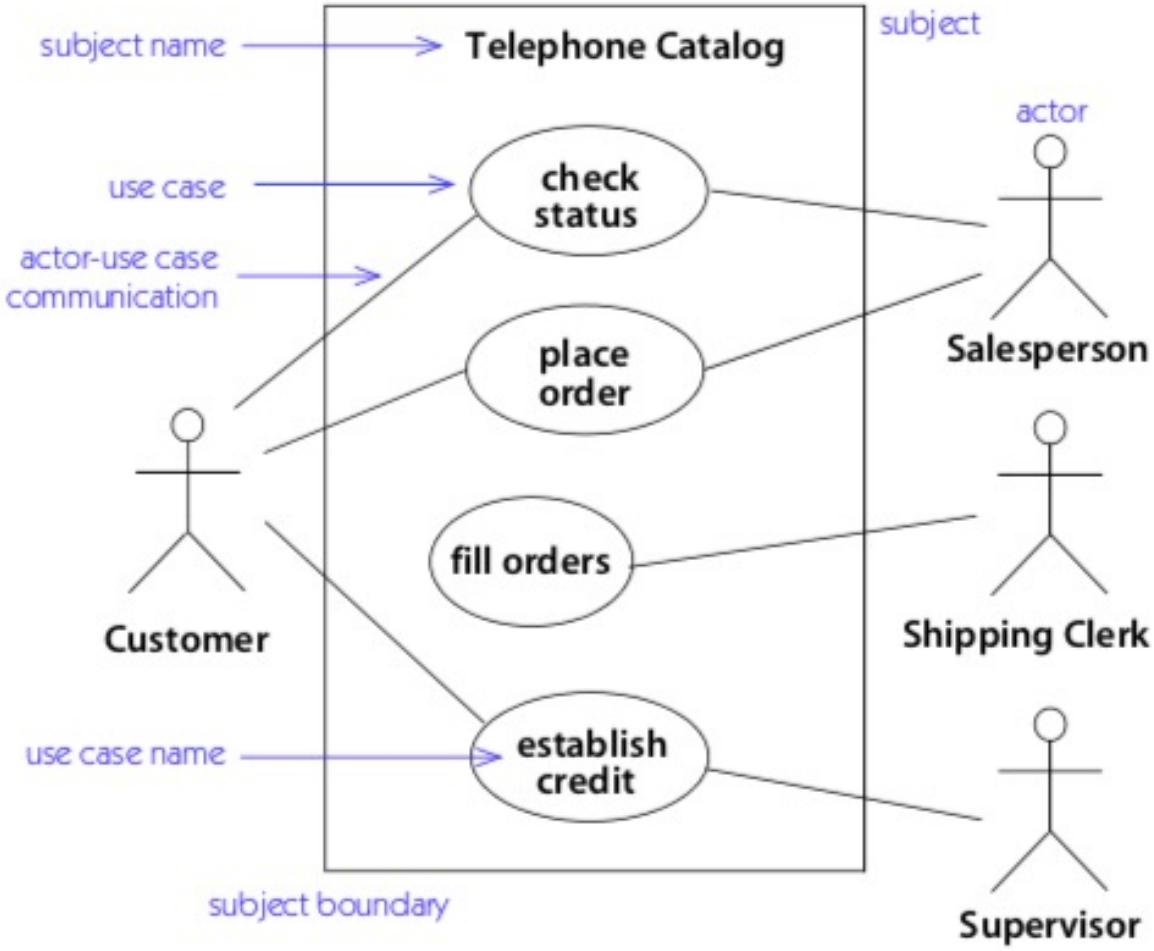


Use case

- a use case is a collection of related success and failure scenarios that describe an actor using a system to support a goal.
- Named by verb.

Scenario

- A scenario is a specific sequence of actions and interactions between actors and the system; it is also called a use case instance. It is one particular story of using a system, or one path through the use case;
- for example,
  - the scenario of successfully purchasing items with cash,
  - or the scenario of failing to purchase items because of a credit payment denial.


subject name
Telephone Catalog
subject
actor
use case
check status
actor-use case communication
place order
Salesperson
Customer
fill orders
Shipping Clerk
use case name
establish credit
Supervisor
subject boundary

Type of scenario

- brief—terse one-paragraph summary, usually of the main success scenario.
- casual—informal paragraph format. Multiple paragraphs that cover various scenarios.
- fully dressed—the most elaborate. All steps and variations are written in detail, and there are supporting sections, such as preconditions and success guarantees.

Brief format

- Process Sale:

A customer arrives at a checkout with items to purchase. The cashier uses the POS system to record each purchased item. The system presents a running total and line-item details. The customer enters payment information, which the system validates and records. The system updates inventory. The customer receives a receipt from the system and then leaves with the items.

Casual Format

- Main Success Scenario:
  - A customer arrives at a checkout with items to return. The cashier uses the POS system to record each returned item …
- Alternate Scenarios:
  - If the customer paid by credit, and the reimbursement transaction to their credit account is rejected, inform the customer and pay them with cash.
  - If the item identifier is not found in the system, notify the Cashier and suggest manual entry of the identifier code (perhaps it is corrupted).
  - If the system detects failure to communicate with the external accounting system, …

Fully Dressed Format

Use Case Section	Comment
Use Case Name	Start with a verb.
Scope	The system under design.
Level	"user-goal" or "subfunction"
Primary Actor	Calls on the system to deliver its services.
Stakeholders and Interests	Who cares about this use case, and what do they want?
Preconditions	What must be true on start, *and* worth telling the reader?
Success Guarantee	What must be true on successful completion, *and* worth telling the reader.
Main Success Scenario	A typical, unconditional happy path scenario of success.
Extensions	Alternate scenarios of success or failure.
Special Requirements	Related non-functional requirements.
Technology and Data Variations List	Varying I/O methods and data formats.
Frequency of Occurrence	Influences investigation, testing, and timing of implementation.
Miscellaneous	Such as open issues.

Example fully dressed

Use Case UC1: Process Sale

Scope: NextGen POS application

Level: user goal

Primary Actor: Cashier

Stakeholders and Interests:

- Cashier: Wants accurate, fast entry, and no payment errors, as cash drawer shortages are deducted from his/her salary.

- Salesperson: Wants sales commissions updated.

- Customer: Wants purchase and fast service with minimal effort. Wants easily visible display of entered items and prices. Wants proof of purchase to support returns.

- Company: Wants to accurately record transactions and satisfy customer interests. Wants to ensure that Payment Authorization Service payment receivables are recorded. Wants some fault tolerance to allow sales capture even if server components (e.g., remote credit validation) are unavailable. Wants automatic and fast update of accounting and inventory.

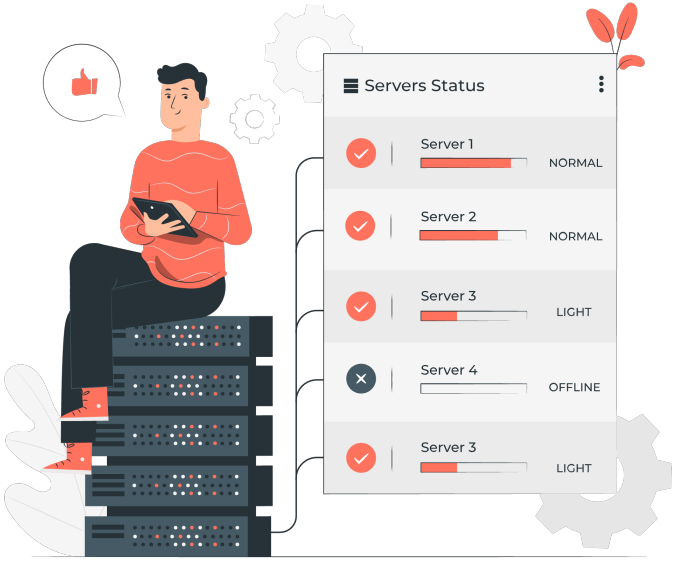
- Manager: Wants to be able to quickly perform override operations, and easily debug Cashier problems.

- Government Tax Agencies: Want to collect tax from every sale. May be multiple agencies, such as national, state, and county.

- Payment Authorization Service: Wants to receive digital authorization requests in the correct format and protocol. Wants to accurately account for their payables to the store.

Preconditions: Cashier is identified and authenticated.

Success Guarantee (or Postconditions): Sale is saved. Tax is correctly calculated. Accounting and Inventory are updated. Commissions recorded. Receipt is generated. Payment authorization approvals are recorded.



Main Success Scenario (or Basic Flow):

1. Customer arrives at POS checkout with goods and/or services to purchase.
2. Cashier starts a new sale.
3. Cashier enters item identifier.
4. System records sale line item and presents item description, price, and running total. Price calculated from a set of price rules.

   Cashier repeats steps 3-4 until indicates done.

5. System presents total with taxes calculated.
6. Cashier tells Customer the total, and asks for payment.
7. Customer pays and System handles payment.
8. System logs completed sale and sends sale and payment information to the external Accounting system (for accounting and commissions) and Inventory system (to update inventory).
9. System presents receipt.
10. Customer leaves with receipt and goods (if any).

1a. Customer or Manager indicate to resume a suspended sale.

1. Cashier performs resume operation, and enters the ID to retrieve the sale.
2. System displays the state of the resumed sale, with subtotal.

2a. Sale not found.

1. System signals error to the Cashier.

- Cashier probably starts new sale and re-enters all items.

- Cashier continues with sale (probably entering more items or handling payment).

3a. Invalid item ID (not found in system):

1. System signals error and rejects entry.

2. Cashier responds to the error:

2a. There is a human-readable item ID (e.g., a numeric UPC):

1. Cashier manually enters the item ID.

- System displays description and price.

Use Case UC1: Process Sale

Primary Actor: ...

... as before ...

Main Success Scenario:

Actor Action (or Intention)	System Responsibility
1.Customer arrives at a POS checkout with goods and/or services to purchase.	
2.Cashier starts a new sale.	
3.Cashier enters item identifier.	4.Records each sale line item and presents item description and running total.
Cashier repeats steps 3-4 until indicates done.	5.Presents total with taxes calculated.
6.Cashier tells Customer the total, and asks for payment.	
7.Customer pays.	8.Handles payment.
	9.Logs the completed sale and sends information to the external accounting (for all accounting and commissions) and inventory systems (to update inventory). System presents receipt.
...	...

Special Requirements:

- Touch screen UI on a large flat panel monitor. Text must be visible from 1 meter.

- Credit authorization response within 30 seconds 90% of the time.

- Somehow, we want robust recovery when access to remote services such the inventory system is failing.

- Language internationalization on the text displayed.

- Pluggable business rules to be insertable at steps 3 and 7.

- ...

Technology and Data Variations List:

*a. Manager override entered by swiping an override card through a card reader, or entering an authorization code via the keyboard.

3a. Item identifier entered by bar code laser scanner (if bar code is present) or keyboard.

3b. Item identifier may be any UPC, EAN, JAN, or SKU coding scheme.

7a. Credit account information entered by card reader or keyboard.

7b. Credit payment signature captured on paper receipt. But within two years, we predict many customers will want digital signature capture.

Frequency of Occurrence: Could be nearly continuous.

Open Issues:

- What are the tax law variations?
- Explore the remote service recovery issue.
- What customization is needed for different businesses?
- Must a cashier take their cash drawer when they log out?
- Can the customer directly use the card reader, or does the cashier have to do it?

Tugas

- Buatlah usecase scenario dengan full dressed format, untuk 3 buah use case
- Tulislah hasil usecase scenario anda dalam dokumen SRS

Next lesson

- Domain model
- System Sequence Diagram

Selesai

Pertanyaan?