Advance Java Case Study – Transfer Management System

Advanced Java Case Study – Bank Transfer Service management System

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Welcome!

Welcome to the Advance Java Case Study exercise for Transfer srevice Management System in a bank.

This case study exercise includes six user stories. You need to perform the activities mentioned in the user stories and submit your results.

Before working on the case study exercise, take look at the Architecture Overview for Account Management System in a bank.

Lab Set up :- It is expected that you use the set up you have created while going through your learning journey for each of the individual courses.

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Architecture Overview

1. Introduction – Architecture Overview

1.1 Purpose

The purpose of the Architecture Overview, as represented by the diagram below, is to:

- Communicate a conceptual understanding of the target IT system
- Provide a high-level shared vision of the architecture and scope of the proposed IT system
- Explore and evaluate alternative architectural options
- Enable early recognition and validation of the implications of the architectural approach
- Facilitate effective communication between different communities of stakeholders and developers
- Facilitate orientation for new people who join the project

1.2 Scope

This Architecture Overview is documented for Account Management System in a bank application.

1.3 Intended Audience

This document is intended for Developers, Architects, Technical Advisory Board, Project Manager, and Designers.

1.4 Overview

The Architecture Overview diagram represents the governing ideas and candidate building blocks of an IT system and enterprise architecture. It provides an overview of the main conceptual elements and relationships in an architecture, including candidate subsystems, components, nodes, connections, data stores, users, and external systems.

2. Architectural Goals

2.1 Strategic Drivers

The strategic drivers are as follows:

- Using a layered architecture, which ensures parallel development of multiple layers. Each layer is independent of other layers, whichmeans that we can change the technology of one layer without effecting other layers. For example, we can easily replace JSP in the presentation layer with ReactJS.
- Ensures low coupling between the components. Ensuring high cohesion, which enables that the responsibilities of a given element are strongly related and highly focused.
- Ensure separation of concerns and distribution of responsibilities.

2.2 Architectural Drivers

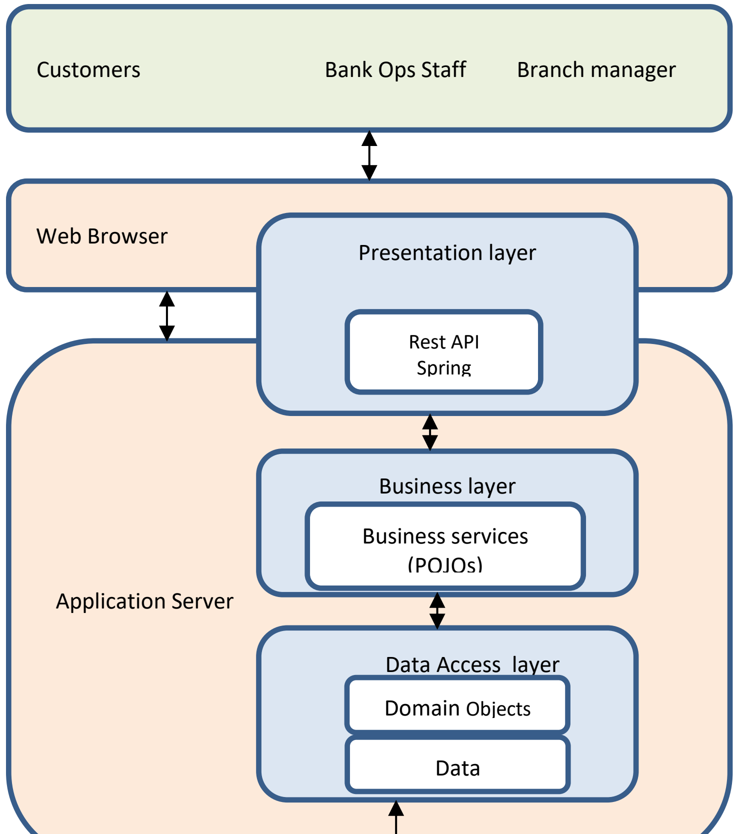
2.2.1 Technology Platform

Development platform	A Java-JEE/Stack built around: • Java Enterprise Edition • Spring Framework • Spring Boot • Spring Data MySQL • Eclipse or STS • Junit
Application server	Apache Tomcat or any application server
Relational database server	MySQL

3. Architecture Overview

3.1 Application Layers

The diagram given below will provide a clear idea of the different layers of the application.



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Presentation Layer:

The presentation layer is responsible for the interaction with outside actors (via the User Interface).

The technology used in the presentation layer is html/jsp coupled with Spring Boot and Spring Rest.

Service Layer:

Service layer consists of business service components which implement the business logic of the application.

Data Access Layer:

This layer is responsible for interaction with the database and performs database-specific operations

(CRUD).

Persistence Layer:

This layer is not actually an individual layer. It is clubbed with Data Access layer and it uses Data MySQL to retrieve, save, and update data in the database.

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Case Study Exercise

Case Study – Bank Transfer Service Management System in a bank

General Description

The Bank Transfer Service Management System in a bank application is used by an account holder to transfer the money. Different types of transfer services are available to different beneficiaries. The account owner wants to track the account based on some parameters , such as transfers per beneficiary, Balance (B), total money transferred in a month.

User Stories

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User Story 1.1: View Home Page

Description

As a customer, I want to view the application home page when I log in so that I have easy access to the features of the application and can quickly see relevant information.

The customer should see the home page of the application after entering the web application's URL.

The home page should contain the following:

1. Name of application
2. Reserved area for functions. Place holders should be placed instead of actual links for functions. Functions will be added through succeeding user stories.
3. Reserved area for default views. Nothing to be displayed for now. Views to be displayed will be determined by succeeding user stories.

Out-of-scope

Actual content of reserved areas is out of scope and will be specified by other stories.

Dependencies

None

Acceptance Criteria

1. Base application URL leads to home page.
2. Home page displays web application name.
3. Home page has visible areas for functions and default views.

User Story 1.2: Add/delete a beneficiary

Description

As a customer, I want to add a beneficiary so that I can manage the information.

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Functional Requirements

Beneficiary profile fields should include the following:

Field	Type	Required?
First Name	String	Yes
Middle Name	String	No
Last Name	String	Yes
NickName	Date	Yes
Account no	Numeric	Yes
Bank name	String	Yes
IFSC	String	Yes
Max limit	Double	Yes
Status		Active/pending/approved

In addition, the system should generate a id for each successfully added beneficiary.

UI

1. User should receive feedback that a beneficiary was successfully added.
2. User should receive feedback if a beneficiary is approved or pending was not added for the following reasons:
    a. Beneficiary already exists – User should be alerted
    b. Missing required fields – User should be alerted as to which fields are missing
    c. Invalid field values – User should be alerted as to why a field value is wrong
3. If beneficiary was not added for some other reason, a generic error message should be displayed

Validation

1. A beneficiary cannot be entered into the system twice. Beneficiary identity is based on first name, middle name, last name, and birth date. Beneficiaries   with all four identical fields are considered to be the same customer.

Out-of-scope

1.

Dependencies

None

Acceptance Criteria

1. User can add beneficiary to the system as long as it passes validation.
2. All functional requirements are met.

User Story 1.3: Search beneficiary

Description

As a user I want to search for beneficiary *in the system so that I can select* beneficiary *to manage.*

Functional Requirements

Search by first name, last name, position or any combination of the three. Search result should match all supplied search criteria (AND).

UI

1. One field for each search criteria
2. One Search button
3. One Clear button to clear search criteria
4. Executing a search should not clear search criteria
5. Search results should display customer UID plus all fields specified in Story 1.2
6. If no matching results are found, “0 results found” should be displayed

Out-of-scope

N/A

Dependencies
Story is dependent on Story 1.2: Add beneficiary, unless beneficiary entities are already in the database.
Acceptance Criteria
1. User should be able to search for customers
2. All other functional requirements are fulfilled

User Story 1.4: View/Edit beneficiary Profile

Description
As a user, I want to view and edit beneficiary *profiles so that I can change* beneficiary *details/status when needed.*

Functional Requirements
All customer fields should be editable. Validation rules for beneficiary fields from Story 1.2 must still be followed
UI
1. Beneficiary to be viewed/edited must be selected from search results (see Story 1.3)
2. View/Edit beneficiary form must be in its own screen.
3. View/Edit form fields must be pre-populated with beneficiary information.
4. All customer fields should be visible, including CID.
5. CID should only be displayed. It should not be editable.
6. User should receive feedback if customer was successfully edited.
7. User should receive feedback if a customer was not updated for the following reasons:
    a. Identical beneficiary found – User should be alerted if editing a customer would make it identical to an existing customer
    b. Missing required fields – User should be alerted as to which fields are missing
    c. Invalid field values – User should be alerted as to why a field value is wrong
8. If beneficiary was not edited for some other reason, a generic error message should be displayed.
9. If beneficiary was not edited, form fields should not be reset.

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Out-of-scope

1.

Dependencies

Story 1.3

Acceptance Criteria

1. User can select a beneficiary to view/edit from search results.
2. User can view/edit a beneficiary.
3. All functional requirements are fulfilled.

User Story 1.5: Add beneficiary transfer Details

Description

As a user, I want to see the transfers monthwise, for a beneficiary.

It is possible for a customer to have multiple accounts and each account will have separate balance. The transfers made from a particular account need to be listed. These should be recorded in the system. Transfer details include the account type (savings, current, Cumulative,), statistics , and description should be available.

Functional Requirements

Assumptions

1. It will be up to the user to decide the duration for listing..

Types of information

1. Beneficiary details – This is basic info. It is possible for the value to be zero) or upto 11. Description is optional.
2. Transaction details – A customer can transfer funds not more than 6 times in a month. Extra transactions are charged at Rs 5 per transactions. It is possible for the value to be zero or more. Description is optional.
3. Any account that has not been operated for last 6 months.
4. Any Other info – This covers anything not covered above. More than one entry is allowed. Values can be zero also. Description is required.

Validation

1. See section above for validation rules for the different accounts/customers.

Out-of-scope

1. Transaction amount
2. Calculating total interest earned in a financial year

Dependencies

Story 1.3

Acceptance Criteria

1. User can add score details as per functional requirements

User Story 1.6: View beneficiary History

Description

As a user, I want to view the transfer history of a beneficiary so that I can generate a report on how many transfers have been done per beneficiary per month per account.

Only total statistics per account will be displayed for chosen customer.

Functional Requirements

UI Flow

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1. User searches for benficiary
2. User enters account id
3. New screen shows total statistics

UI

1. Total per account should be shown. No breakdown as this is done in another story.
2. If no details for a account can be found, that account is not displayed. However, in the case where details have zero value, that account should still be displayed.

Validation

1. When entering date range, user cannot enter an end date that occurs before start date

Out-of-scope

Breakdown of account wise details