Portfolio Management System

Requirement

As a banking customer I would like to book trades, track asset allocations, see my portfolio performance and get notifications of trades.

To enable this, we need to create an application that gives the customer a full view of his / her portfolio.

Tech requirement

- Follow TDD.
- Consider security aspects and customer data protection.
- Proper logging and tracing needs to be implemented.
- Proper Exception handling needs to be considered.
- Ensure that the application is performant.
- FR: React / Angular, BE: Java, MW: Kafka, DB: MySQL

Tables Required

1. PORTFOLIO
2. POSITIONS
3. INSTRUMENTS
4. AUDIT

Module 1: Portfolio Summary

The application should provide a Portfolio Summary screen where the customer views their portfolio details, asset allocations and performance year to date.

1. Requirement:-
    a. Build a user interface which shows :
        i. Customer Name
        ii. Portfolio number
        iii. Portfolio value
        iv. Current performance
        v. Investment strategy
    b. Add a tab list that shows headings “Current Positions” and “Audit”
    c. Populate portfolio value as $43,213 by default
    d. Populate current performance as 23.4%
    e. Add a button at the top right labelled “Add Trade”.
2. Data Fields:-
    a. Customer Id (guid)
    b. Customer Name (string)
    c. Portfolio Number (string)
    d. Portfolio value (BigDecimal)
    e. Current Performance (double)
    f. Investment Strategy (enum)
        i. Safe
        ii. Moderate
        iii. Risky
3. Tables involved:-
    a. Portfolio

Module 2: Current Positions Tab

Under the current positions tab we should display a table of current instruments managed by the portfolio.

1. Requirement:
    a. Build a user interface which shows a table under the Current Positions tab.
    b. This table should display records from the Positions Table.
    c. This table should have filtering and sorting provided.
    d. The last column should be a button with a – negative symbol
        i. Pressing this button should open the order entry modal for sale of this instrument.
2. Data Fields:
    a. Transaction Ref (string)
    b. Instrument Id (guid)
    c. Instrument Name (string)
    d. Instrument Value (BigDecimal)
    e. Instrument Type (enum)
        i. Bond
        ii. Digital Asset
        iii. Real Estate
3. Tables involved:
    a. Positions
    b. Instruments

Module 3: Audit Tab

Under the audit tab we should display a table of audit events.

1. Requirement:
    a. Build a user interface which shows a table under the Audit tab.
    b. This table should display records from the Audit table.
    c. This table should have filtering and sorting provided.
2. Data Fields:
    a. Transaction Ref (string)
    b. Instrument Id (guid)
    c. Instrument Name (string)
    d. Trade Type (enum)
        i. Buy
        ii. Sell
    e. Audit Date (date)
3. Tables Involved:
    a. Audit
    b. Instruments

Module 4: Trade Entry

The platform should provide a Trade Entry modal where customers can book trades, the available instruments should come from a table populated with 20+ records.

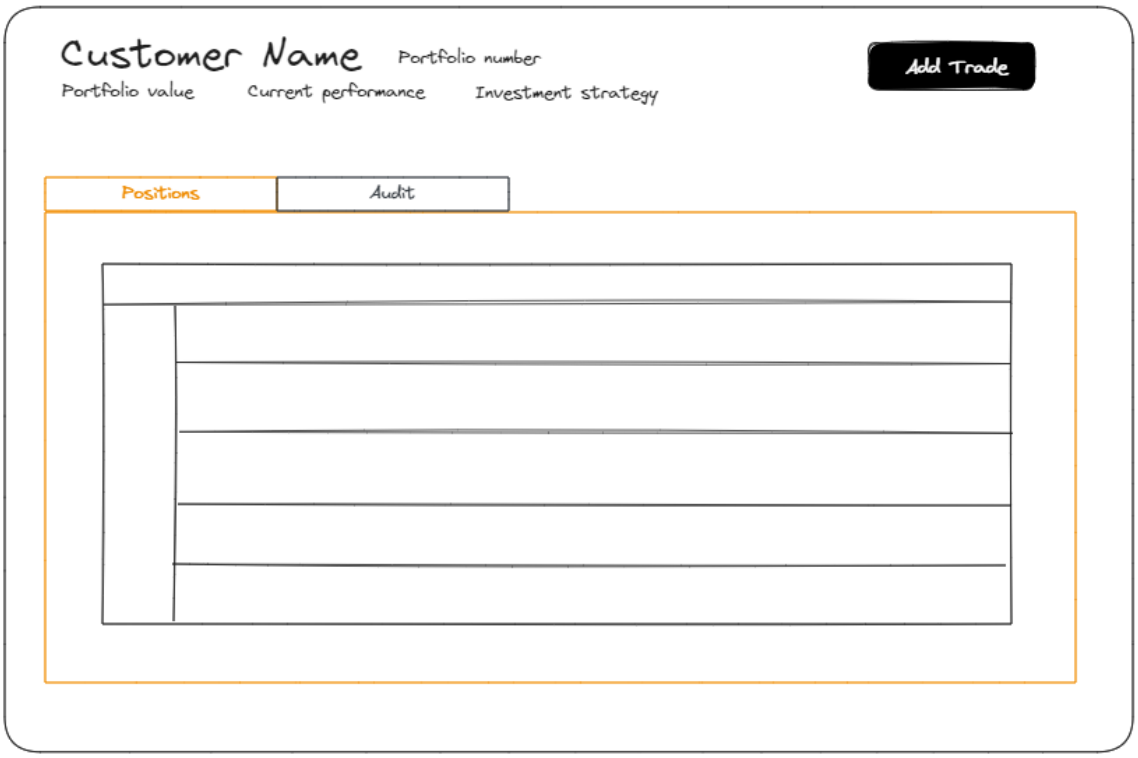
1. Requirement:-
    a. Build a modal that gets shown when the “Add Trade” button is clicked from the portfolio summary.
    b. Inside this modal we should allow customers to select an instrument from a drop down of available instruments.
    c. There should be a drop down for the customer to select Buy or Sell

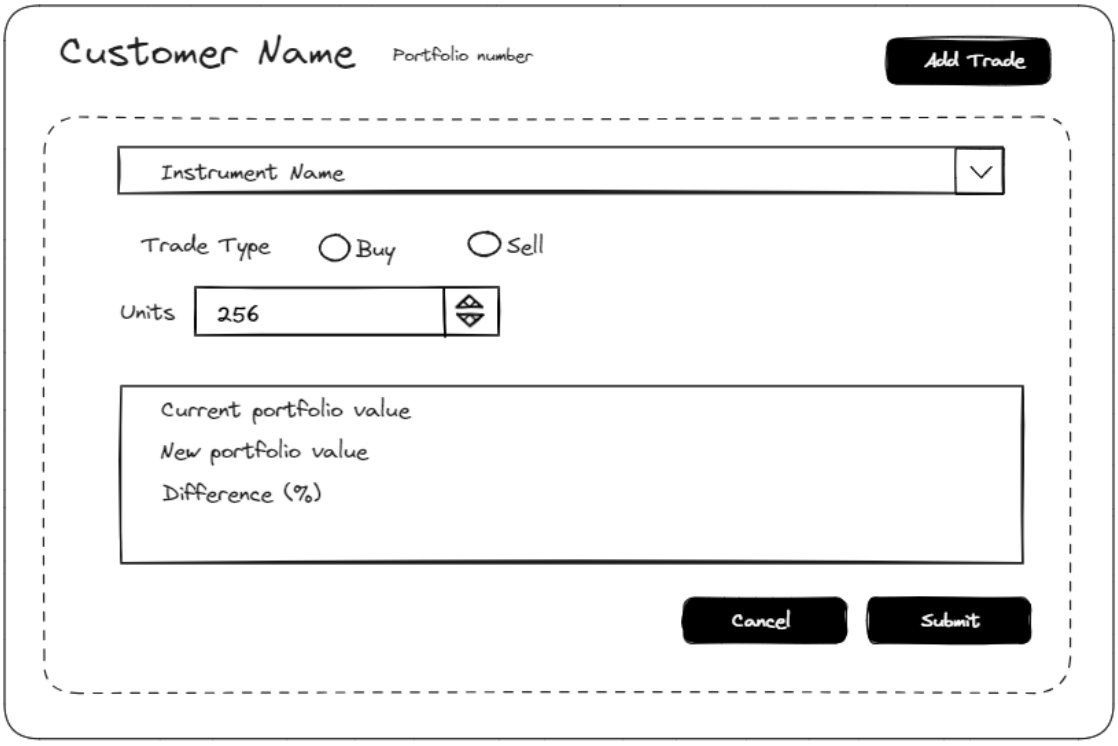
    d. There should also be a numerical field for customers to choose how many units they would like.
    e. There should be a results section in the modal which shows the current portfolio value, the new portfolio value and a percentage difference up or down.
    f. There should be a submit button to process the trade.
    g. When a trade is placed via submit, data should be saved and a message sent to kafka saying X trade has been placed.
2. Data Fields:-
    a. Instrument Id
    b. Trade Type (enum)
        i. Buy
        ii. Sell
    c. Units (int)
    d. Trade Value (BigDecimal)
3. Tables involved:-
    a. Portfolio
    b. Positions
    c. Instruments

Module 5: Kafka and Auditing

The platform should provide a Kafka instance for auditing.

1. Requirement
    a. Build a Kafka instance that accepts messages for processing with an audit topic.
    b. Build an app that listens for audit messages and saves them into the database.
2. Data Fields:
    a. Transaction Ref (string)
    b. Instrument Id (guid)
    c. Trade Type (enum)
        i. Buy
        ii. Sell
    d. Audit Date (date)
3. Tables involved:
    a. Audit


Customer Name
Portfolio number
Portfolio value
Current performance
Investment strategy
Add Trade
Positions
Audit


Customer Name
Portfolio number
Add Trade
Instrument Name
Trade Type
Buy
Sell
Units
256
Current portfolio value
New portfolio value
Difference (%)
Cancel
Submit