

fara break bro.TruEstate – SDE Intern Assignment

Role: Software Development Engineer Intern (6 Months + Performance-Based PPO)

Submission Deadline: 08 December 2025, 11:59 PM (IST)

Assignment Overview

Your task is to develop a Retail Sales Management System that demonstrates essential software engineering capabilities across both frontend and backend components.

The system must support advanced Search, Filtering, Sorting, and Pagination functionalities based on the dataset specifications provided.

Your implementation should reflect:

Strong foundational problem-solving and engineering approach

Clean, maintainable, and modular architecture

UI built according to provided structural guidelines

Accurate and efficient handling of structured sales data

Professional execution aligned with real-world SDE responsibilities

This assignment represents challenges similar to those faced in production-grade systems at TruEstate.

Dataset, Interface & Design

Dataset Link

https://drive.google.com/file/d/1tzbyuxBmrBwMSXbL22r33FUMtO0V_lxb/view?usp=sharing

Sales Data Requirements

Use the provided dataset, which includes the following attributes:

Customer Fields:

Customer ID

Customer Name

Phone Number

Gender

Age

Customer Region

Customer Type

Product Fields:

Product ID

Product Name

Brand

Product Category

Tags

Sales Fields:

Quantity

Price per Unit

Discount Percentage

Total Amount

Final Amount

Operational Fields:

- Date
- Payment Method
- Order Status
- Delivery Type
- Store ID
- Store Location
- Salesperson ID
- Employee Name

Your system must correctly interpret and process all these attributes.

Functional Requirements

1. Search

Implement full-text search across the following fields:

- Customer Name
- Phone Number
- Search must be:
 - Case-insensitive
 - Accurate
 - Performant
- Able to work alongside filters and sorting

2. Filters (Multi-Select)

Implement multi-select or range-based filtering for:

- Customer Region
- Gender
- Age Range
- Product Category
- Tags
- Payment Method
- Date Range
- Filters must:
 - Work independently
 - Work in combination
- Maintain state alongside sorting and search

3. Sorting

Implement sorting for:

- Date (Newest First)
- Quantity
- Customer Name (A–Z)
- Sorting must preserve active search and filters.

4. Pagination

Page size: 10 items per page

Must support Next / Previous navigation

Must retain active search, filter, and sort states

UI Requirements

Figma Link

<https://www.figma.com/design/6MSR9Lhy8tc5gdOepEyy6q/Assignment?node-id=0-1&p=f&t=ISiFSTN2OI2BSPjN-0>

Follow a clear, minimal, and structured layout:

Search Bar

Filter Panel

Transaction Table (List/Grid)

Sorting Dropdown

Pagination Controls

The UI may be styled creatively, but must align with the provided structure.

Engineering Requirements

Your solution must demonstrate professional coding standards:

General

Clear separation of frontend and backend responsibilities

Clean, readable, maintainable code

Predictable state management

No duplicate logic for filtering or sorting

Avoid unnecessary nesting or complexity

Use best coding practices

Project Structure (Single Repository)

Your submission must follow this exact structure:

```
📁 root/
  └── backend/
    ├── src/
    │   ├── controllers/
    │   ├── services/
    │   ├── utils/
    │   ├── routes/
    │   ├── models/ (if required)
    │   └── index.js (entry file)

    ├── package.json
    └── README.md

  └── frontend/
    ├── src/
    │   ├── components/
    │   ├── pages/ (if Next.js)
    │   ├── routes/ (if React Router)
    │   ├── services/
    │   ├── utils/
    │   ├── hooks/
    │   ├── styles/
    │   └── main.jsx / App.jsx
```

```
|- public/
|- package.json
|- README.md

|- docs/
  |- architecture.md

|- README.md
|- package.json (if monorepo setup)
```

Edge Case Expectations

Your implementation must correctly handle:

No search results

Conflicting filters

Invalid numeric ranges

Large filter combinations

Missing optional fields

Submission Structure

1. Live Application URL

A deployed, working version of the full application.

2. GitHub Repository URL

A public repository containing the full project.

README.md — Required Format

Your README must contain only:

1. Overview (3–5 lines)

2. Tech Stack

3. Search Implementation Summary

4. Filter Implementation Summary

5. Sorting Implementation Summary

6. Pagination Implementation Summary

7. Setup Instructions

4. Architecture Document

Located at: /docs/architecture.md

Must contain:

Backend architecture

Frontend architecture

Data flow

Folder structure

Module responsibilities

Important Notes

Auto-generated tools or one-click app builders are not allowed.

All logic must be developed by the candidate.

Near-identical submissions will be rejected.

All the best

This assignment is crafted to evaluate your clarity of thought, coding discipline, and execution quality — essential attributes for an SDE Intern contributing to scalable systems at TruEstate.