# Defining the Project Purpose and Scope

## Case study: E-Commerce Applicationa

### 1. Introduction

The E-Commerce Application is a Java-based system designed to simulate a real-world online shopping experience. It allows users to register, browse and manage products, add items to a cart, and place orders. The project is structured around object-oriented principles and emphasizes database interaction, exception handling, and modular architecture using packages.

### 2. Project Objectives (Purpose)

- To create an interactive system for managing customers, products, carts, and orders.  
- To implement Java concepts such as classes, exceptions, control structures, and collections.  
- To connect with an SQL database for performing CRUD operations.  
- To develop a menu-driven application structure using layered architecture.  
- To ensure scalability and reliability through modular code and unit testing.

### 3. Scope of the Project

In Scope:

- Customer registration and login  
- Product management (create, view, delete)  
- Cart operations (add, remove, view)  
- Placing and viewing orders  
- Exception handling with custom messages  
- Database connectivity using config files  
- Unit testing core modules

Out of Scope:

- Web interface or mobile UI  
- Real-time payments or transactions  
- Multi-user concurrency  
- Advanced analytics or AI features

### 4. Target Users

- Java Developers & Learners: Gaining hands-on experience with Java backend development  
- Trainers & Evaluators: Assessing structure, modularity, and business logic implementation  
- Project Review Committees: For academic and organizational evaluation purposes

### 5. Assumptions

- The application is developed and tested locally  
- A single user operates the system at a time  
- A MySQL database is used for persistence  
- All configurations are managed through a property file

### 6. Technology Stack

COMPONENT | TECHNOLOGY  
---------------------|-------------------  
Programming | Java  
Database | MySQL  
DB Access | JDBC  
Configuration | .properties file  
Testing | JUnit  
Version Control | Git + GitHub  
IDE | Eclipse / IntelliJ

### 7. Project Structure Overview

ecom\_app  
├── entity/  
├── dao/  
├── exception/  
├── util/  
├── main/  
├── test/  
└── resources/

Each directory will encapsulate specific functionality:  
- entity – Models for Customer, Product, Order, etc.  
- dao – Interfaces and database interaction logic  
- exception – User-defined custom exceptions  
- util – DB utilities and config readers  
- main – Console-based entry point  
- test – Unit test classes

### 8. Conclusion

This E-Commerce Application reinforces Java programming and SQL skills through practical implementation. It provides structured learning of system design, error handling, and modular architecture, reflecting real-world backend systems.