PL3 Project
Simple
Store

1 Project Overview

1.1 Project Title

PL3-Project: Simple Store

1.2 Description

This project is a Simple Store system developed using F# programming language. The system implements a functional programming approach to manage products, users, shop- ping carts, and related services. It follows a layered architecture pattern with clear separation of concerns.

1.3 GitHubRepository

GitHub Link:
https://github.com/karemmoamen/PL3- Project

2 Project Architecture

2.1 System Architecture

The project follows a layered architecture pattern with the following components:

Co re Layer: Contains core domain types and business logic

Da ta Layer: Handles database operations and repositories

Ser vices Layer: Implements business services and orchestration

UI Layer: User interface and presentation logic

Tests Layer: Unit and integration tests

2.2 Block Diagram

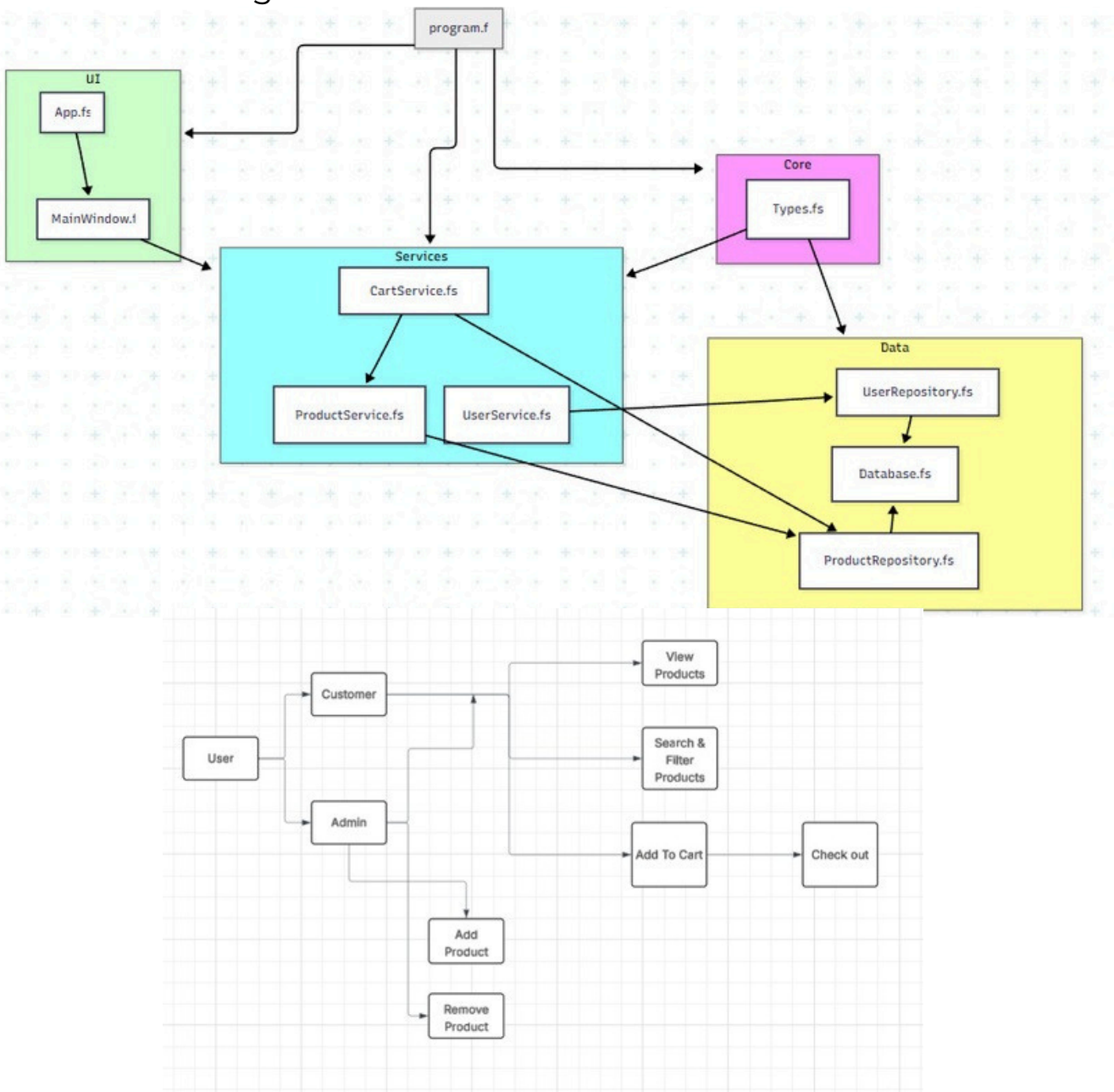

Figure 1 and 2: System Block Diagram

3 KeyComponents

3.1 Core Components

1. Types.fs : Defines core domain types and data structures
2. Database.fs : Database connection and configuration

3.2 DataLayer

1. Pro ductRep ository.fs: Product data access operations
2. UserRepository.fs: User data access operations
3. Database: SQLite database (store.db)

3.3 Services Layer

1. CartService.fs: Shopping cart business logic
2. Pro ductService.fs: Product management services
3. UserService.fs : User management and authentication

3.4 UILayer

1. App.fs: Main application interface and user interaction

3.5 Testing

1. CartServiceTests.fs: Unit tests for cart functionality
2. Tests.fs: Additional test cases

4 TechnologiesUsed

Programming Language : F# (Functional Programming)

Database: SQLite

Version Control: Git/GitHub

Testing Framework: F# Testing Libraries

Features

5.1 Core Features

User registration and authentication

Product catalog management

Shopping cart functionality

Add/remove items from cart

View cart contents

Product browsing and search

5.2 Technical Features

Functional programming paradigm
Repository pattern for data access

Service layer for business logic

Unit testing coverage
SQLite database integration

6 Contributors

Project Team Members:

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