Marketing Analytics Project: Roadmap

Milestone 1: Data Acquisition & Database Setup

Objective: Build a comprehensive, structured dataset of Yerevan bookstore inventory.

Backend Developer

Develop web scraping scripts for major bookstores (Bookinist, Books.am, Zangak, etc.).

Database Developer

Design and implement a scalable database schema for books and store information.

Integrate scraped data into a centralized database.

Data Scientist

Ensure data cleaning, deduplication, and normalization (e.g., genres, author names).

Define metadata and features for recommendation (title, author, genre, plot, ISBN, price, availability).

Conduct preliminary data quality checks and exploratory analysis.

Frontend Developer

Set up a basic interface for displaying scraped data for internal validation.

Milestone 2: Search Engine & Exact Match Module

Objective: Enable users to find books accurately across multiple local stores.

Backend Developer

Implement search API to handle user queries by fuzzy string matching.

Implement API connectors for global book databases (Google Books API, Open Library API).

Database Developer

Optimize queries for fast search retrieval.

Data Consistency & Integrity Checks

Monitoring & Logging

Data Scientist

Prepare text embeddings pipeline for later similarity computations.

Evaluate exact search accuracy using metrics like Precision and Recall.

Frontend Developer

Create a search bar and results display interface.

Milestone 3: Similarity-Based Recommendations & Deployment

Objective: Provide intelligent recommendations when exact matches are unavailable and launch the platform.

Backend Developer

Integrate embedding-based similarity engines.

Develop recommendation API endpoints.

Ensure real-time response for recommendations.

Database Developer

Store and manage vector embeddings for all books.

Performance Monitoring.

Data Scientist

Generate similarity embeddings for all book descriptions.

Implement cosine similarity or other distance metrics for recommendation ranking.

Evaluate recommendation relevance via test queries and user feedback simulations.

Frontend Developer

Design recommendation interface showing similar books when exact matches are not found.

Implement visualization of multiple store options with price and relevant information.

Collect user feedback through rating or click interactions.