DATABASE SYSTEMS

PROJECT PROPOSAL

Instructor

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Submitted by

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1. Project Title

Grocery Store Management System (Web-based)

2. Group Details

• **Group:** Individual

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3. Introduction

Small grocery stores often use spreadsheets or manual logs for inventory and sales. This leads to errors in stock levels, inconsistent pricing, and no reliable order history. The proposed web-based Grocery Store Management System will centralize products, inventory, customers and orders and generate basic reports using a MySQL relational database with a three-tier web architecture.

4. Problem Statement

Currently the grocery store's product, order and inventory records are managed manually or in spreadsheets causing: inconsistent product descriptions, duplicate or missing stock records, no enforced constraints and lack of simple order/invoice history. This system will digitize and normalize records, enforce constraints, and provide order processing and reporting.

5. Objectives

• **Store and manage grocery product information**, including name, category, unit of measure, price, and stock quantity.

• **Maintain and update inventory levels** by allowing additions, edits, deletions, and automatic stock reduction when an order is placed.

• **Manage customer details** such as name, contact information, and address for referencing in orders.

• **Provide order listings and basic records**, allowing the system to display all orders with their totals, statuses, and item details.

• **Generate simple operational reports**, such as complete product lists, low-stock alerts, and order summaries.

6. System Users

• **Admin:** Full access

Manage products, categories, unit-of-measure, view orders, manage inventory, run reports.

• **Store Clerk / Staff:** Create and view orders, search products, update order status; limited product-edit permission.

• **Database / Maintenance Role (DBA):** Load sample data, run backups, execute SQL scripts.

7. Project Scope (Functional Requirements)

• User login & basic authentication (Admin/Staff).

• Product CRUD (create, read, update, delete).

• Category management (product categories).

• Inventory tracking: product quantity, low-stock alerts as reports.

• Create order: insert order + order_items.

• View/list orders with order status and details.

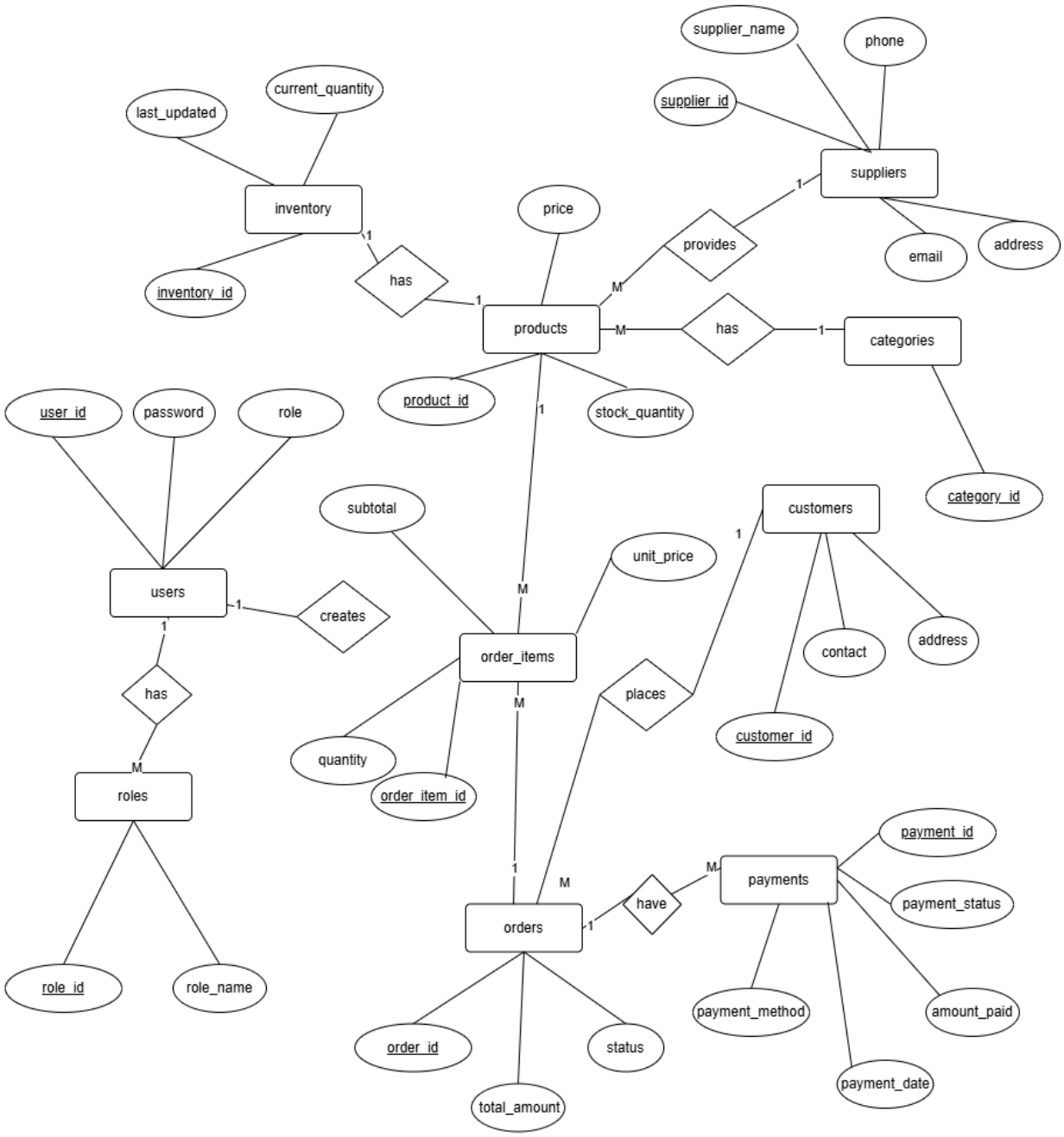
• Search/filter products by category, name.

• Export or view reports: all products, low-stock items, sales by date range.

8. Preliminary Entities

- users
- roles
- categories
- products
- inventory
- suppliers
- customers
- orders
- order_items
- payments

9. Expected ER Diagram



10. Tools/Technologies to Be Used

- Database**:** MySQL
- Backend**:** Node.js with Express.js
- Frontend**:** React.js, HTML, CSS, JavaScript
- Diagrams**:** draw.io

11. Expected Outcomes

- A normalized MySQL database (DDL scripts) for the grocery system.
- SQL DDL + DML scripts for creating tables and inserting demo data (products, categories, sample orders).
- Backend for product management and order insertion.
- Frontend pages: product list, add/edit product, new order, list orders.
- Basic reports: low-stock products, recent orders.