E-commerce Order Management System (MySQL-based)

Project Title

E-commerce Order Management System (MySQL-based)

Objective

To design and implement a relational database system using MySQL to manage customers, products, orders, and payments in an online shopping system.

Modules Covered

Customer Management

Product and Category Management

Order Processing

Order Item Tracking

Payment Management

Basic Reporting (views, queries)

Database Schema Overview

1. customers - Stores customer details like name, email, phone, and address.
2. categories - Stores product categories (e.g., Electronics, Fashion).
3. products - Stores details of items available for sale including price, stock, and category.
4. orders - Stores customer orders with order date, total amount, and status.
5. order_items - Stores the list of products ordered, quantity, and price for each order.
6. payments - Stores payment details like method, amount, date, and status for each order.

Relationships

One customer -> Many orders

One order -> Many order items

One product -> Many order items

One order -> One payment

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One category -> Many products

How It Works (Workflow)

Admin adds product categories and product details.

A customer places an order, which is saved in the orders table.

The order contains items (product + quantity) stored in order_items.

The customer makes payment, which is saved in payments.

Admin can view sales reports, customer orders, and product stock using queries and views.

SQL Technologies Used

MySQL DDL (CREATE, ALTER)

DML (INSERT, SELECT, UPDATE, DELETE)

Joins and subqueries

Views for reporting

Stored procedures and triggers (optional advanced part)

Foreign keys and normalization

Sample Queries

```
-- Show all orders for a customer
SELECT * FROM orders WHERE customer_id = 1;

-- Get order items and total for a specific order
SELECT p.product_name, oi.quantity, oi.price
FROM order_items oi
JOIN products p ON oi.product_id = p.product_id
WHERE oi.order_id = 1;
```

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Conclusion

This MySQL project helps manage the backend of an e-commerce system. It provides a clear understanding of relational data, table relationships, and query writing. It can be extended further with frontend technologies or REST APIs.