DBMS Project

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Scope of Project :

Our project aims at providing an E2E database application based on an online retail store system with a primary focus on the design of backend databases.

Salient points include :

- Enables the retail manager to access, modify and update any inventory related data
- Enables customers to add products into a wishlist.
- The database stores information regarding recent search history which could help in analyzing interests of the customer.

Stakeholders :

- Owners & Employees
- Customers

Entities with their attributes :

Primary keys are **bold and underlined** and foreign keys are underlined

Customer(**Customer_ID**, Age, Mobile_No, Pincode, Email_ID, Card_ID, First_Name, Last_Name, Address, City)

Product(**Product_ID**, Product_Name, Price, Stock, Brand_ID, Catalog_ID)

Brand(**Brand_ID**, Brand_Name)

Product_Catalog(**Catalog_ID**, Catalog_Name)

Cart(**Cart_ID**, Cart_Cost)

Payment(**Payment_ID**, Status, Customer_ID, Cart_ID)

Search_History(Product_ID, Customer_ID, Searched_At)

Reviews(Product_ID, Customer_ID, Rating, Feedback)

Wishlist(Product_ID, Customer_ID)

Cart_Items(Product_ID, Cart_ID, Cost, Quantity)

Relationships :

Add_To_Cart(**Customer_ID**, **Product_ID**, **Cart_ID**)

Filter(**Catalog_ID**, **Brand_ID**)

Ternary Relationships :

Add_To_Cart(**Customer_ID**, **Product_ID**, **Cart_ID**)

Weak Entities :

Search_History(Product_ID, Customer_ID, Searched_At) : Search History is totally dependent on the Customer and the products she has looked at. Thus Search History is a weak entity.

Reviews(<u>Product_ID</u>, <u>Customer_ID</u>, Rating, Feedback) : In our DB we've allowed for multiple reviews by a customer for a product and hence reviews are dependent on the product bought by a customer.

Wishlist(<u>Product_ID</u>, <u>Customer_ID</u>) : Wishlist is only dependent on the product chosen by the customer and a primary key wouldn't be required in this case.

Cart_Items(<u>Product_ID</u>, <u>Cart_ID</u>, Cost, Quantity) : Cart is a strong entity and Cart_Items would be dependent on it and so it is a weak entity.

ER Diagram :
(ER Diagram.png)
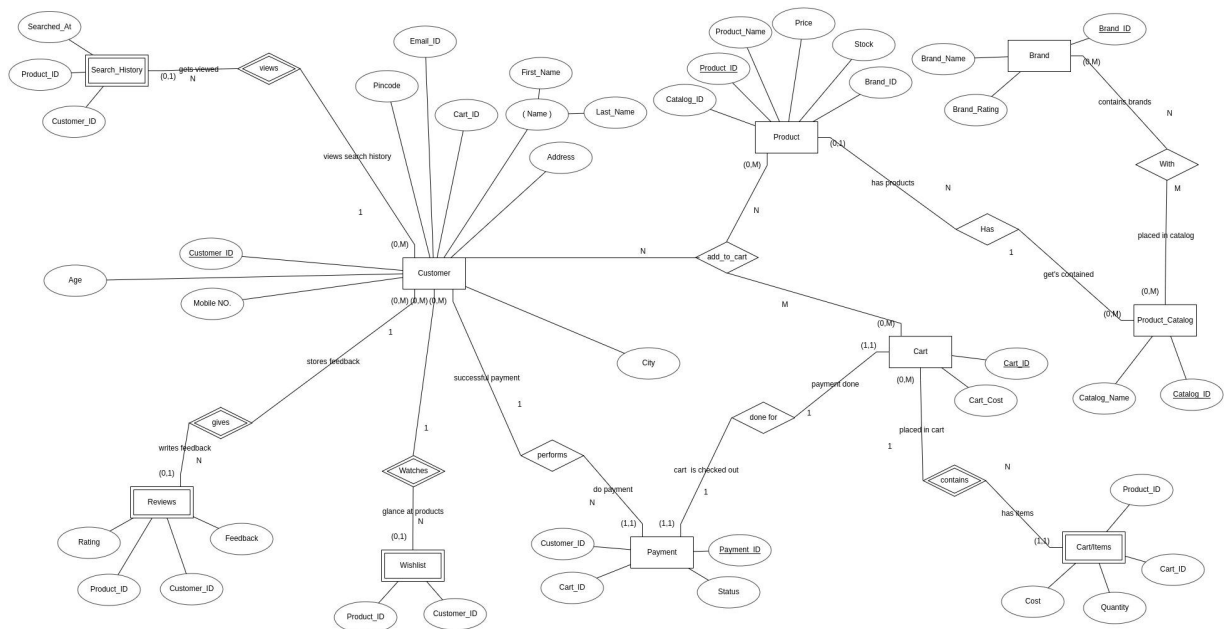
Relational Schema :
Primary keys are **<u>bold and underlined</u>** and foreign keys are <u>underlined</u>

Customer(**<u>Customer_ID</u>**, Age, Mobile_No, Pincode, Email_ID, <u>Card_ID</u>, First_Name, Last_Name, Address, City)
Product(**<u>Product_ID</u>**, Product_Name, Price, Stock, <u>Brand_ID</u>, <u>Catalog_ID</u>)
Brand(**<u>Brand_ID</u>**, Brand_Name)
Product_Catalog(**<u>Catalog_ID</u>**, Catalog_Name)
Cart(**<u>Cart_ID</u>**, Cart_Cost)
Payment(**<u>Payment_ID</u>**, Status, <u>Customer_ID</u>, <u>Cart_ID</u>)
Search_History(<u>Product_ID</u>, <u>Customer_ID</u>, Searched_At)
Reviews(<u>Product_ID</u>, <u>Customer_ID</u>, Rating, Feedback)
Wishlist(<u>Product_ID</u>, <u>Customer_ID</u>)
Cart_Items(<u>Product_ID</u>, <u>Cart_ID</u>, Cost, Quantity)

Add_To_Cart(**<u>Customer_ID</u>**, **<u>Product_ID</u>**, **<u>Cart_ID</u>**)

Filter(**Catalog_ID**, **Brand_ID**)

SQL Data Dump :
In file `dump.sql`

SQL Queries :
In file `queries.sql`
Submitted as 'MySQL stored procedures' for reusability

DDL :
In file `ddl.sql`

Responsibilities :
1. Deepam Sarmah (2020050) :
    a. Worked on setting up the MySQL database.
    b. Coded the DDL and assigned foreign keys for various entities as required.
    c. Worked on defining scope of project and identifying stakeholders.
    d. Contributed to analyzing cardinality of relationships and participation type of various entities.
    e. Helped in defining roles for various relationships.
    f. Contributed to making an ER diagram.
    g. Identified which entities were weak entities.
    h. Improved relational schema
    i. Wrote queries for Show_Wishlist, Add_To_Wishlist, Assign_Cart, Show_Reviews, Show_Cart_Cost, Is_In_Wishlist.
    j. Updated the scope and schema based on suggestions from mid evaluation.
    k. Worked on Query optimization.
    l. Worked on writing 10 new SQL queries (According to Final evaluation Rubric)
    m. Worked on writing 4 Triggers
    n. Worked on creating index tables
    o. Wrote PL/SQL queries in the form of stored procedures and using advanced aggregation functions.
    p. Worked on creating views and grants for various stakeholders.
    q. Worked on Embedded queries
2. Yatish Garg (2020162) :
    a. Contributed in defining scope of project and identifying stakeholders.
    b. Populated the DB with data related to entities such as Brand, Product_Catalog, Customer, Product, Reviews, Wishlist.
    c. Contributed to analyzing cardinality of relationships and participation type of various entities.
    d. Helped in defining roles for various relationships.
    e. Identified which entities were weak entities.
    f. Contributed in converting ER diagram to relational schema.
    g. Contributed to making an ER diagram.

       h. Wrote queries for Add_Cart, Count_Cusomters
       i. Worked independently on UI and front end code which used HTML/CSS and worked on node.js
       j. Contributed to query optimization
       k. Contributed to creating index tables
       l. Contributed to views and grants.
       m. Contributed to Embedded Queries.

3. Vatsal Lakhmani (2020148) :
       a. Worked on defining scope of project and identifying stakeholders.
       b. Populated the DB with data related to entities such as Brand, Product_Catalog, Customer, Product, Reviews, Wishlist.
       c. Contributed to making an ER diagram.
       d. Contributed to analyzing cardinality of relationships and participation type of various entities.
       e. Helped in defining roles for various relationships.
       f. Contributed in converting ER diagram to relational schema.
       g. Identified which entities were weak entities.
       h. Wrote queries for Add_Customer, Count_Products

4. Katyayani Singh (2020074) :
       a. Worked on defining scope of project and identifying stakeholders.
       b. Populated the DB with data related to entities such as Brand, Product_Catalog, Customer, Product, Reviews, Wishlist.
       c. Contributed to analyzing cardinality of relationships and participation type of various entities.
       d. Contributed to making an ER diagram.
       e. Helped in defining roles for various relationships.
       f. Identified which entities were weak entities.
       g. Wrote queries for Add_Product, Remove_From_Wishlist