### Database Schema:

1. Customers Table:

* customer\_id (PK): A unique identifier for each customer.
* first\_name: Customer's first name.
* last\_name: Customer's last name.
* email: Customer's email address (can also act as a unique identifier).
* joined\_date: Date the customer joined or was onboarded.
* ... (other relevant details like profile preferences, etc.)

1. Products Table:

* product\_id (PK): A unique identifier for each product.
* product\_name: Name of the product.
* description: A brief description of the product.
* price: The price of the product.
* ... (other product-specific details)

1. Merchants Table:

* merchant\_id (PK): A unique identifier for each merchant.
* merchant\_name: Name of the merchant.
* contact\_info: Contact details of the merchant.
* ... (other merchant-specific details)

1. Recommendations Table:

* recommendation\_id (PK): A unique identifier for each recommendation entry.
* customer\_id (FK): Refers to the customer\_id in the Customers table.
* product\_id (FK): Refers to the product\_id in the Products table.
* score: A numerical value representing the recommendation score or relevance for the customer.
* recommended\_on: Date and time when the product was recommended.

1. Product\_Merchant\_Relationship Table:

* product\_merchant\_id (PK): A unique identifier for each product-merchant relationship.
* product\_id (FK): Refers to the product\_id in the Products table.
* merchant\_id (FK): Refers to the merchant\_id in the Merchants table.
* stock\_quantity: The quantity of the product available with the merchant.

### Relationships:

* Customers to Recommendations: One-to-Many. One customer can have multiple recommendations, but each recommendation is specifically tailored for one customer.
* Products to Recommendations: One-to-Many. One product can be recommended to multiple customers, but each recommendation pertains to one product.
* Products to Product\_Merchant\_Relationship: One-to-Many. One product can be associated with multiple merchants, but each relationship is for one product.
* Merchants to Product\_Merchant\_Relationship: One-to-Many. One merchant can have multiple products, but each relationship refers to one merchant.