Course work

“Specialty Teas Coffees Spices E-Shop”

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1. Overall Description of Schemas

## 

## **ER-Diagram**

The ER-diagram showcases the primary entities and relationships in the E-Shop application. The key entities include:

* + - * **Users:** Contains information about the users of the application.
      * **Categories**: Different categories of products.
      * **Products**: Lists all the products available for sale.
      * **Orders**: Contains order details.
      * **Suppliers**: Поставщики товаров
      * **Reviews**: User reviews for products.
      * **Wishlists**: Desired saved product lists of users
      * **ProductViews**: Information about who viewed the products, which will help to create recommendation systems, and collect statistics.
      * **Roles**: User roles in the e-store system that can help with access levels

## **OLTP Schema**

* + 1. **Users**
    2. **UserProfiles**
    3. **UserRoles**
    4. **Categories**
    5. **FlavorProfiles**
    6. **Origins**
    7. **Products**
    8. **Orders**
    9. **OrderDetails**
    10. **Suppliers**
    11. **ProductSuppliers**
    12. **Reviews**
    13. **Wishlists**
    14. **WishlistItems**
    15. **ProductViews**
    16. **Roles**

## **OLAP Schema**

The OLAP schema involves a multidimensional data warehouse designed for analytical processing:

* + - **Dimensions:** DimCategories, DimDates, DimFlavorProfiles, DimOrigins, DimProducts, DimSuppliers, DimUserProfiles, DimUsers, DimWishlists
    - **Facts:** FactOrders, FactProductSuppliers, FactProductViews, FactReviews, FactWishlistItems
    - **Extra Dimensions:** DimDate
    - **SCD (Type 2):** DimUsers to track changes over time

1. Main Functions and Procedures

## **OLTP Functions, Procedures and Queries**

* + 1. **Datasets Loading** : Procedures to extract, transform, and load data from .CSV to OLTP.
    2. **Basic Queries:**

Top 5 best-selling products

Revenue by categories

## **OLAP Functions, Procedures and Queries**

* 1. **ETL Process**: Procedures to extract, transform, and load data from OLTP to OLAP.
  2. **Dimension Management**: Procedures to manage and update dimensions, including handling SCD Type 2.
  3. **Basic Queries:**

Amount of orders and average amount by years

Top 5 products by number of reviews and their average rating

3. Instructions for Running Scripts

## 

## **Datasets Loading and ETL Process**

* 1. **Creation of OLTP:**

Run the script 1.1\_Create\_OLTP\_tables\_script.sql.

If you need you to check data can use queries from 3.1\_OLTP\_queries\_ to\_get\_insights.sql.

* 1. **ETL Process from .CSV to OLTP:**

Run the script 1.3\_SQL\_script\_for\_loading\_data\_to\_OLTP.sql

This script will move data from the .CSV files to the OLTP database.

The script is designed to be rerunnable, ensuring previously added data is not overwritten an have basic validation.

* 1. **Creation of OLAP:**

Run the script 2.1\_Create\_OLAP\_tables\_script.sql

If you need you to check data can use queries from 3.2\_OLAP\_queries\_ to\_get\_insights.sql.

* 1. **ETL Process from OLTP to OLAP:**

Run the script 2.2\_ETL\_for\_loading\_data\_fom\_OLTP\_to\_OLAP.sql.

This script will move data from the OLTP database to the OLAP database.

The script is designed to be rerunnable, ensuring previously added data is not overwritten (Excluding the upper part with creating a connection between bases).

* 1. **Load data into PowerBI:**

For that you can download .CSVs from database, upload them and recreate FKs.

You can create connection with database and upload data directly (Better to use local network address instead of localhost).