Course work
“Specialty Teas Coffees Spices E-Shop”

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Content

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

2.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.

2. 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.

3. 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.

4. 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).

5. 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).