Assignment 2 Task 1

Intuitive design of a data cube from conceptual schema of an operational database. MultiDim data model is based on the entity-relationship model.

Objective:
Create data warehouse to keep information about the finalized real estate transactions, properties involved in the transactions, sellers/owners, and agents involved in the real estate transactions.

Classes of analytical applications:
Total num of real estate properties sold, avg ask price of real estate properties, avg final price of real estate properties, avg period(time) on the market of real estate properties, total number of times real estate properties have been sold, total number of buyers interested in purchase of real estate properties.

1) **Specification of Data Cube:**

a. Facts:
   1. Real-estate Transaction
   2. List of Real-estate properties
   3. Number of buyers interested
   4. Address
   5. Date
   6. List of Agents
   7. Date of completed transaction
   8. Date when on market

Temporary Fact Table for Real-estate Transaction:

Real Estate Transactions
PropertyKey
SellerKey
AgentKey
Date
Price Asked
Final Price
Date-when-on-market

b. Measures:
   1. Properties sold (for Count of Real Estate Properties Sold)

   Dimensions: Month, Year, Building Number, Street, City, Country, Agent Involved
   2. Price Asked (for Average Asked Price – total price asked / number of buyers.)

   Dimensions: Month, Year, Building Number, Street, City, Country, Agent Involved
   3. Final price (for Average Final Price)

   Dimensions: Month, Year, Building Number, Street, City, Country, Agent Involved
   4. Time (for Average Time on Market)

   Dimensions: Month, Year, Building Number, Street, City, Country, Agent Involved
   5. Number of Sales (for Count of Property Sales)

   Dimensions: Building Number, City, Country, Month, Year
   6. Number of buyers (for Count of Buyers Interested)

Dimensions: Day, Month, Year, Building Number, Street, City, Country, Agent Involved

Additional Information:

- Real-Estate Transaction (asked-price, final-price)
- Interest-Expressed

c. Dimensions:

1. Time Dimension: (Month, Year, Day)
2. Property Dimension: (Building Number, Street, City, Country)
3. Agent Dimension: (employee-number, phone-number)
4. Owner Dimension: (phone-number)
5. Buyer Dimension: (phone-number)

d. Hierarchies:

1. Time Hierarchy: Year -> Month -> Day
2. Property Hierarchy: Building Number -> Street -> City -> Country
3. Agent Hierarchy: Employee Number -> Phone Number
4. Owner Hierarchy: Phone Number
5. Buyer Hierarchy: Phone Number

2) Three-dimensional Data Cube: