Project Name: Customer Feedback Analysis and Improvement

Project Team:

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In today's competitive market, customer feedback plays a pivotal role in shaping business strategies and enhancing product offerings. Our project, **Customer Feedback Analysis and Improvement**, aims to systematically gather, analyze, and utilize customer insights to drive continuous improvement.

By leveraging a structured database to manage customer profiles, feedback forms, and categories, we are able to streamline data collection and analysis. This project not only facilitates the identification of strengths and weaknesses in our products and services but also empowers our team to implement actionable improvements based on direct customer input.

The insights derived from the analysis of feedback data will guide our decision-making processes, enabling us to enhance customer satisfaction, increase loyalty, and ultimately drive business growth. Through this initiative, we aspire to create a customer-centric culture that values and acts upon the voices of our customers.

**SQL Database Setup and Data Collection**

**Database Schema**

**1. Tables Design**

1. **Customers Table**
   * **customer\_id** (INT, Primary Key, Auto Increment)
   * **customer\_name** (VARCHAR(255))
   * **email** (VARCHAR(255))
2. **FeedbackCategories Table**
   * **category\_id** (INT, Primary Key, Auto Increment)
   * **category\_name** (VARCHAR(255))
3. **FeedbackForms Table**
   * **feedback\_id** (INT, Primary Key, Auto Increment)
   * **customer\_id** (INT, Foreign Key referencing Customers)
   * **category\_id** (INT, Foreign Key referencing Categories)
   * **feedback\_date** (DATETIME) NOT NULL
   * **feedback\_description** (TEXT) NOT NULL
   * **sentiment** (VARCHAR(50))
   * **source**(VARCHAR(50))
   * **rating** (INT) CHECK (rating BETWEEN 1 AND 5)
   * **response\_status** (VARCHAR(50))
   * **improvement\_suggested** (TEXT)

### Create a Data Warehouse

#### 1. ****Identify Business Requirements****

* **Determine the key questions** you want to answer with the data. For example:
  + What is the overall customer sentiment for different categories?
  + What is the average rating for each category over time?
  + Which feedback source provides the most positive or negative feedback?

#### 2. ****Design the Schema****

* Data warehouses commonly use **star schema** or **snowflake schema** designs. For this feedback data, a star schema might be the most suitable due to its simplicity.

##### **Star Schema Design:**

* **Fact Table**: Contains quantitative data (facts), like feedback ratings, and foreign keys to related dimension tables.
* **Dimension Tables**: Contain descriptive attributes related to the facts, like customer details, categories, and time.

##### a. **Fact Table**

* **Fact\_Feedback**: This table contains the main facts, such as feedback rating, sentiment, and associated dimensions.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Feedback\_id | Customer\_id | Category\_id | Date\_key | sentiment | rating | Response\_status |
| 1 | 1 | 1 | 2024-01-01 | Positive | 5 | Responded |
| 2 | 2 | 2 | 2024-01-02 | Negative | 2 | Responded |
| 3 | 3 | 3 | 2024-01-03 | Positive | 5 | Not responded |
| 4 | 4 | 4 | 2024-01-04 | Negative | 1 | Responded |

##### b. **Dimension Tables**

* **Dim\_Customer**: Holds information about customers.

|  |  |  |  |
| --- | --- | --- | --- |
| Customer\_id | Customer\_name | Customer\_email | Customer\_region |
| 1 | John doe | john@example.com | North America |
| 2 | John smith | jane@example.com | Europe |

* **Dim\_** **Category**: Holds information about feedback categories.

|  |  |
| --- | --- |
| Category\_id | Category\_name |
| 1 | Product Quality |
| 2 | Service Quality |
| 3 | Delivery |

* **Dim\_** **Date**: Holds information about dates, including year, month, and day.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date\_key | date | year | month | day |
| 2024-01-01 | 01-Jan-2024 | 2024 | 1 | 1 |
| 2024-01-02 | 02-Jan-2024 | 2024 | 1 | 2 |

* **Dim\_** **Source**: Holds information about the source of the feedback (Twitter, Yelp, etc.)

|  |  |
| --- | --- |
| Source\_id | Source\_name |
| 1 | Twitter |
| 2 | Yelp |
| 3 | Amazon |

#### 3. ****ETL Process (Extract, Transform, Load)****

* **Extract**: Pull data from my sources (CSV, databases, etc.).
* **Transform**: Clean, format, and transform the data to match your schema.
  + Clean text (remove duplicates, fix spelling errors).
  + Standardize formats (dates, categories).
  + Map sentiment into numerical values if needed.
* **Load**: Load the transformed data into the data warehouse's fact and dimension tables.