Entity Descriptions

Below is a description of each entity, its attributes, and its role within the database.

---

1. `Dim_Customers`

- **Description**: Contains demographic information about each customer, used for segmentation and targeted marketing.
- **Attributes**:
  - `CustomerID` (Primary Key): Unique identifier for each customer.
  - `Name`: Full name of the customer.
  - `Email`: Email address, unique for each customer.
  - `Phone`: Contact number of the customer.
  - `DateOfBirth`: Date of birth, used to calculate age for segmentation.
  - `Location`: Customer's location for geographic segmentation.
  - `Age`: Derived from `DateOfBirth`, useful for age-based segmentation.
  - `Gender`: Gender information for further segmentation.

---

2. `Dim_Campaigns`

- **Description**: Represents marketing campaigns, including their duration, budget, and objectives.
- **Attributes**:
  - `CampaignID` (Primary Key): Unique identifier for each campaign.
  - `Name`: Campaign name.
  - `StartDate`: Date the campaign begins.
  - `EndDate`: Date the campaign ends.
  - `Budget`: Budget allocated to the campaign.
  - `Objective`: Goal or objective of the campaign (e.g., brand awareness, lead generation).

---

3. Camchan_on_run

- **Description**: Links campaigns to the channels on which they are running, allowing for analysis by channel.
- **Attributes**:
  - `CampaignID` (Foreign Key): ID of the campaign.
  - `ChannelID` (Foreign Key): ID of the channel where the campaign is running.
  - `Budget`: Budget allocated to this specific campaign on this channel.

---

4. `Dim_Channels`

- **Description**: Stores details of different advertising channels, such as social media platforms or other marketing channels.
- **Attributes**:
  - `ChannelID` (Primary Key): Unique identifier for each channel.
  - `Name`: Name of the channel (e.g., Facebook, Instagram, TikTok).
  - `Description`: Description of the channel, possibly including platform type or target audience.

---

5. `Fact_Interaction`

- **Description**: Tracks interactions between customers and campaigns across channels, recording engagement data to measure campaign effectiveness.
- **Attributes**:
  - `InteractionID` (Primary Key): Unique identifier for each interaction.
  - `CustomerID` (Foreign Key): ID of the customer who engaged with the campaign.
  - `ChannelID` (Foreign Key): Channel where the interaction occurred.
  - `CampaignID` (Foreign Key): Campaign with which the customer interacted.
  - `Date`: Date of the interaction.
  - `Type`: Type of interaction (e.g., click, view, like).

---

6. `Orders`

- **Description**: Contains information on customer orders, including order date and shipping details.
- **Attributes**:
    - `OrderID` (Primary Key): Unique identifier for each order.
    - `CustomerID` (Foreign Key): Customer who placed the order.
    - `Created_at`: Date and time when the order was created.
    - `CampaignID` (Foreign Key): Optional reference to the campaign that influenced the order.
    - `ShippedDate`: Date the order was shipped.

---

7. `OrderDetail`

- **Description**: Stores details for each product within an order, allowing for multi-product orders and tracking individual items.
- **Attributes**:
    - `ID` (Primary Key): Unique identifier for each order detail record.
    - `OrderID` (Foreign Key): ID of the order associated with this item.
    - `ProductID` (Foreign Key): Product included in the order.
    - Quantity: The number of each product purchased.
    - Revenue: Monetary value from that purchase.

---

8. `Dim_Products`

- **Description**: Contains product information, including supplier and category details.
- **Attributes**:
    - `ProductID` (Primary Key): Unique identifier for each product.
    - `SupplierID` (Foreign Key): Supplier providing the product.
    - `Name`: Product name.
    - `CategoryID` (Foreign Key): Category the product belongs to.
    - `Price`: Price of the product.
    - `Description`: Description of the product.

---

9. `Dim_Suppliers`

- **Description**: Holds information about suppliers that provide products.
- **Attributes**:
    - `SupplierID` (Primary Key): Unique identifier for each supplier.
    - `SupplierName`: Name of the supplier.
    - `Contact`: Primary contact person at the supplier.
    - `Email`: Contact email of the supplier.
    - `Address`: Supplier's address.
    - `Notes`: Additional notes about the supplier.

---

10. `Dim_ProdCategory`

- **Description**: Categorizes products for better organization and filtering.
- **Attributes**:
    - `CategoryID` (Primary Key): Unique identifier for each product category.
    - `CategoryName`: Name of the category.

Relationships and Cardinality

- **Relationship Description**

    - **Fact_Interaction and Dim_Customers:** Many-to-one. A customer can be involved in many interactions, but each interaction is linked to only one customer.

    - **Fact_Interaction and Dim_Campaigns:** Many-to-one. A campaign can generate many interactions, but each interaction is associated with only one campaign.

- **Fact_Interaction and Dim_Channels:** Many-to-one. A channel can be used for many interactions, but each interaction occurs through only one channel.

- **Orders and OrdersDetail:** One-to-many. An order can have multiple order details, but each order detail belongs to only one order.

- **Orders and Dim_Customers:** Many-to-one. A customer can place many orders, but each order is placed by only one customer.

- **Orders and Dim_Campaigns:** Many-to-one. A campaign can lead to many orders, but each order is associated with only one campaign.

- **OrdersDetail and Dim_Products:** Many-to-one. An order detail is linked to exactly one product, but a product can be part of many order details.

- Dim_Products and Dim_ProdCategory: Many-to-one. Many products can belong to one category, but each product is assigned to only one category.

- **Dim_Products and Dim_Suppliers:** Many-to-one. One product can be supplied by one supplier, and one supplier can supply multiple products.

- **Camchan_on_run** and Dim_Campaigns: Many-to-one: One campaign can have many runs on different channels, but each run is associated with only one campaign.

- **Camchan_on_run** and Dim_Channels: Many-to-one: different campaigns running can use multiple channels, but each campaign running on a channel only use one channel.