EXPERIMENT NO. 1

Aim: Case study on building Data Warehouse/ Data Mart. (Travel Agency)

Software used: draw.io website

Theory:

1.1 Detailed Problem statement

A travel agency, **Internation Travels**, is experiencing a significant drop in sales during the rainy season. This is a seasonal trend where potential customers are discouraged from traveling due to the perceived inconveniences and risks of traveling in heavy rain.

Key Problems:

- **Decrease in Bookings:** Customers avoid making travel plans, leading to a 20-30% decline in sales during the rainy months.
- **Weather-Related Cancellations:** Poor weather conditions result in cancellations, negatively impacting revenue.
- **Idle Resources:** With lower demand, the agency's resources, such as tour guides, vehicles, and hotels, are underutilized, leading to inefficiencies.
- **Missed Marketing Opportunities:** The agency is not effectively marketing rainy-season-specific packages or destinations that could still attract travelers.

Business Impact:

- Loss of revenue during off-peak seasons.
- Reduced brand engagement as potential customers perceive travel during the rainy season to be unsafe or unappealing.
- Underutilized resources leading to increased operational costs.

1.2 Analysis to Be Done

To understand and address the problem, the following analyses are recommended:

1. **Customer Behavior Analysis:**
    - Study historical booking data to identify trends in customer travel preferences during the rainy season.
    - Segment customers based on preferences, demographics, and travel history.

- Conduct surveys or analyze social media feedback to gather insights on customer perceptions of traveling during the rainy season.

2. **Sales and Revenue Analysis:**
   - Analyze year-on-year sales trends for the rainy season.
   - Compare revenue generated from different travel packages before, during, and after the rainy season.
   - Evaluate how cancellations due to weather impact overall revenue and costs.

3. **Competitor Analysis:**
   - Examine how competitors are addressing seasonal drops in travel bookings.
   - Identify the types of packages or destinations competitors are offering during the rainy season.
   - Analyze competitor pricing strategies during the rainy months.

4. **Operational Efficiency Analysis:**
   - Assess the utilization of resources (vehicles, staff, hotels) during the rainy season.
   - Examine cost inefficiencies due to underused resources.

5. **Marketing Effectiveness Analysis:**
   - Review past marketing campaigns to assess whether rainy-season offers and promotions were effective.
   - Evaluate digital marketing strategies like SEO, paid ads, and email marketing to see their impact on engagement during the off-peak season.

1.3 How the Above Analysis Improves Business

The proposed analysis directly tackles the root causes of declining sales during the rainy season. Here's how it improves business:

- **Customer-Centric Offers:** By understanding customer preferences, the agency can design tailored travel packages that align with seasonal expectations, making them more attractive to potential customers.
- **Revenue Recovery:** Sales and revenue analysis allows the agency to identify high-performing packages and destinations that can be promoted more aggressively during the off-season, minimizing revenue losses.
- **Operational Efficiency:** Resource optimization analysis will ensure that the agency maximizes the use of its resources, reducing wastage and operational costs, even during periods of lower demand.

- **Enhanced Competitiveness:** A thorough competitor analysis will enable the agency to adjust its offerings and stay competitive, potentially tapping into niche markets like monsoon tourism or luxury retreats.
- **Targeted Marketing:** Understanding the effectiveness of past campaigns ensures future marketing is more focused and delivers better returns, helping to overcome customer resistance to rainy-season travel.

1.4 Design Information Package Diagram

The **Information Package Diagram** outlines the key dimensions and facts related to the analysis. This diagram will include elements like customer profiles, sales data, travel packages, weather conditions, and resources.

Subject : Travel Agency				
Facts : Sales Revenue , Cancellations , Booking Volumes , Resource Utilization				
Time Dimension	Months	Seasons	NA	NA
Customers Dimension	Age	Name	Preferences	Demographics
Packages Dimension	Domestic	International	Adventure	Relaxation
Weather Dimension	Summer	Rainfall	Winter	Monsoon
Resource Dimension	Guides	Vehicles	Hotels	NA

1.5 Details of Dimension Table

The **Dimension Table** holds descriptive attributes or dimensions that describe the facts within the fact table.

Time Dimension
Time_Key
Months_Key
Seasons

Resource Dimension
Resource_Key
Guides
Vehicles
Hotels_Key

Packages Dimension
Packages_Key
Domestic
International
Adventure
Relaxation

Weather Dimension
Weather_Key
Summer
Rainfall
Winter
Monsoon

Customer Dimension
Customer_Key
Age
Name
Demographics
Preferences

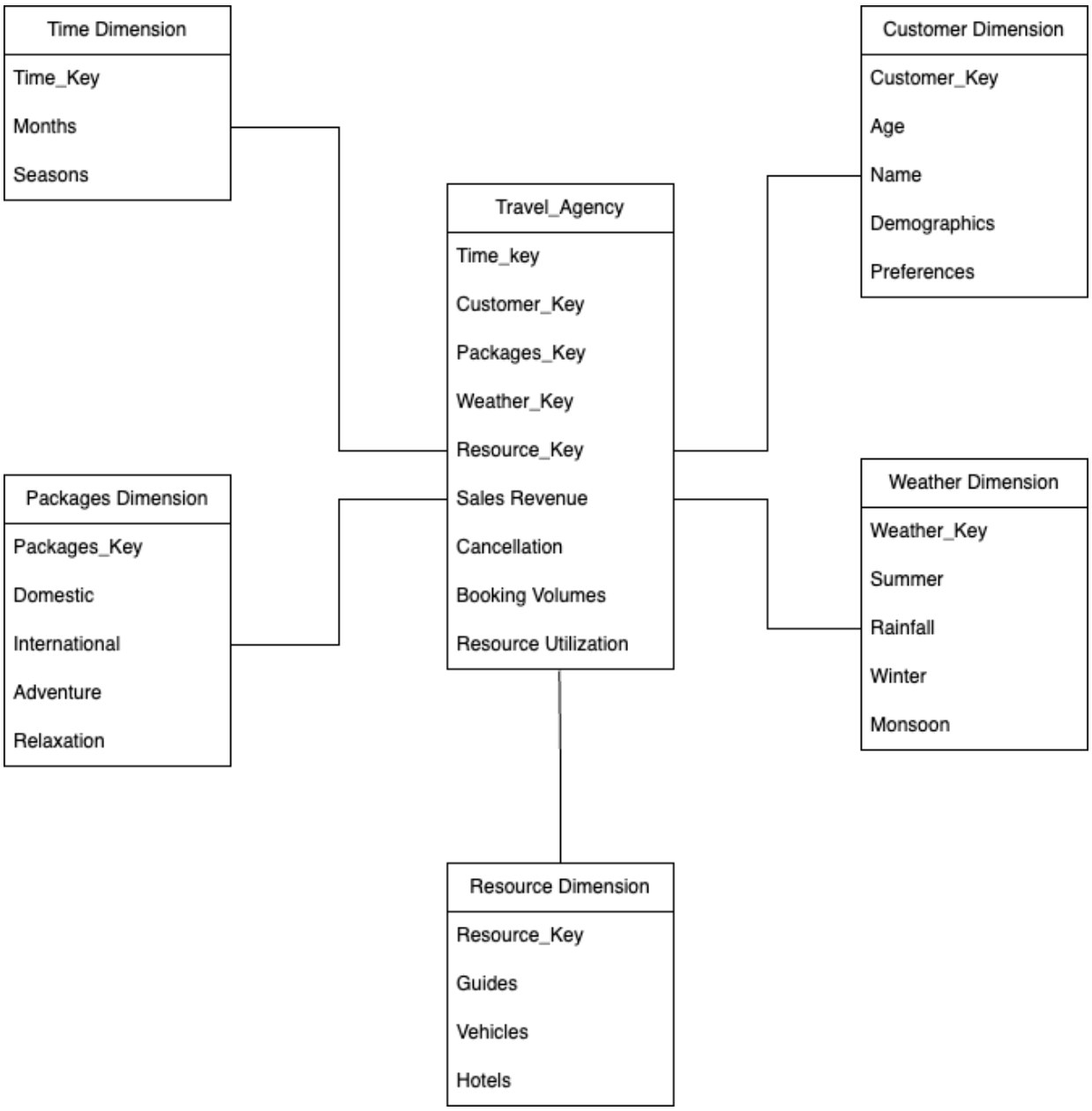
1.6 Details of Fact Table

The **Fact Table** contains the numerical data related to the key business operations.

Travel_Agency
Time_key
Customer_Key
Packages_Key
Weather_Key
Resource_Key
Sales Revenue
Cancellation
Booking Volumes
Resource Utilization

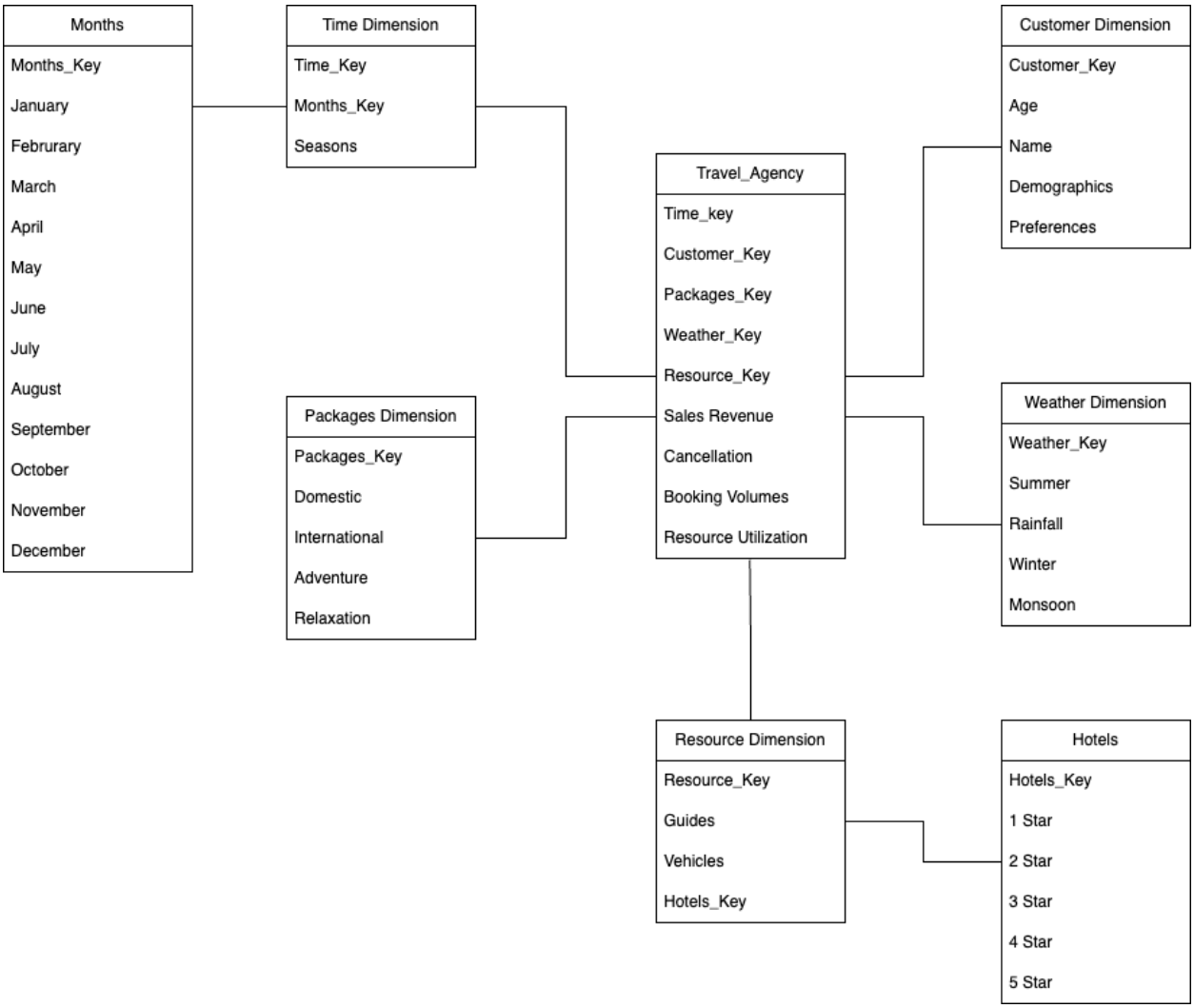
1.7 Star Schema

The **Star Schema** is a simple, flat representation of the data model where a central fact table is connected to multiple dimension tables. It is ideal for performance when analyzing large sets of data.



1.8 Snowflake Schema

The **Snowflake Schema** is an extension of the star schema where dimension tables are normalized, leading to a more complex structure. This may be applicable if there are many sub-dimensions within the primary dimensions



CONCLUSION :

SIGN AND REMARK :

R1	R2	R3	Total Marks	Signature
(5)	(5)	(5)	(15)	