# TASK-INT002-RDAMP

## Reported by

Christine Ugochi, Retail Sales Director, Ace Superstore

## Project Title

Dimensional Modeling, SQL Transformation & Power BI Reporting

## Problem Description

Following the foundational analysis in Task 1, Ace Superstore now aims to build a structured, query-optimized reporting system. Your responsibility in this task is twofold:  
   
1. Design and implement a star schema using SQL.  
 2. Create SQL views from your schema and connect them directly to Power BI to produce advanced interactive dashboards.  
   
You will apply dimensional modeling best practices and simulate how data teams build scalable pipelines to power enterprise reports.

## Business Impact

This task helps transition the cleaned dataset into a format optimized for enterprise-grade reporting. Business users will be able to analyze performance from multiple angles using a data model designed for usability and scalability.

## Estimated Time

6–10 hours

## Acceptance Criteria

✅ Dimensional Model Design  
 Create any of the following dimensional tables that suits the requirement stated by ACE:  
 - dim\_customer  
 - dim\_product  
 - dim\_location  
 - dim\_date  
 - dim\_category  
 - dim\_segment  
 - dim\_order\_mode  
   
You must also create:  
 ✅ fact\_sales containing:  
 - Foreign keys referencing all dimension tables  
 - Measures: Total\_Sales, Total\_Cost, Profit, Discount\_Amount, Quantity  
   
✅ SQL Implementation  
 - Use appropriate CREATE TABLE statements and data types  
 - Apply foreign key constraints  
 - Clean and deduplicate dimension data  
 - Ensure:  
 - No NULLs in fact table keys  
 - Standardized and trimmed text fields  
 - dim\_date includes fields like Order\_Date, Year, Month, Quarter  
   
✅ SQL Views Creation  
 Create at least three SQL views that summarize key insights for Power BI  
 The Views include:  
 - vw\_product\_seasonality: Product performance trends over time  
 - vw\_discount\_impact\_analysis: Correlation between discounts and profits  
 - vw\_customer\_order\_patterns: Average order value, frequency, and profit per customer segment  
 - vw\_channel\_margin\_report: Profitability comparison across online vs in-store  
 - vw\_region\_category\_rankings: Rank categories by profit margin per region  
   
✅ Power BI Dashboard  
 1. Import your SQL views  
 2. Create an interactive dashboard in Power BI using your views  
 3. Dashboard must include:  
 - Product Seasonality Trends (e.g. heatmap)  
 - Discount vs. Profit Analysis (e.g. scatter plot or slope chart)  
 - Average Order Value by Channel and Segment (e.g. combo chart)  
 - Top 10 Customers by Profit Contribution (e.g. horizontal bar chart)  
 - Category Ranking by Region (e.g. matrix or bar chart)  
   
  
✅ Queries  
 Include 5 reusable SQL queries (outside of views) that:  
 - Join fact and dimension tables  
 - Return strategic business insights   
  
✅ README.md  
 Your README must include:  
 - Overview of your dimensional schema (diagram is compulsory)  
 - Purpose of each dimension and fact table  
 - SQL setup instructions  
 - Power BI connection steps  
 - Screenshots of each dashboard view

## Submission Guidelines

GitHub Repository  
   
- Repo Name: RDAMP-Dimensional-Model-PowerBI  
 - Suggested repository, file and folder structure on Github:  
 RDAMP-Dimensional-Model-PowerBI/  
 ├── sql/  
 │ ├── create\_tables.sql  
 │ ├── populate\_dimensions.sql  
 │ ├── populate\_fact\_table.sql  
 │ ├── create\_views.sql  
 │ └── queries.sql  
 ├── powerbi/  
 │ ├── AceSuperstore\_Dashboard.pbix  
 │ └── screenshots/  
 │ ├── schema\_diagram.png  
 └── README.md  
   
File Naming Convention  
 All submitted files must include your full name (e.g., John\_Brown\_Dashboard.pbix)  
   
LinkedIn Post Requirement  
 Create a LinkedIn post reflecting on:  
 - What you learned while working on the SQL modeling and BI visualization task  
 - A screenshot from your dashboard  
 - Tag Realcare Tech Mark LTD and use #RDAMP

## Dataset

Use the cleaned Task 1 dataset including engineered columns like Segment, Profit, Total Sales, Discount Amount, etc.

## Deadline

Tuesday, 15th July, 2025 — 11:59 PM GMT (BST).  
  
Submissions should be made using the link below  
  
[Submission Link](https://docs.google.com/forms/d/e/1FAIpQLSfTUItPYpqm587PML3GHtZVh1VghRtgMpVclL6rwCAlEsB1rQ/viewform?usp=header)