# Cloud Data Migration & Power BI Reporting

## Project Description

This project demonstrates a complete data pipeline that involves migrating on-premises data to the cloud using Amazon Redshift and visualizing key business insights through Power BI dashboards. The goal was to meet client-specific reporting requirements by ensuring clean, structured, and timely data delivery in a scalable environment.

## Project Objective

The objective was to modernize the client’s reporting infrastructure by transitioning from legacy, on-premises databases to a cloud-based architecture. The motivation behind this migration was to improve data availability, enable centralized reporting, and provide interactive dashboards for business users.

## Process Overview

1. Data Ingestion  
Raw data from on-premises systems was extracted using ETL pipelines. This included multiple data formats and sources (e.g., relational databases, CSV files).

2. Data Transformation  
The data was cleaned, normalized, and restructured to support reporting needs. Data quality checks were implemented to ensure consistency and accuracy.

3. Cloud Migration  
Transformed data was loaded into Amazon Redshift, a scalable cloud data warehouse. Redshift’s performance capabilities enabled efficient querying and supported scheduled refreshes.

4. Data Modeling  
Dimensional models (star/snowflake schema) were created to optimize data relationships and support intuitive reporting in Power BI.

5. Visualization & Reporting  
Using Power BI, interactive dashboards were created to present key performance indicators (KPIs), trends, and comparative metrics. Reports were tailored to the client’s operational and strategic decision-making needs.

## Business Impact

- Replaced static Excel-based reporting with dynamic, self-service dashboards  
- Reduced reporting time and manual data handling  
- Enabled real-time and historical trend analysis  
- Empowered stakeholders with accessible, actionable insights

## Tech Stack

- Amazon Redshift for cloud-based data warehousing  
- Power BI for reporting and visualization  
- SQL, DAX, and Power Query M for queries and data transformation  
- (Optional: Include any ETL tools or scripts used)