Cloud Application

Data Warehousing with IBM Cloud Db2 Warehouse

Abstract:

This project involves creating a data management system for a retail business. The system's goal is to track product information, sales transactions, and inventory levels. It will provide data architects with tools for analysis, reporting, and informed decision-making.we can provide the information in the format you requested based on the sample dataset you provided.Develop a cloud-based predictive analytics and sales optimization platform that leverages IBM Db2 Warehouse on Cloud to provide actionable insights to businesses. This platform will help businesses make data-driven decisions to improve their sales strategies, customer engagement, and ultimately increase revenue

Data Integration

A/B Testing

Personalized Recommendations

Inventory Optimization

Customer Segmentation

Predictive Maintenance

Date updated:	5 Jan 14		Aswath Damodaran	
Industry name	*Number of firms*	*Inventory/Sales*	*Inventory/Enterprise Value*	*Number of Days Sales*
Advertising	65	4.53%	2.37%	16.52
Aerospace/Defense	95	20.22%	13.26%	73.82
Air Transport	25	2.74%	2.59%	9.98
Apparel	70	18.00%	8.09%	65.72
Auto & Truck	26	8.08%	8.97%	29.49
Auto Parts	75	8.06%	9.34%	29.40
Bank	7	4.31%	0.83%	15.71
Banks (Regional)	721	6.12%	1.21%	22.34
Beverage	47	6.10%	2.02%	22.28
Beverage (Alcoholic)	19	33.20%	7.07%	121.18
Biotechnology	349	12.11%	1.13%	44.20
Broadcasting	30	1.38%	0.33%	5.04
Brokerage & Investment Banking	49	0.04%	0.01%	0.15
Electrical Equipment	135	10.41%	4.91%	37.99
Electronics	191	15.23%	9.50%	55.60
Electronics (Consumer & Office)	26	8.03%	7.90%	29.29
Engineering	56	0.99%	1.66%	3.63
Entertainment	85	3.66%	1.22%	13.35

Objectives and Requirements:

- Identifying the key performance indicators (KPIs) you want to track (e.g., revenue, profit margin, customer acquisition cost).
- ·Determining the level of granularity required for your data (daily, weekly, monthly).
- ·Understanding the sources of data (e.g., point-of-sale systems, online sales platforms, CRM systems).
- Defining the scope of customer behavior analysis (e.g., customer segmentation, lifetime value analysis).
- Extract sales and revenue data from your different sources. This may involve using ETL (Extract, Transform, Load) tools or APIs provided by these systems.
- Integrate the cleaned data into a central repository. In the case of IBM Db2 Warehouse, you can use its capabilities for data integration and transformation.

Benefits:

- Increased Sales
- Cost Savings
- Customer Retention
- Competitive Advantage
- Monetization
- Subscription-based model
- Consulting and support services

Detail Compact Column 10 of 17 columns

Invoice ID	Branch	City	Customer ...	Gender	Product line	Unit price
750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69
226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28
631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33
123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22
373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31
699-14-3026	C	Naypyitaw	Normal	Male	Electronic accessories	85.39
355-53-5943	A	Yangon	Member	Female	Electronic accessories	68.84

The sheet consist of various data like product description,unit price,transaction,product line and customer information.This sheet was the sample spread sheet we used to describe our project.when our final project was done we will use our own spread sheet which was taken form the database.

Query:

```
CREATE TABLE sales (
    invoice ID INT PRIMARY KEY,
    branch VARCHAR(255),
    city VARCHAR(255),
    customer VARCHAR(255),
    gender VARCHAR(255)
    product line VARCHAR(255),
    unit price DECIMAL(10, 2)
);

-- Insert sample data into sales table
INSERT INTO sales (invoice ID,branch,city,customer,gender,product line,unit price)
VALUES
    (750-67-8428,
    226-31-3081,
    631-41-3108,
    123-19-1176
    373-73-7910,
    699-14-3026,
    355-53-5943,
    315-22-5665),
    (A,
     C,
     A,
     A,
     A,
     C,
     A,
     C),

    (Yangon,
    Naypyitaw,
    Yangon,
    Yangon,
    Yangon,
    Naypyitaw,
    Yangon,
    Naypyitaw)
  (Member,
   Normal.
```

```
    Normal,
    Member,
    Normal,)

    (Female,
    Female,
    Male,
    Male,
    Male,
    Male,
    Female,
    Female)

   (Electronic,
    accessories,
    Home and lifestyle,
    Health and beauty,
    Sports and travel,
    Electronic,
    accessories,
    Electronic,
    accessories,
    Home )

(74.69,
15.28,
46.33,
58.22,
86.31,
85.39,
68.84,
73.56);
```

Conclusion:

This project successfully accomplished the goals of building a data warehouse, implementing ETL processes, and enabling data exploration using IBM Db2 Warehouse. The result is a robust infrastructure that supports data-driven decision-making and analysis.