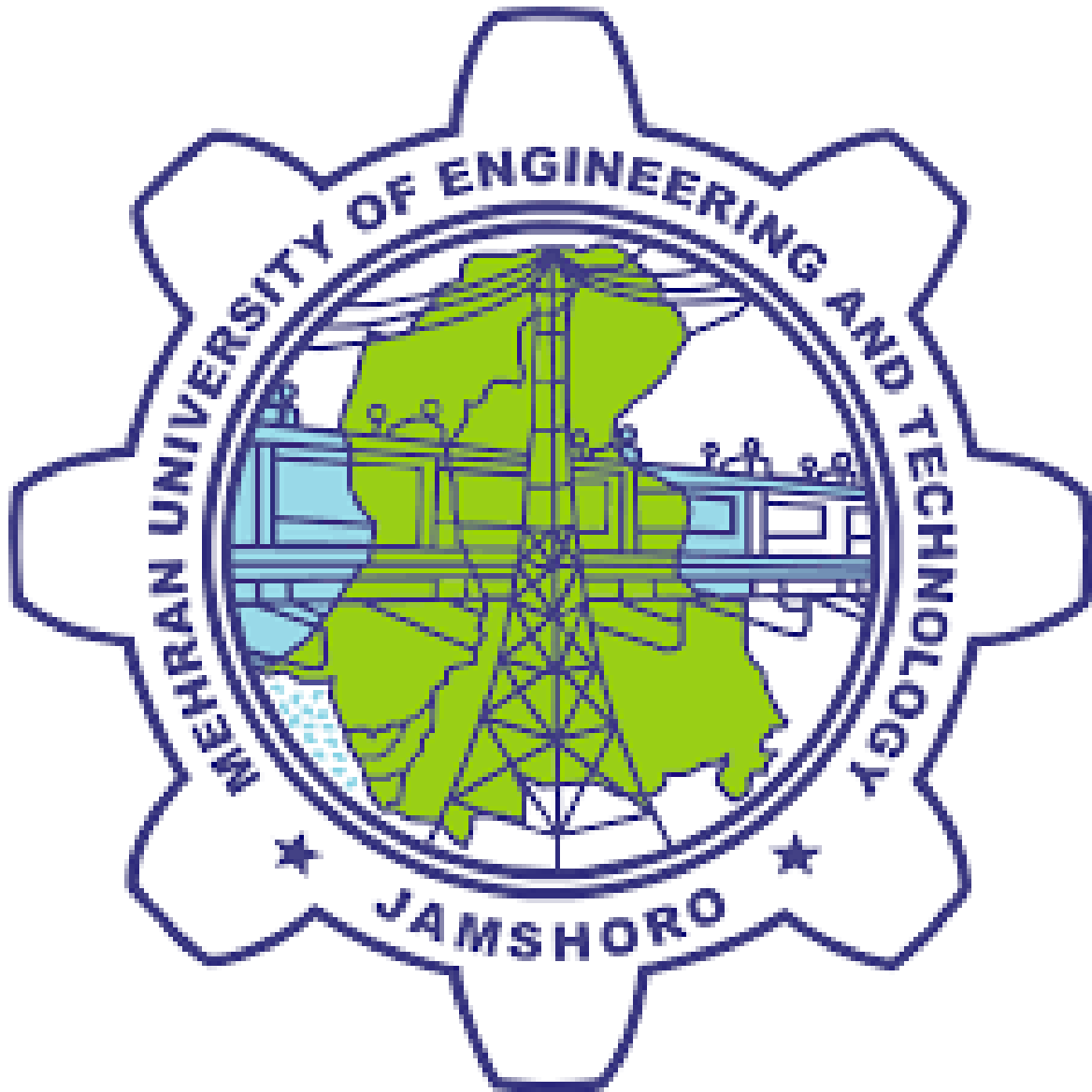


Name: ZOHAIB HASSAN SOOMRO

RollNo#: 19SW42

Subject: DWH



Question: 01

Identify an organization whose business needs cannot be fulfilled by existing operational database systems and it require a data warehouse solution. List down the issues, which cannot be resolved by operational databases for this particular organization and how a data warehouse would help. Also identify required levels of granularity.

Organization Scenario

A multi-channel consumer electronics retailers operate in dynamic and highly competitive market conditions, they are under constant pressure to invest in new communication and information technologies that automate or support retail activities to increase productivity and gain competitive advantage. Various software applications are in current use by retailers to assist with customer sale transactions, online business,

and inventory management, purchasing process, finance and human resource management. These software applications generate a huge volume of transactional and other types of data such as web logs, customer feedback, and foot fall counters. Retailers are facing challenges in utilizing the generated datasets to support managers in deciding optimal inventory, choosing a profitable price, introducing new product lines, and satisfying customers. To address these challenges, data warehousing is one of the most popular and effective solutions since it integrates all available data sources into a central corporate data repository and organizes data in such a way that it answers business questions easily and quickly.

Issues that DWH has resolved

1. Deciding optimal inventory
2. Choosing a profitable price
3. Introducing new product lines
4. Satisfying customers etc.

These were the main issues that an operational system had not resolved. Because these type of problems wants analysis of current and past data but operational system failed to give any analytical information they just give you the current values of data. While the data warehouse contain past and current data for analysis and making strategic decisions. That's why data warehouse in the scenario is the only viable solution.

Required Level Of Granularity

Daily Details	Monthly Summary	Six Months Summary
Amount	Amount	Amount
Sales	Sales	Sales
Order	Order	Order
Product	Product	Product
-	Month	Month
-	Number of online booking	Number of online booking

-	Profit	Profit
-	Loss	Loss
-	-	Quarterly

Question: 02

A data warehouse is subject – oriented. What would be the major critical business subjects for the following companies?

- a. an international manufacturing company
- b. a local community bank
- c. a domestic hotel chain

a. an international manufacturing company

Business Subjects:

- 1. Product
- 2. Sales
- 3. Customer
- 4. Region
- 5. Store
- 6. Policy

7. Claims
8. Orders
9. Shipment

b. a local community bank

Business Subjects:

1. Account
2. User
3. Withdraw
4. Deposit
5. Savings
6. Loans
7. Funds
8. Transactions
9. Money Transfer

c. a domestic hotel chain

Business Subjects:

1. Customer
2. Orders
3. Delivery
4. Menu
5. Deals

- 6. Discount
- 7. Services
- 8. Employees

Question: 03

For an airline company, identify three operational applications that would feed into the data warehouse. What would be the data load and refresh cycles?

Three Operational Applications

- 1. Seat Reservation Application
- 2. Flight Management Application
- 3. Airline Staff Management Application

Data Load and Refresh Cycles

The data should be loaded and refreshed every week so that new data is moved from different

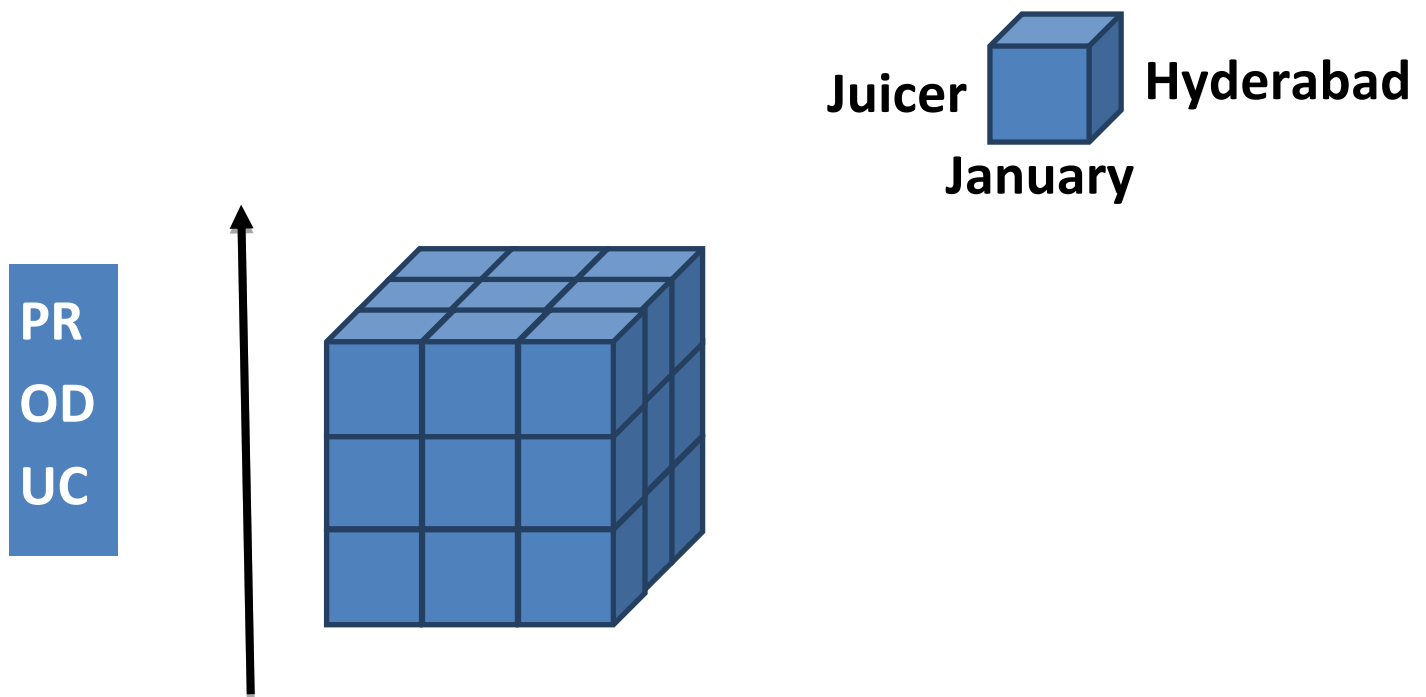
operational sources to the data warehouse. This data is then used for providing strategic information to the managers and executives of airline. The data is not updated on occurrence of every transaction.

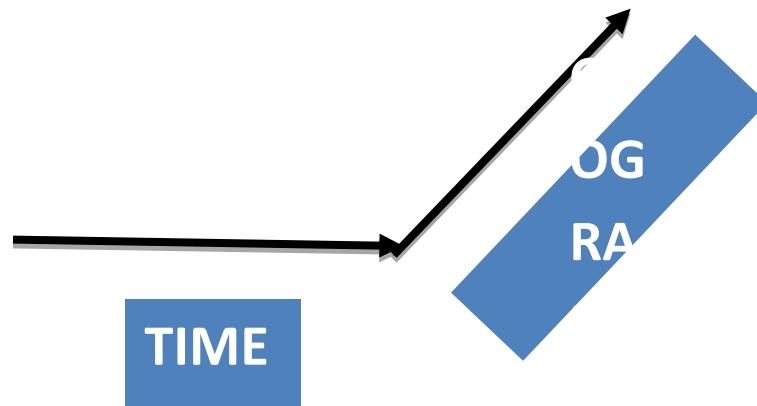
Question: 04

You are the Vice President of Marketing for a nation – wide appliance manufacturer with three production plants. Describe any three different ways you will tend to analyze your sales. What are the business dimension for your analysis?

FIRST WAY TO ANALYZE SALES

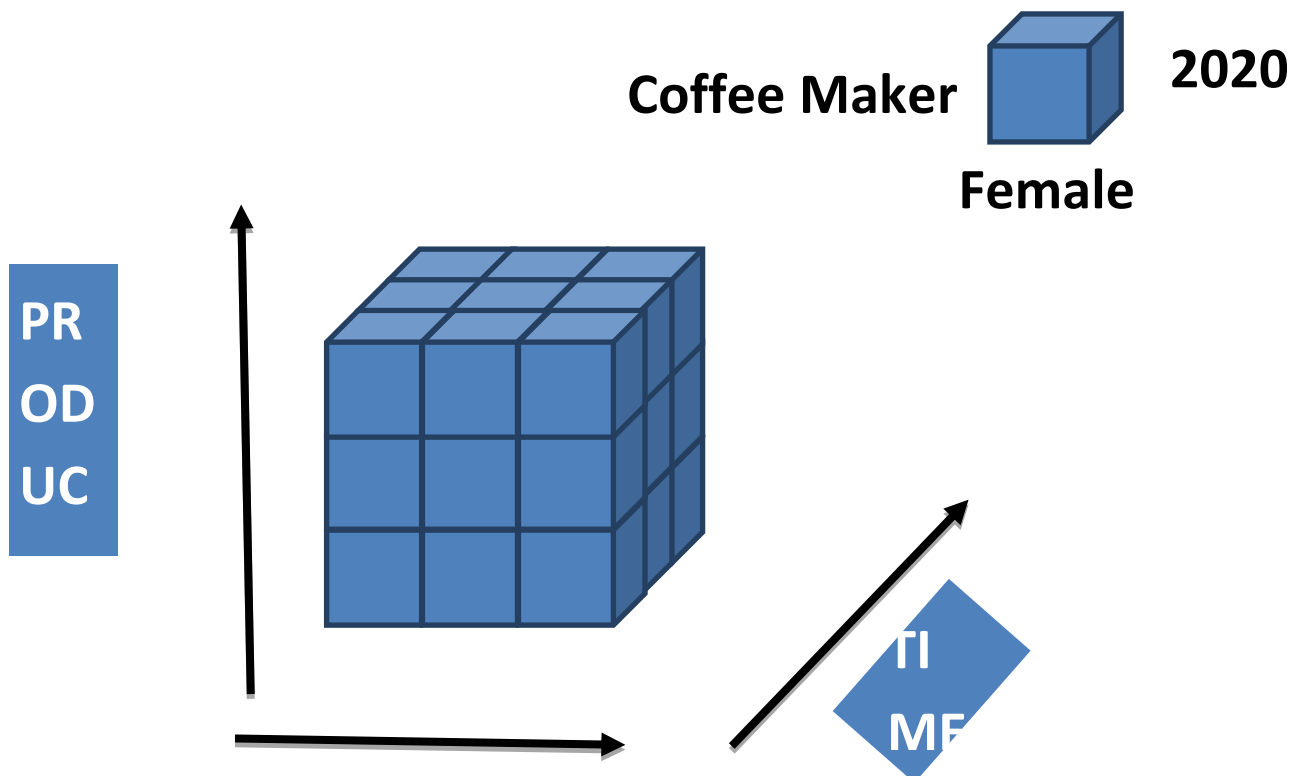
Business Dimensions: Product, Time, Geography





SECOND WAY TO ANALYZE SALES

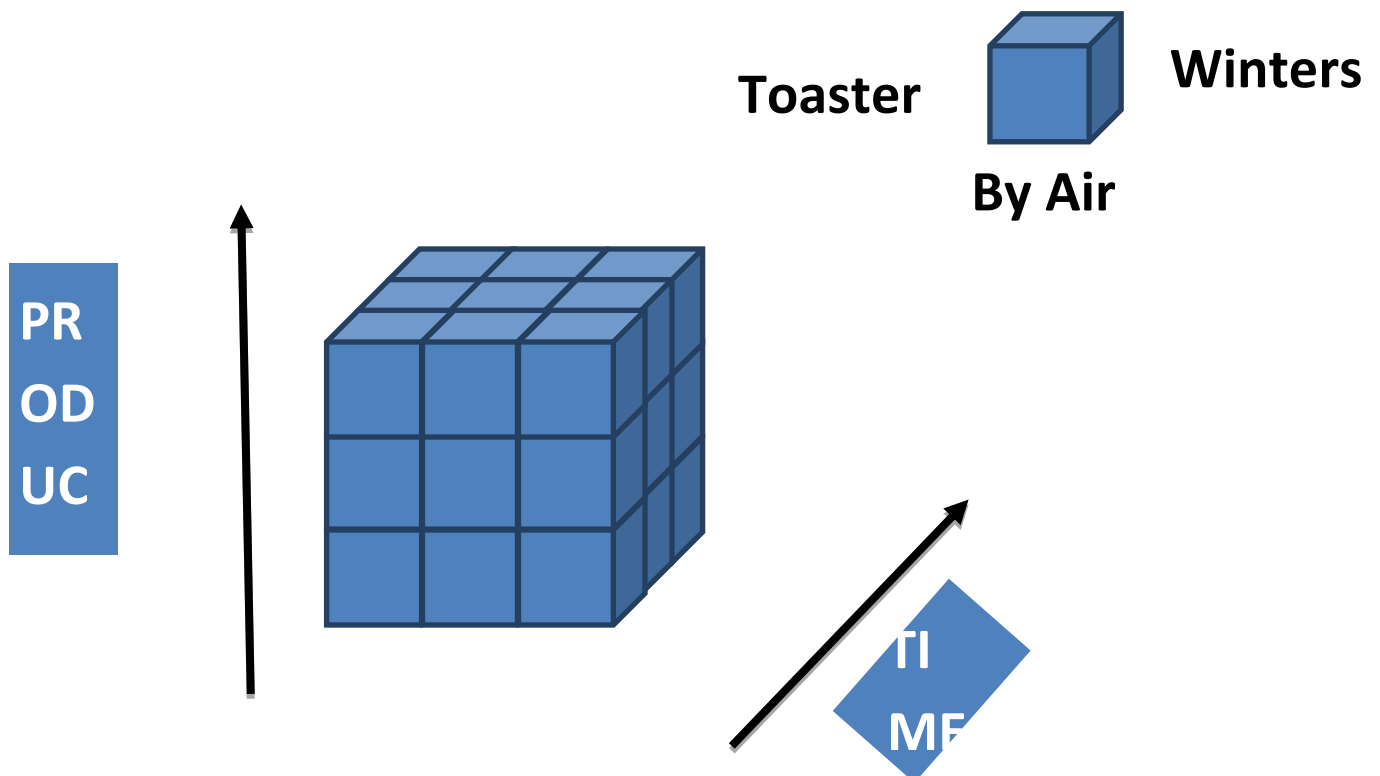
Business Dimensions: Product, Customer, Time



CUSTOMER

THIRD WAY TO ANALYZE SALES

Business Dimensions: Product, Ship-mode, Time





SHIP-MODE

Question: 05

Construct an information package diagram for analyzing expenses against provided budget for a large scale manufacturing organization dispersed across 15 countries, more than 50 divisions and districts. Management would like to study and analyze expenses over time, district, division and budget line items. Show also a drill down dimension.

Information Subject: Manufacturing Expenses
Dimensions

Time	Product	Division/District	Geography	Material
Year	Model name	Division/District name	Country	Purchasing
Quarter	Model number	Division/District code	State	Parts
Month	Product line	Location	City	Color
Week	Interior color	Branches	Branches	Quantity
Day	Exterior color	Stores	Stores	Size
Facts: Purchasing amount, Estimated Budget, Actual Manufacturing Expenses, Loans, Manufacturing Stores Maintenance, Cost of Required Tools				

Question: 06

Construct an information package diagram for hotel stays, identifying the dimensions, attributes, and facts. The hotel management would like to study the occupancy patterns in their hotel over time, location, travel agents, customers, rooms types, rate plans, etc. Furthermore, they would also like to have ready access to the rooms that are occupied or vacant on a given date.

Information Subject: Hotel Stays

Dimensions

Time	Customer	Travel Agents	Location	Room type	Rate plans
Year	Age group	Agent id	Country	Type of bed	Number of occupants
Quarter	Gender	Agent name	State	Floor number	Extras with meals
Month	Profession	Years of Experience	City	Kitchen	Extra services
Week	Nationality	Background	Street	Area	Hourly Rate
Day		Address	Building		Daily Rate
Facts: Number of occupied rooms, Number of vacant rooms, Number of occupants, Revenue, Number of International tourists, Booked Rooms.					

Question: 07

Big Book Inc. is a large book distributor with domestic and international distribution channels. The company orders from publishers and distributes publications to all the leading booksellers. Initially, you want to build a data warehouse to analyze shipments that are made from the company's many warehouses. Determine the metrics or facts and the business dimensions. Prepare an information package diagram.

Information Subject: Shipment Information

Dimensions

Time	Book	Publisher	Geography	Bookseller
Year	Book Category	Publisher Code	Country	Seller code
Quarter	Book ISBN	Location	State	Stores
Month	Book title	International/Domestic	City	Reputation
Week	Author info		Region	Domestic
Day	Price		Branch	International
Facts: Total sold units, Purchasing Amount, Selling Amount, Monthly Shipment, Weekly Shipment, Number of ordered stock.				