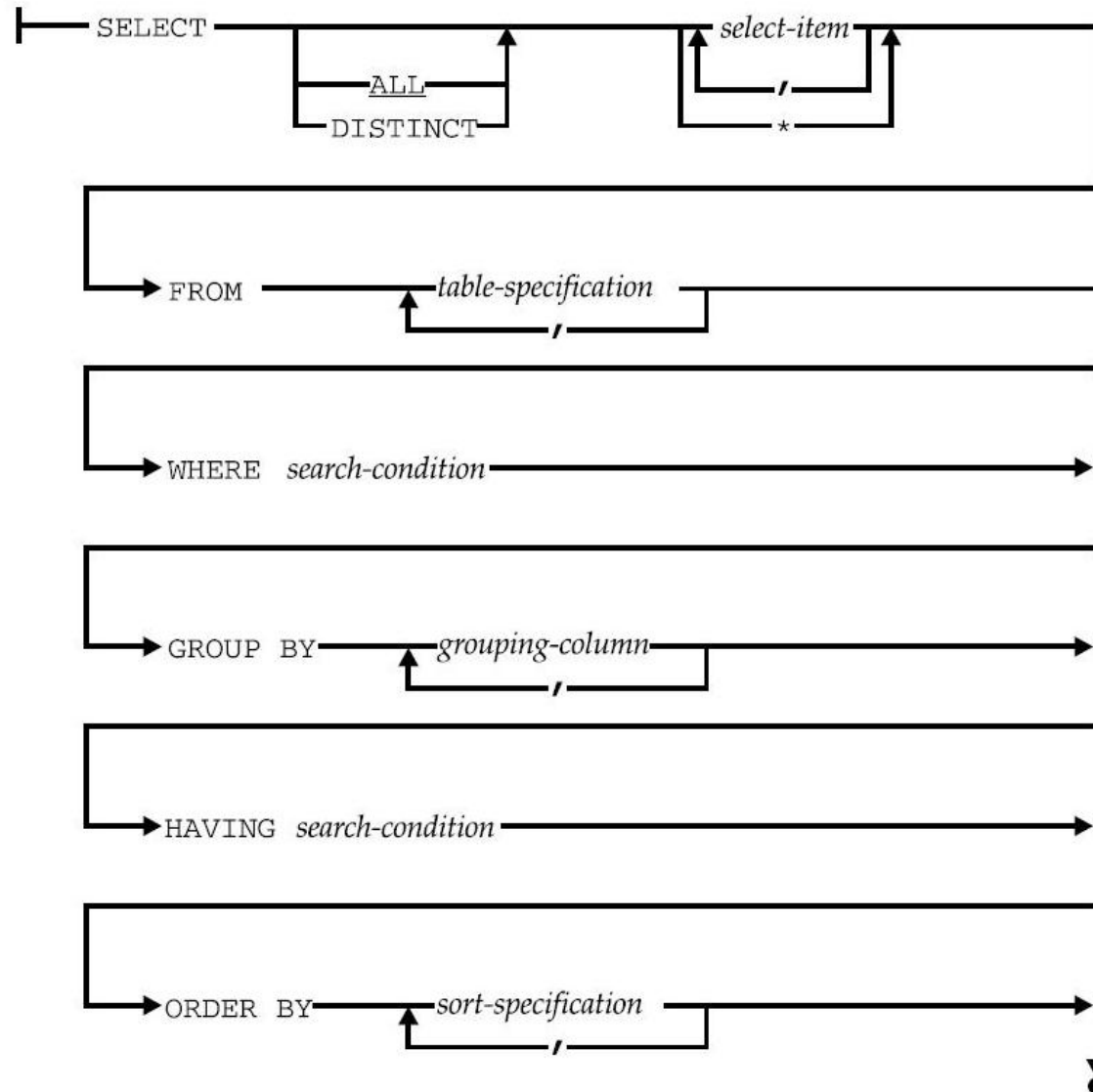# Sample Queries

September 23, 2019 onwards

Sample Database

Order Processing Application

- The **CUSTOMER** table (Stores data about each customer)

  (CUST_NUM, COMPANY, CUST_REP, CREDIT_LIMIT)

  - 2111, JCP Inc, 103, 50,000

- The **SALESREPS** table (Data about salesperson)

  (EMPL_NUM, NAME, AGE, REP_OFFICE, TITLE, HIRE_DATE, MANAGER, QUOTA, SALES)

  - 105, Bina Singh, 37, 13, Sales Rep, 12-Feb-88, 105, 350000, 367911

- The **OFFICES** table (Data about each of the 5 sales offices)

  OFFICE, CITY, REGION, MGR, TARGET, SALES

  - 13, Kanpur, Eastern, 105, 350000, 367911

- The **ORDERS** table (Keeps track of every order placed by a customer, identifying the sales person who took the order, the product ordered, the quantity and amount of the order)

  ORDER_NUM, ORDER_DATE, CUST, REP, MFR, PRODUCT, QTY, AMOUNT

  - 11269, 17-Dec-89, 2111, 103, ACI, 2A44L, 731000

- The **PRODUCT** table (Stores data about each product available)

  MFR_ID, PRODUCT_ID, DESCRIPTION, PRICE, QTY_ON_HAND

  - ACI, 2A44L, Plate, 355.00, 38

Syntax of SQL SELECT Statement

Simple Queries

- List the names, offices, and hire dates of all salespeople

- What are the name, quota, and sales of employee no. 107?

- What are the average sales of our salespeople?

- List the name and hire date of anyone with sales over Rs. 50,000.

- List the location, region, and sales of each sales office.

Simple Queries

- List the city, region, and amount over/under target for each office.
- Show the value of inventory for each product.
- Show me the result if I raised each salesperson's quota by 3% of their year to date sales.
- List the sales for each city.
- List the employee nos. of all sales office managers.

Row Selection

- Show me the employees managed by Geets (emp no. 104).

- Display offices whose sales are more than 50,000 over target.

Comparison test

- List the offices whose sales fall below 80% of target.

- List the offices not managed by emp. No. 108.

- List salespeople who are over quota.

Range test

- Find orders placed in the last quarter of 1989.
- List salesperson whose sales are not in the range of 80% and 120% of quota.

Set membership test

- List the salespeople who work in Delhi, Mumbai or Kolkata.

- Find all orders placed on a Thursday in Jan 1990.

Pattern Matching Test

- Show the credit limit for ABC Ltd.

Null Value test

- Find the salespersons not yet assigned to an office.

- List the salespersons who have been assigned to an office.

Compound search conditions

- Find salespeople who are under quota or with sales under Rs. 300,000.
- Find all salespeople who either
  - Work in Delhi, mumbai, or kolkata; or
  - Have no manager and were hired since June 1988; or
  - Are over quota, but have sales of Rs.600,000, or less.

Combining query results

- List all the products where the price of product exceeds Rs.2,000 or where more than Rs. 30,000 of the product has been ordered.

Sorting query results

- Show the sales of each office, sorted in alphabetical order by region, and within each region by city.

Some more Queries

- List the salespeople and the offices where they work
    - SALESREPS and OFFICES table
- List each order placed last week, showing the order amount, the name of the customer who placed it, and the name of the product ordered
    - ORDERS, CUSTOMERS, PRODUCT table
- Show all orders taken by salespeople in the Eastern region, showing the product description and salesperson
    - ORDERS, SALESREPS, OFFICES, and PRODUCT table

Two Table Query

- List all orders, showing the order no. and amount, and the name and credit limit of the customer who placed it.

Simple Joins
Equi-joins

- List each salesperson and the city and region where they work.

- List the offices and the names and titles of their managers.

- List the offices with a target over Rs. 500,000. (print city, manager name and title)

- List all the orders, showing amount and product descriptions.

Three Table Queries

- List orders over 25,000, including the name of the salesperson who took the order and the name of the customer who placed it.

- List the orders over 50,000 showing the name of the customer who placed the order and the name of the salesperson assigned to that customer.

Other Equi-joins

- Find all orders received on days when a new salesperson was hired.

Non-Equi-Joins

- List all combinations of salespeople and offices where the salesperson's quota is more than the offices' target.

SQL considerations for Multitable Queries

- Qualified column names
- All column selection
- Self joins
- Table aliases

SQL considerations for Multitable Queries

- Show the name, sales, and office for each salesperson

- Tell me all about salespeople and offices where they work.

- List the names of all salespeople and their managers.

- List names, quotas, and birthdays of salespeople.

Summary Queries

- Examples:
  - What is the total quota for all salespeople?
  - What are the smallest and largest assigned quota?
  - How many salespeople have exceeded their quota?
  - What is the size of the average order?
  - What is the size of the average order for each sales office?
  - How many salespeople are assigned to each sales office?

Summary Queries

- Calculate the average price of products from manufacturer ACI.

- What are the smallest and largest assigned quotas?

- What is the best sales performance of any salesperson?

- How many customers are there?

- How many salespeople are over quota?

Summary Queries

- Find the average order amount, total order amount, average order amount as a percentage of the customer's credit limit, and average order amount as a percentage of the salesperson's quota.

Duplicate Row Elimination

- How many different titles are held by salespeople?

- How many sales offices have salespeople who are over quota?

Grouped Queries

- (a) What is average order size?
- (b) What is average order size for each salesperson?
- How many salespeople are assigned to each office?
- Calculate the total orders for each customer of each salesperson.
- (multiple grouping columns) Calculate the total orders for each customer of each salesperson, sorted by customer, and within each customer by salesperson.

Limitation with Grouped Queries

- Calculate the total orders for each salesperson.

Null Values in Grouping Columns

SELECT HAIR, EYES, COUNT(*)

FROM PEOPLE

GROUP

BY HAIR, EYES

Group Search Condition

- What is average order size for each salesperson whose orders total more than Rs. 30,000?

- For each office with 2 or more people, compute the total quota and total sales for all salespeople who work in the office.

Subqueries and Query Expressions

- List the offices where the sales target for the office exceeds the sum of the individual salespeople's quotas.

- List the salespeople whose quota is less than 10% of the companywide sales target.

- Outer Reference/
  Correlated Reference/Correlated Subqueries

Subquery Search Conditions

- Subquery comparison test
- Subquery set membership test
- Existence test
- Quantified comparison test

Subquery Comparison Test

- List the salespeople whose quotas are equal to or higher than the target of the Delhi sales office.

- List all products from manufacturer ACI where the quantity on hand is above the quantity on hand of product ACI-41004.

The Set Membership Test

- List the salespeople who work in offices that are overtarget.

- List the salespeople who do not work in offices managed by Alok Sharma (emp. No. 108).

The Existence Test

- List the products for which an order of Rs. 25,000 or more has been received.

- List any customers assigned to Ravi who have not placed an order for over Rs. 50,000.

- Parallel subquery

Quantified Comparison Tests

- Any and All

- List the salespeople who have taken an order that represents more than 10% of their quota.

- List the name and ages of all the people in the sales force who do not manage an office.

- List the offices and their targets where all of the salespeople have sales that exceeds 50% of the office's target.

Subqueries and Joins

- List the names and ages of salespeople who work in offices in the western region.

- List the names and ages of the salespeople who work in offices in the western region and the cities where they work.

- List the names and ages of salespeople who have above average quotas.

Nested Subqueries

- List the customers whose salespeople are assigned to offices in the eastern sales region.