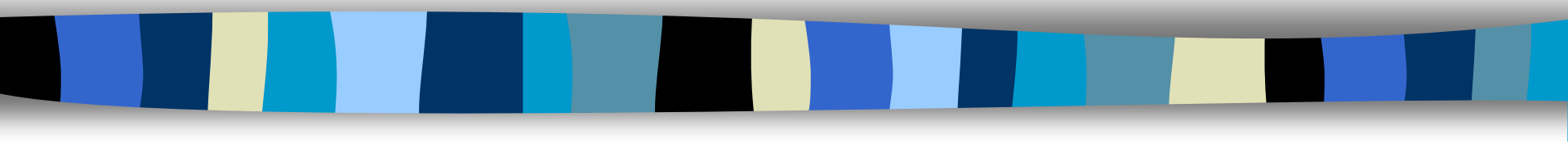
Lecture 7



Introduction to SQL - 1

Saturday 22,2001

Introduction

- Official Name
  - International Standard Database Language SQL
- Sub Languages
  - Data Definition Language
    - Create
    - Alter
    - Drop
  - Data Manipulation Language
    - Select
    - Insert
    - Update
    - Delete

Select Statement

- Syntax

  SELECT [DISTINCT]{* |*column*[*alias*][,..] | *groupfunc(column)*[,..]}
  FROM *table*[,..]
  [WHERE *condition(s)*]
  [GROUP BY {*column*[,...] }]
  [HAVING *groupcondition*]
  [ORDER BY {*column* | *expr* | *alias* [,...]} [ASC|DESC]] ;

  – have six main clauses
    - select
    - from
    - where
    - group by
    - having
    - order by

Select Statement

- SELECT clause
  - used to specify the names of columns to display in output
  - ***** means all columns in the table are selected
  - an alias can be asssigned to a column name as:

    name* [*AS*] *employeename
  - column can be a computed column as:

    sal * 1.5
  - table name can also be used with column names to clarify:

    emp.ename

Select Statement

- FROM clause
  - used to specify the names of tables from which rows to be selected
  - an alias can be used for a table as:

    emp e, dept d
  - another select statement can also be placed in this clause

Select Statement

- WHERE clause
  - used to specify the condition to restrict the rows selected
  - a condition given in this clause has three parts:
    - column name
    - comparison operator
    - column name, constant, or list of values
  - more than one conditions can be joined using AND, OR and NOT operators
  - a subquery can be used after comparison operator
  - using subqueries, be careful about the records returned by the subquery
    - single row comparison operators can only be used with single row subqueries. (> , < , >= , <= , <> , =)
    - for multiple row subqueries always use multiple row comparison operaors. (IN , ANY , ALL)

Select Statement

- GROUP BY clause
  - used to divide rows in a table into groups
  - if you include a group function in SELECT caluse then you cannot include extra columns in SELECT clause unless you specify all such columns in GROUP BY clause
  - column alias can’t be used with GROUP BY clause
  - WHERE clause can be used to exclude rows which are not needed to be grouped

Select Statement

- HAVING clause
  - WHERE clause can’t be used to restrict groups i.e., group functions can’t be used in WHERE clause
  - used to restrict groups normally using group functions
  - you can use subqueries in this clause
  - using subqueries, be careful about the records returned by the subquery
    - single row comparison operators can only be used with single row subqueries. (> , < , >= , <= , <> , =)
    - for multiple row subqueries always use multiple row comparison operaors. (IN , ANY , ALL)

Select Statement

- ORDER BY clause
  - used to order/sort the rows returned by the select statement
  - an alias or expresssion can be used for sorting purpose

    employeename

    sal * 1.5
  - default sort order is ascending

Select Statement

- Some rules
  - sub query is executed in first and then its result is applied to the location where it is used to each row returned by the main query
  - first of all WHERE clause is executed to restrict the rows
  - secondly groups are identified if there is a GROUP BY clause
  - then groups are restricted if there is a HAVING clause
  - you can’t use ORDER BY clause in sub queries