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Week 3: Assignment 1

Instructions

Answer the following questions regarding the major topics covered in Chapters 7 and 8 in your textbook. This is also useful in preparing for the Midterm Exam this week.

1. What are aggregate functions?

An SQL aggregate function calculates a set of values and returns a single value. For example, the average function ( AVG) takes a list of values and returns the average.

1. What are subqueries?

A subquery is where one or more of the WHERE conditions of a SELECT are other SELECT statements. Subqueries are somewhat more difficult to understand than single SELECT statement queries, but they are very useful and open a whole new area of data-selection criteria.

1. Define the different types of joins:
   1. Union join The UNION operator is used to combine the result-set of two or more SELECT statements.
   2. Self-join is a regular join, but the table is joined with itself.
   3. Outer join will combine the selected columns from the two joined row sets for every combination of rows that satisfy the join predicate and will add the rows that are not having match the specified join side.
2. What is a data type?

A data type, in programming, is a classification that specifies which type of value a variable has and what type of mathematical, relational, or logical operations can be applied to it without causing an error.

1. Define the following data types:
   1. Boolean represents logical values, (TRUE OR FALSE)
   2. Character is probably the most widely used in any database. There are three-character type variants, used to represent the following string variations: single character, fixed-length character strings, and variable-length character strings.
   3. Numbers are slightly more complex than those we have met so far, but they are not particularly difficult to understand. There are two distinct types of numbers that we can store in the database: integers and floating-point numbers. These subdivide again, with a special subtype of integer, the serial type (which we have already used to create unique values in a table), and different sizes of integers, floating-point numbers also subdivide, into those offering general-purpose floating-point values and fixed-precision numbers,
   4. Temporal stores time-related information, there are a range of types relating to date and time, timestamp that stores a date and time combined, interval, and timestamptz a PostgreSQL extension that stores a timestamp and time zone information.
2. What is a view?

In SQL, a view is a virtual table based on the result-set of an SQL statement.

A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database. You can add SQL statements and functions to a view and present the data as if the data were coming from one single table. A view is created with the CREATE VIEW statement.