CIST 1220 –SQL – TEST #2 Clifton Davis 5/1/13

1. The 3 major types of SQL statements are:

Data manipulation performs operations that retrieves data and modify data by adding, removing or changing it.

Data Definition performs operations, such as creating or removing objects like tables, indexes and views.

Data Control allows you to coordinate the use of the database, maintain it in its most efficient state, and control access to data by using the GRANT command.

The 4 primary Data Manipulation statements are:

Select is a command that only pull information from the database.

Insert is a command that add data to the database by adding new rows to the table.

Update is a command that changes existing rows of data. It can change values in single rows, groups of rows, or all the rows in a table.

Delete is a command that removes rows from the database.

1. The different options you have for the “Where” clause are the Comparison operators (=,>,<,>=,<=,<>), Combinations or logical negation of condition (AND, OR, NOT), Ranges (BETWEEN AND NOT BETWEEN), Lists (IN, NOT IN), Unknown values (IS NULL AND IS NOT NULL), and Character matches (LIKE AND NOT LIKE).
2. Order by sorts the results in a particular way, such as: descending or ascending.

Group by divides tables into sets of rows, but it doesn’t necessarily put the sets in any particular order, such as: Grouping by department.

1. Indexing is a mechanism for locating data. Order by is a means of sorting data. Queries that uses an Index for presorted data improves the performance, efficiency, and ease of use by changing the method by which the system locates physical data.
2. Data Integrity is the accuracy and consistency of the data in the database.

Data Constraints within a database system should be able to guarantee that a value being entered is the correct data type and that it is within the range of values supported by the System. The constraints check data values being entered and reject the value if it is wrong for the specified data type. Some Constraints rejects data entries that exceed the maximum length for the data type, others truncate the entered value to fit.

1. A Join uses the primary key from one table to logically connect to the related foreign key of another table. The keys are joined base on the expectation that the foreign keys will be kept consistent with their primary keys in order to preserve the referential integrity of the database. Joins allows you to pull information from both tables.

The Cartesian Product is all the possible combinations of rows from each of the tables.

1. For the two, the similarities for joins and subqueries can be used for multitable queries. One difference is within a multitable query using a join you need multitable statements to get the same information, than if you use a subquery you would only use one statement for the same results. Another advantage of a subquery is its ability to calculate an aggregate value and feed it back to the outer query for comparison. Joins cannot do a comparison and that is a disadvantage. One advantage with a join is it gives more options to display results from both tables, which is not possible with the subquery.
2. A transaction is a mechanism for ensuring that a set of actions is treated as a single unit of work. A transaction guarantees that all the operations within a set are completed or none of them are completed. The syntax varies from system to system, but transaction commands usually contain keywords such as BEGIN, COMMIT, AND ROLLBACK.
3. A Transaction Log is a record of all transactions the system made for a given period of time. If there is a media failure, the Transaction Log is use to recover any of the changes that have been made up to the last transaction completed.
4. Triggers and Stored Procedures are named collections of SQL code create to handle more complex problems. Triggers and Stored Procedures are set off by specific SQL operations, such as an update, insert, or a delete. Triggers can make a data base better and deal with data integrity issues by enforcing complex restrictions , checking constraints, or referencing constraints. Triggers can also be used to recalculate ongoing tallies.