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Lab 2

1.) Super Key: Is a set of columns that makes every row/tuple unique
Candidate Key: Is a minimum set of columns that make a row/tuple unique
Primary Key: Is a column that makes every row/tuple unique
A candidate key has less columns that make a row unique compared to a super key, and a primary key is only one column that makes a row unique.

2.) A table or tuple in a database can have multiple data types. These data types consist of Booleans (true or false), Strings, and Numbers. The String data type accepts character strings, such as, letters, words, and numbers, and can be defined as CHARACTER or VARCHAR. Both declarations can and should define how many characters can be placed in these data fields. The Numbers data types accept only numeric values and is defined by: INTEGER or INT, DECIMAL, or DEC, or NUMERIC, REAL, and FLOAT. The INT data type only accepts numeric values that do not include decimal points. If a number has a decimal point the numbers after the decimal will be truncated. The DEC allows for decimal numbers to be added to the table of a specified length. If the length of the decimal is exceeded the numbers after the allowed length are truncated. The REAL and FLOAT data types both allow for approximate numbers to be entered up to a precision of 64, however, FLOAT can limit the precision. If the number precision exceeds 64 an error is thrown.

   A table can be made for a scheduling application. In this application the table fields would consist of: a customer ID number (cid), customer name (name), email address (email), phone number (number), date of appointment (date), and time of appointment (time). The customer ID number will be a VARCHAR data type, this is because cid will be used as the primary key and will be created automatically. The customer name will also be VARCHAR because this will be the formal way to identify a customer and cannot be nullified. Email will be a CHARACTER data type and is requested, but can be nullified. The phone number will be an INTEGER with a range between 1 and 15 this way the data cannot be nullified. Date will be a DATE data type and will not be nullified. Lastly, the appointment time will be a TIME data type and will not be able to be nullified either.

3.) First Normal Form Rule: Every component of every tuple/row is an atomic value and all of its keys must be defined. This is important because it provides a means to organize a database. For example, if a database has one table for all of its rows it will take a lot longer to query a specific row verses if the row is in a specific table that describes the rows contents.

Access Rows by Content Only: This means that a user can only access rows through what describes that row usually by the table that contains said row. For example, a DBA would not be able to query a specific row number because there maybe rows in multiple tables that have the same row number, instead he/she would be able to access said row through a specific table that best describes what he/she is looking for.

All Rows Must be Unique: This means there must be a primary key that is unique for each row. This primary key allows for a user to get data from that specific row easily. For example, if a DBA wants to look up a user that has the same name as another user he will have to identify them through another means such as a customer ID.