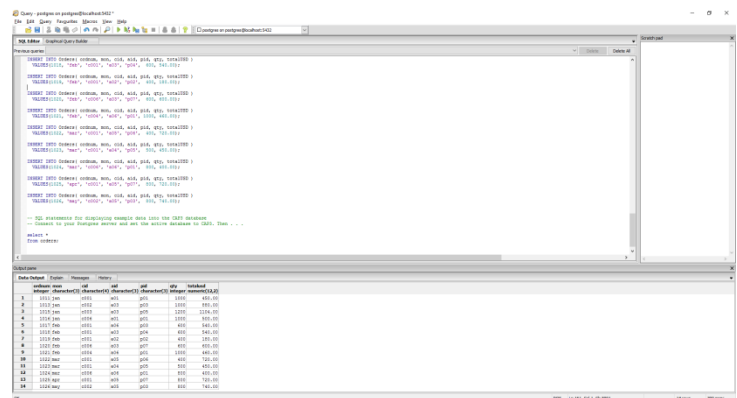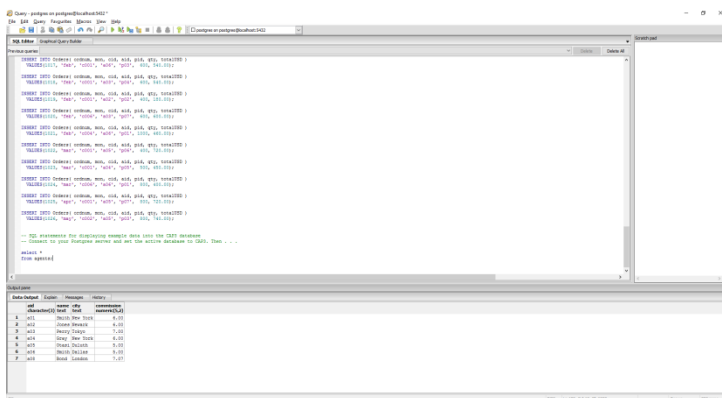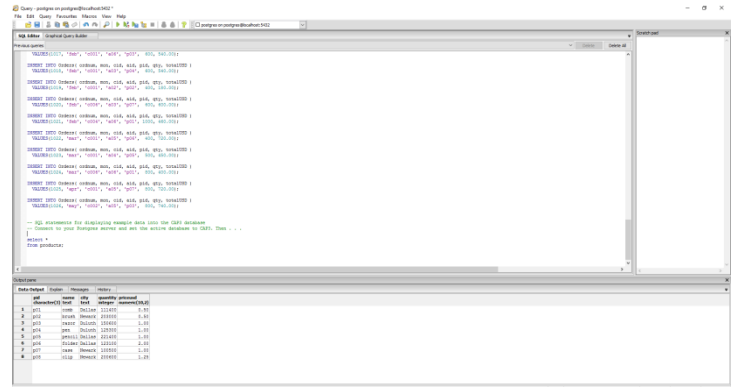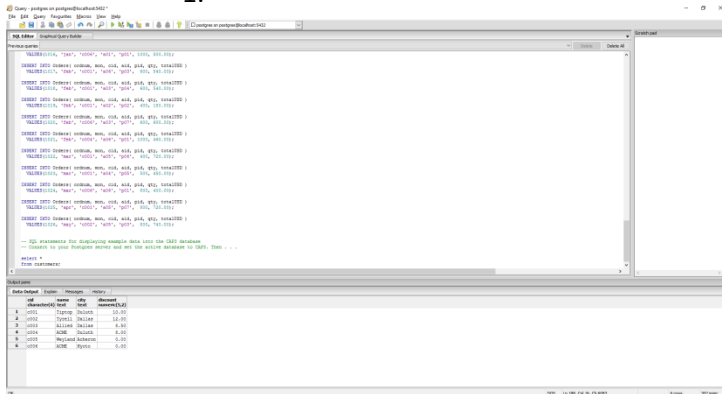Matthew Rahtelli

Professor Labouseur

Database Systems

2 February 2016

Lab 2

1.

2. A *Primary Key* is a unique identifier for a record. This could be a specific value such as a phone number or a VIN (Vehicle Identification Number). Each database can have only one primary key. A candidate key is another identifier, except this key identifies a column or multiple columns that qualify as a unique key. A *Candidate Key* can be a Primary Key, but again, there can only be one primary key. A *Superkey* is an identifier of a combination of fields, but better defined as a non-minimal candidate key. Super keys can identify all other attributes uniquely.

3. There are only a few data types that exist in databases. There is a Boolean which is a true false statement. There is an integer which is a whole number. There is a float which is also a number but could have decimals. There is currency which is numbers in the form of money or dollar amount. There are strings which are fixed and variable. Lastly, there is a binary data type which is data length in a certain amount of bytes. You can create a table based on a student's academic records. The name of the table will be StudentRecords. The columns or field names

will be CWID, Name, Grade, Major, GPA, and Graduate. CWID, Grade, Major, and Graduate all would not be null because something would always be filled in the field. A GPA could be nullable because if they are a freshman or transfer, they might not have a GPA.

4. a.) The "first normal form" rule is that you must define all of the data items. You have to organize the data into columns, describing or defining what each of the columns are, and organizing all of the related columns into a table. An example is if you just put a number in a column where it defines weight of an object, you must define what units the object's weight is in.

b.) The second rule of "access rows by content only" means that you cannot query a specific row because they do not have any order. Thus, for users queries, you must specify what data exactly you are trying to access. For example, you cannot query you are looking for the data in row 3. Instead, you must say you are looking for the data with the value "1019".

c.) The "all rows must be unique" rule defines that you cannot have repeated primary keys. This is to guarantee accessibility within the database. A primary key is a unique identifier, and if you duplicate the primary key, it forfeits that definition of "unique". For example, if I had a primary key with the name of StudentID that was defined as a number such as "20045315" and another primary key with the name of StudentID that was defined as my name, they are two different values with the same primary key name. No uniqueness.