Database Systems

Juan S. Vasquez

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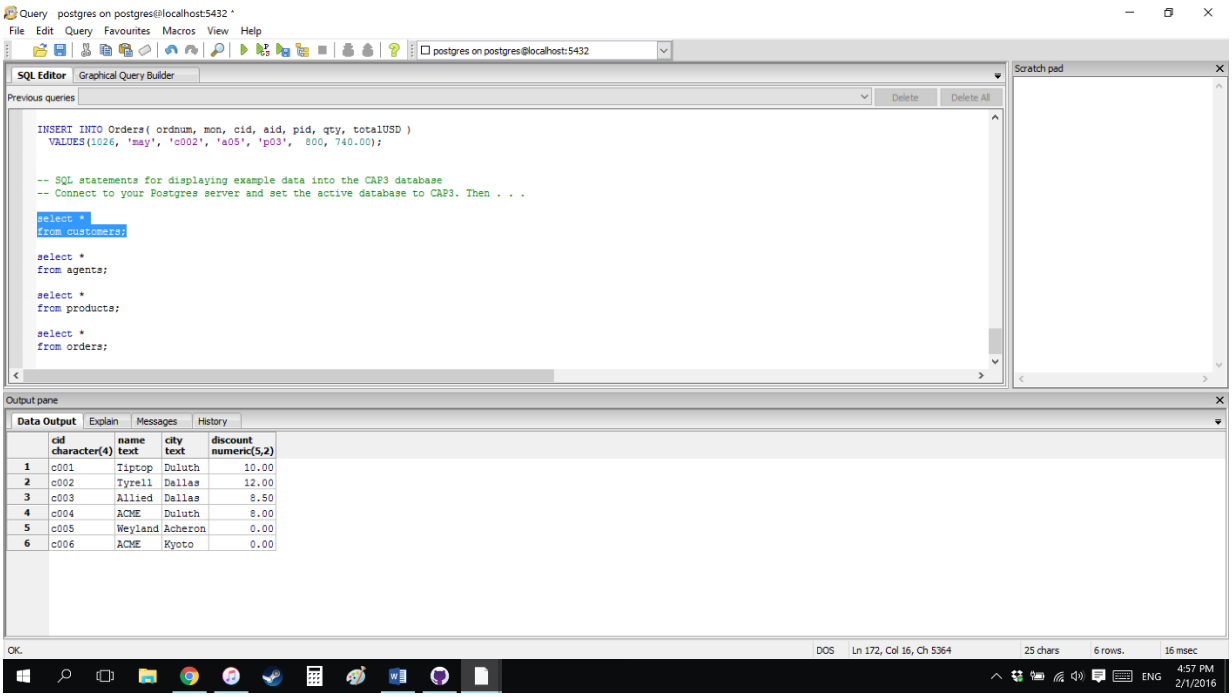
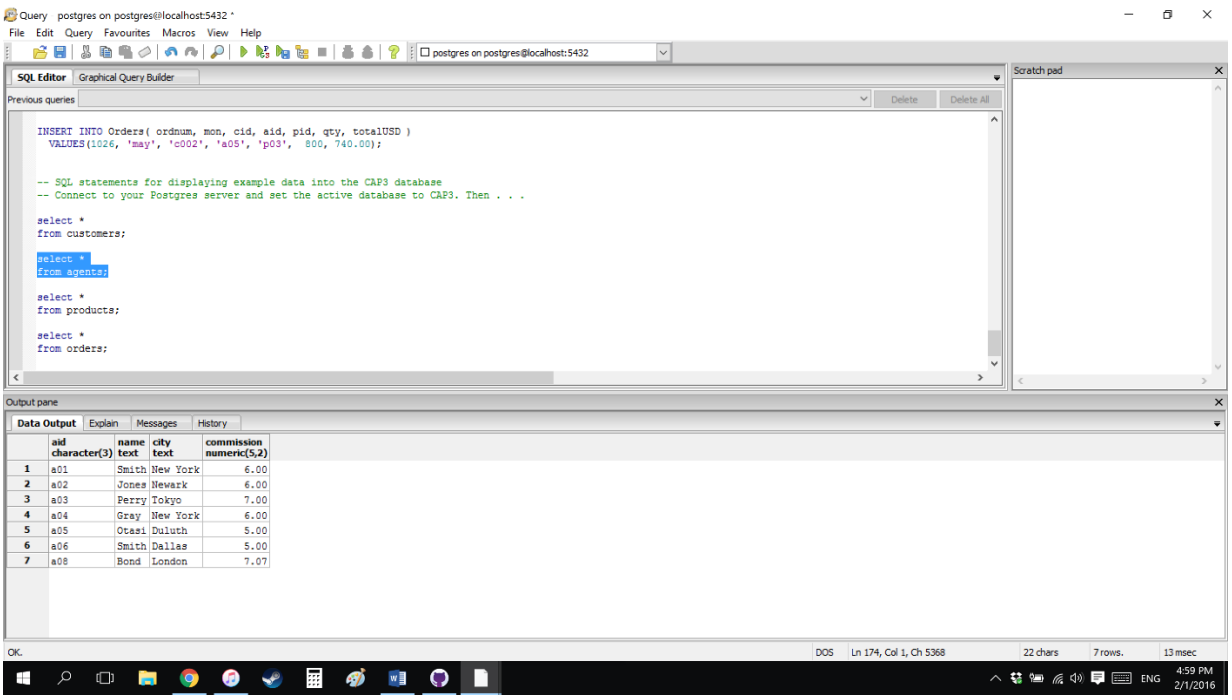
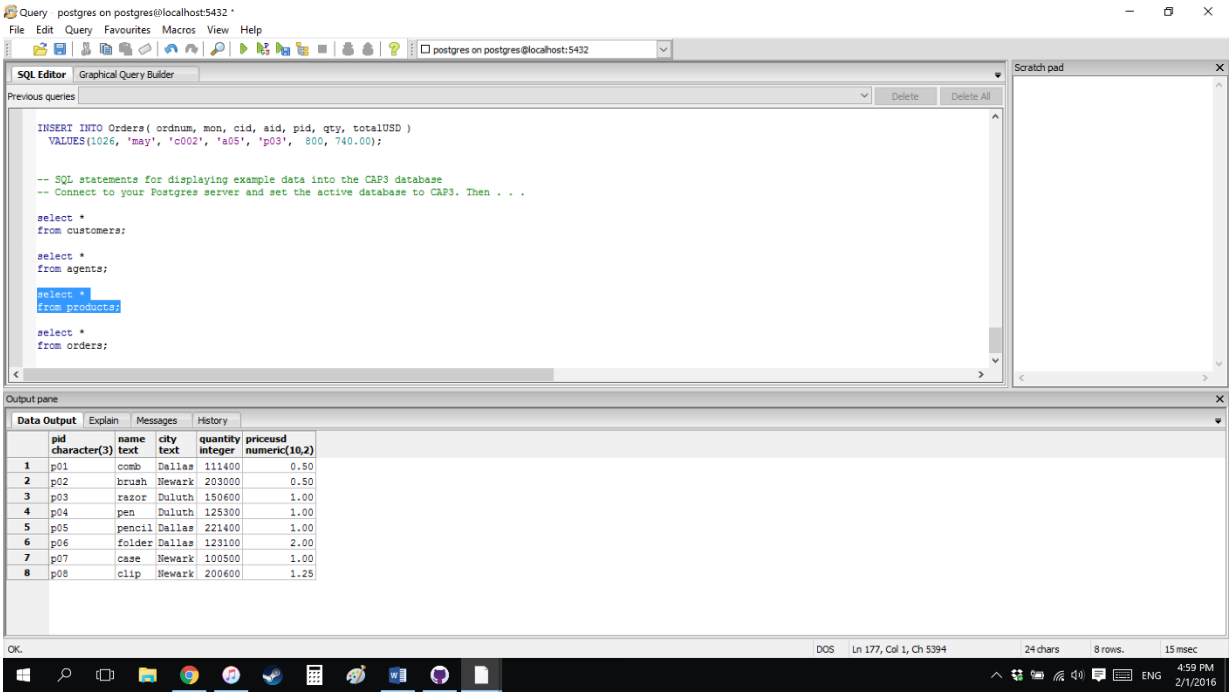
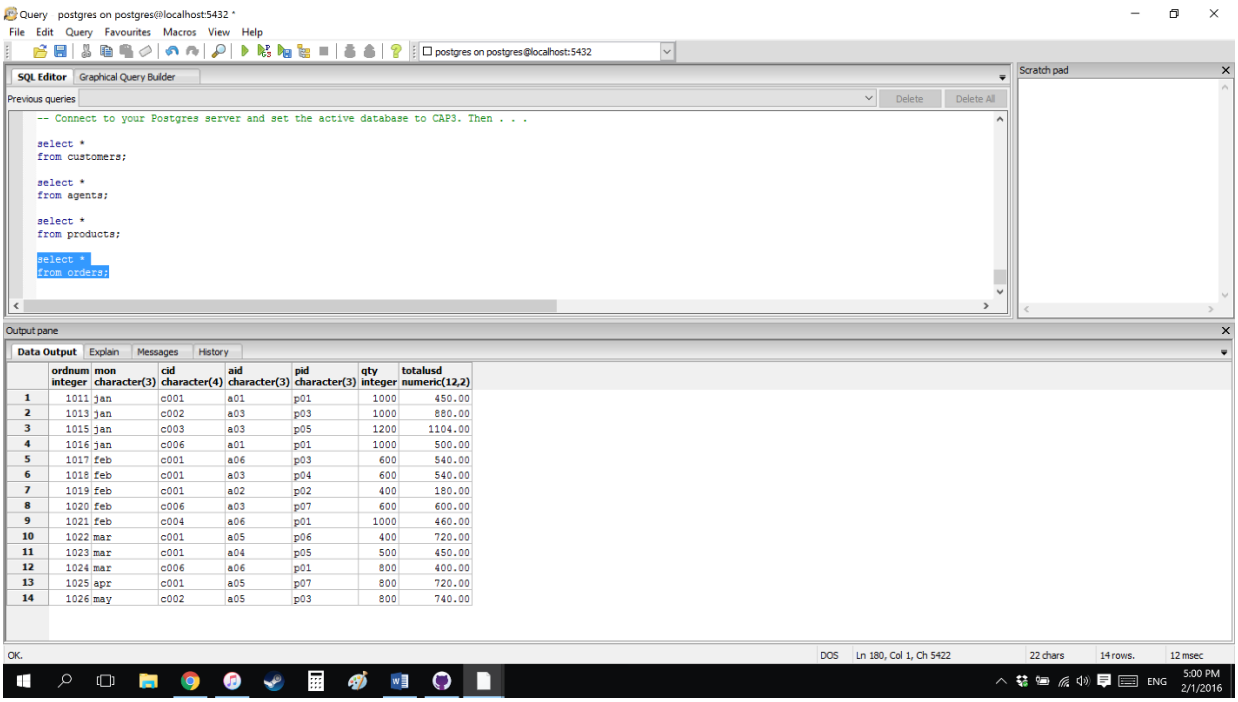
Lab 2: CAP database

1. Screenshots of pgAdmin.









2. Distinctions between ‘keys’.

Superkeys are a column or a set of columns that uniquely ID every row. Candidate keys are minimal superkeys (fewest number of columns needed to uniquely identify a row), and primary keys are candidate keys that you choose to make primary, and will match foreign keys in other tables.

3. Data Types

A topic one might create a table for could be a music library. The table could be named MusicLibrary and have the fields SongName, TrackNumber, Album, Genre, Artists, and Year. The fields SongName, Album, Genre, and Artists would all use the text data-type. Only SongName and Artist would not be nullable. TrackNumber and Year would be the integer data types and both would be nullable.

4. Relational Rules

The “first normal form” rule is written as such to ensure that all column/row intersects are atomic. Columns with internal structure or multi-value attributes are not allowed because they can be split. This is important because each column is meant to communicate precise data and remove all ambiguity. Having single-value attributes achieves this. The “access rows by content only” rule is written to ensure that rows are not retrieved based on their location but on their content, because row order is not static and will probably change. The “all rows must be unique” rule is written to prevent duplicate entries in the table. One field should be different (at least in the primary key attribute) in order to make a row unique.