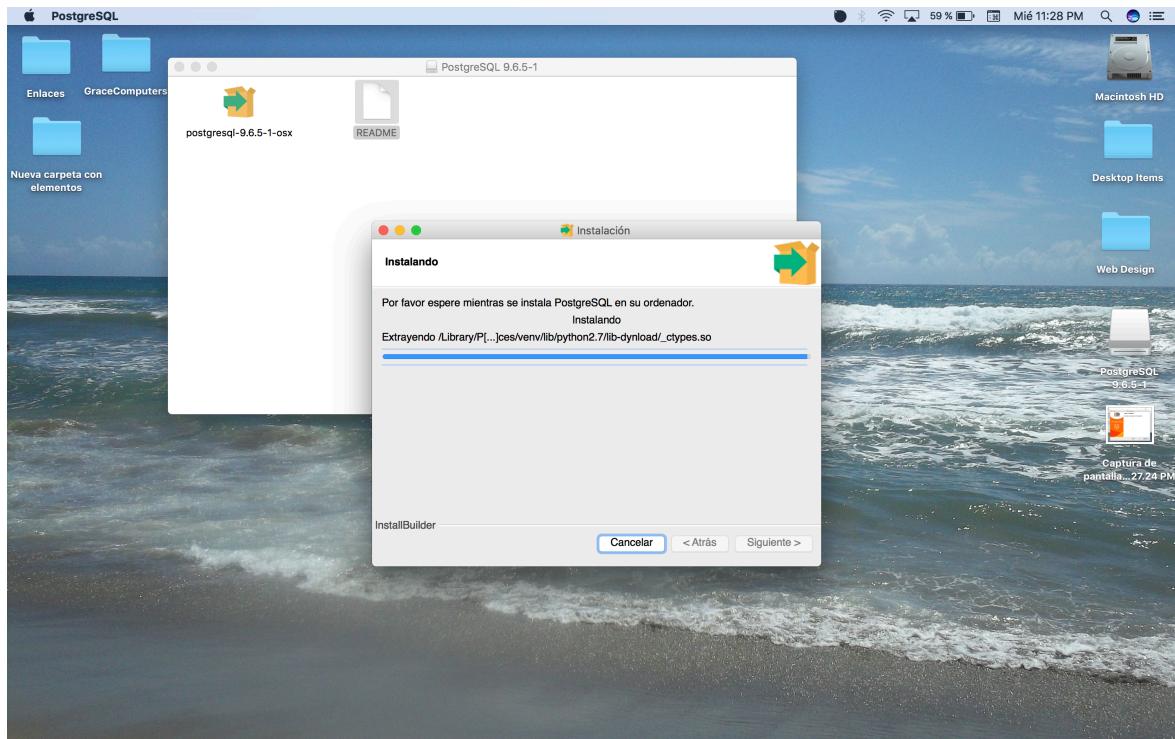
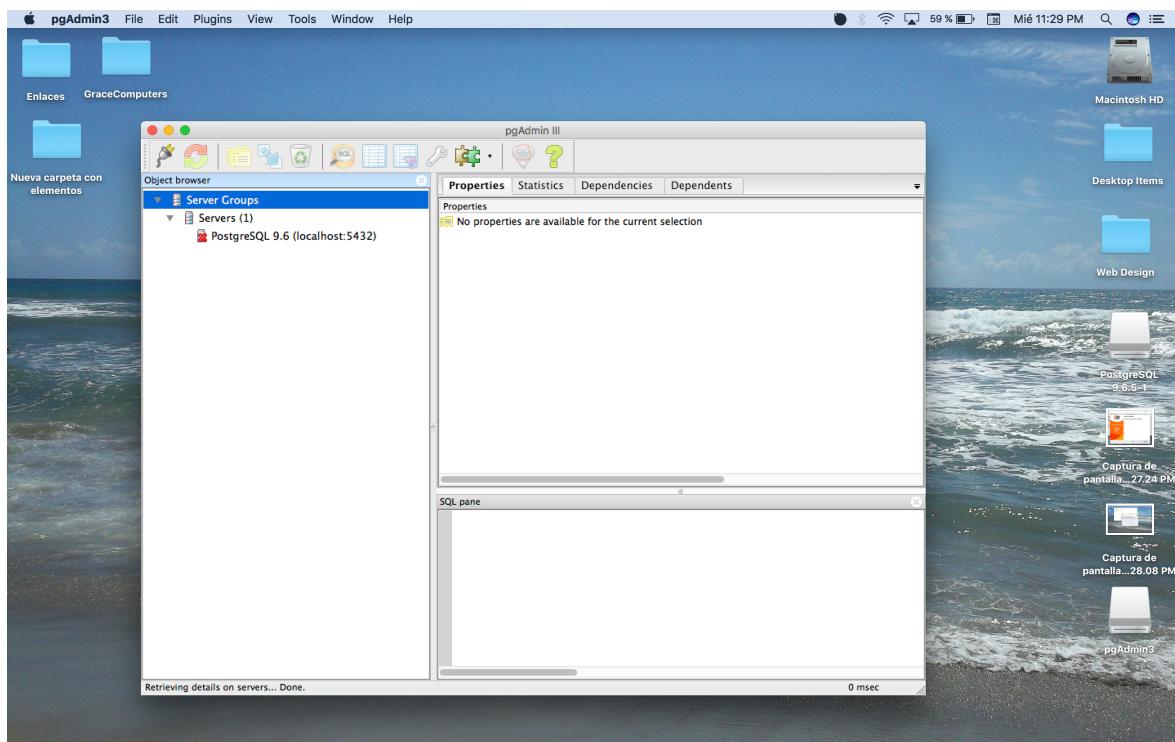


Lab One: Setting up PostgreSQL

Installing PostgreSQL:



Using pgAdmin3 (it's clearly on my computer b/c the OS is in Spanish)



Lab One: Setting up PostgreSQL

Short Essay: Data v. Information

Select a database in use today (real or imagined) and identify the elements of “data” stored therein and describe how the database organizes the “data” into “information”. Give contrasting examples of “data” and “information” that illustrate the meaninglessness of “data” without context and organization. Talk about the value the “information” provides once the component data is given context.

Databases, though they have existed in varying formats for centuries, have quickly become an unreplaceable tool in many aspects of daily life. Retail, for instance, employs databases as an integral part of managing information in relation to its products to analyze data trends and make predictions for the future. For instance, a store might prefer to organize its products by type, size, color, price, SKU code, and season to be sold. The values being assigned to these labels are referred to as *data* and are practically meaningless. If you had, for instance, a product with the values “001392, 18.00, XL, and ‘spring’” it’d be difficult to understand what the values mean without provided context. It is not until after they are labeled as SKU: 001392, Price: \$18.00 USD, Size: XL, and Season: Spring” that they become *information*. Once a database becomes full of information, it becomes possible to identify trends, make predictions, and prepare for the future. Accordingly, a store might notice a certain product isn’t selling as well and they might reduce their stock of that item. Or, perhaps, the opposite might occur and it might begin producing more variations of similar, popular products. These predictions are crucial for business to stay afloat and remain competitive.

Short Essay: Data Models

Briefly describe the hierarchical and network pre- relational data models. Explain their shortcomings in relation to the relational model. Considering this, what do you think of XML as a model for data storage?

As databases continue to have importance in our daily lives, it becomes important to continue thinking of more efficient ways of organizing and representing the information they contain. Accordingly, quite a few data models have been designed. One such model is known as the hierarchical model, which is quite like the way documents are stored in folders on a computer. When the model is complete, the information appears to be linked in a way resembling a tree. However, while this permits an object to contain many child objects, it does not allow an object to have more than one parent object.

This is what the network data model seeks to resolve. In fact, network models address the need for this many-to-many relationship, allowing objects to have many parent objects, allowing for data to become increasingly related. However, it can quickly become confusing for the user to truly understand the network data model and to maintain it so it remains normalized as larger amounts of data are considered.

Lab One: Setting up PostgreSQL

The newer, relational data model aims to remedy this and make it easier to organize and display information by employing the use of tables. Their columns and rows, referred to as attributes and tuples respectively, organize the data. The data in these tables become linked by primary and foreign keys, which refer the user to different tables containing additional information about a certain record. In this way, the user is required to change only one of the records to affect all related tables within the entire database. Additionally, because no record may contain the exact same tuples, redundancy is avoided.

Since XML is a hierarchical data model, its use for data storage might be acceptable for smaller-scaled groups of data, even if objects must be assigned multiple tags. However, it is clearly more efficient to use a relational database model when dealing with larger amounts of data where it might be difficult to maintain a normalized database.