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Database management: Lab 1

1. Data Vs. Information-

Data and Information are two terms which can be easily confused. The reason that these two terms are often misinterpreted is because they are, in many respects, very similar when taken at face value. The difference between these two terms, however, is incredibly important; it can in fact be boiled down to one word: organization. This difference is seemingly small, but in reality, it changes everything. Suppose a database existed in which there was no organization. This imaginary database contains the following data points: 'blue', 'blue', '123675342974', 'focus', 'camry', 'Honda', 765536773923, 'red', 'Ford', '194573652357', 'Pilot', 'Chevrolet'. A person of average intelligence might be able to surmise that these data points seem to be attributes to cars, however, if that person was asked what the serial number of the Honda vehicle was, they would not be able to tell you. This data is useless without organization. For this reason, modern databases are arranged in tables, with specifically defined rows and columns. In the afore-mentioned hypothetical database, there would likely be three rows, designated to Car 1, Car 2, and Car 3, as well as columns which would likely be designated as Make, Model, Color, and Serial Number. When the information is organized in such a way, the data can be retrieved by simply finding the correct row and column. This is what makes information so much more versatile than data. It's the difference between seeing a number and having no idea what it means, because there is no context, and seeing a number, and knowing that it is the serial number of a blue Honda Pilot.

2. Data Models-

The hierarchal database model consists of information contained within categories and sub-categories. This data model is rather basic, and can be used to categorize many things. For example if you mapped in this database, two cabinets with three shelves each, each shelf containing different DVD's. Then to find the DVD you want, you would have to first determine which cabinet contains the DVD, which shelf it is on in that cabinet, and finally, which DVD you want. The Network Database, on the other hand, is quite similar, however, it cannot be described as hierarchal because data can be shared within sublevels, that is to say, in relation to the previous example, that both cabinets may contain copies of the same movie. This model accounts for that by creating one data point for that movie, rather than two. While both these models are useful, they are not as versatile as the relational model, which uses a system of tables to hold its data. This model makes it much easier to work with due to its system of primary, and secondary keys. It makes it much easier to locate, and retrieve data, as well as makes the applications of the relational model much broader. In addition to the Relational Model, there is the XML model, which has uses, however when compared to the Relational model, the uses of the XML model are far more restricted, and are better suited for specific instances of data, generally those that are not put into the relational form.

