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Data Base Systems

Lab #1

2) Information and Data

One of the most popular and well-known forms of a database is a library. Libraries are organized in such a manner that allows library goers to easily find any book title/selection they desire. Using a general Library for this example we know that the elements of “data” include all the books, catalogs, and other types of informational material. The “information” element in the Library example would be how exactly all of these books are organized. Using the James Cannavino library as an example we can see that the books are organized by many different methods. These methods include ordering alphabetically, by title, by author, by genre, and I could go on. The books are organized this way because that way they can be found more easily by said library goer. A library would be a useless if its contents weren’t organized, it would simply be a collection of shelves filled with books that are randomly thrown around with no sense to their locations. We can identify the information and data elements of a library by looking into their definitions.

Data by definition is facts or figures with or without meaning but can be recorded. By contrast, Information by definition is data with context and meaning. Using these definitions we can determine the necessity of data and information in a library. As mentioned before, if a library was not organized it would simply be a maze of books and useless for library goers. We can conclude that having data and information as separate elements helps identify overlooked factors in a library. Overall having data structured and organized is vital in order to have context and make a library useful, and it will eventually turn into information.

3) Data Models

The pre relational hierarchal data model has a simple structure that starts out with one main node and then trickles down via other less significant nodes. These nodes contain attributes that if shared with other nodes, then they branch down to the similar node, and this process gets repeated until the process is complete. Next we have the Network model, which is similar in ways to the pre relational but it actually cleverer in its design. The Network model is cleverer because when nodes share an attribute, instead of repeating the attribute, it simply connects to the parent nodes. The relational model is ultimately the best model because it significantly improves both models because it takes each main node and lists all its attributes. It will list the attributes and them connects them via branches. If one of the side branches has three prongs, then it is contained inside of the node that it is attached to. This ultimately condenses the nodes and makes them easier to understand. With this all being said, I think XML as a decent model for data storage because it has characteristics of the relational model and the pre relational model. It is hierarchical and does ordering but not as detailed as the relational model.