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Database Systems

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1/20/17

Lab 1 Short Essays

The National Basketball League (NBA) uses a database in order to keep track of all the stats that take place during their games. The elements of data stored consist of the NBA players names; along with their points, assists, rebounds, steals, and all other stats registered throughout the game they played in. Data is raw, unorganized facts that need to be processed. Information is when data is processed, organized, structured or presented in a given context in order to make it useful. From the NBA database example, each player's points are one piece of data. An example of information in this scenario would be the average points scored from a player throughout the entire season. This information is derived from the given data of a player. Another example of data and information is the player's points scored are one piece of data. The average score of the entire team can be derived from the data, this being the information. Information provides context for data. A list of numbers is meaningless without the information that makes those numbers relevant. If the points scored were listed in a column it would be nothing but a list of numbers. Until you add the information such as the player's name, team they play for, specific date that the points were scored, and so on, the data we have is unusable.

The hierarchical database model uses a tree structure to organize data. This model uses a one-to-many relationship for its data elements. This model was not able to self-

document but was much faster than other database models during the time of its discovery. The network database model allows multiple records to be linked to the same owner file. The model uses a many-to-many relationship because one owner file can be linked to many members' files and vice versa. This model solved the issue of duplication and physical data independence. The problem with these early models and systems was that they did not support high-level query languages. There was considerable effort needed to write such programs, even for very simple queries. Ted Codd proposed that database systems should present the user with a view of data organized as tables called relations. In the relational model queries could be expressed in a very high-level language, which greatly increased the efficiency of database programmers. The XML model and relation model are compared in the first chapter of our textbook. In the examples given both show the proper information, although the relational model is much more appealing to the eye compared to the XML model. I would much rather have my data stored within a relation model because of the appearance.