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Data Models Essay

Database Management

The hierarchical data model organizes data in a tree structure using parent/child data segments. The model mandates each child record corresponds to only one parent record, but one parent record can have multiple child records. In the hierarchical model in order to retrieve one piece of data the you would have to go through the entire tree structure. The hierarchical model was a simple model, but it was an inflexible one as the relationships were confined to a one-to-many model. The network data model was an improved version of the hierarchical model. The network model utilized the tree structure in which to organize their data, however it wasn't limited to the one-to-many relationship. The network model utilizes the many-to-many relationship model allowing more flexibility than the hierarchical model. The network data model allowed for more than one path from the parent to the child. The network model retrieves data more efficiently than the hierarchical model. Instead of starting at the beginning of the tree it follows the relational paths with the segments of data involved.

The relational model in comparison to the hierarchical model is that the relational model is much more flexible. In the relational database it allows for a user to reconstruct the hierarchies. This is possible within the hierarchical model however the effort of adding, deleting, or altering data is just too much. The network model suffers from the same shortcomings as the hierarchical model, while the network model may be more flexible it still not as flexible as the relational model.

