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Database Management

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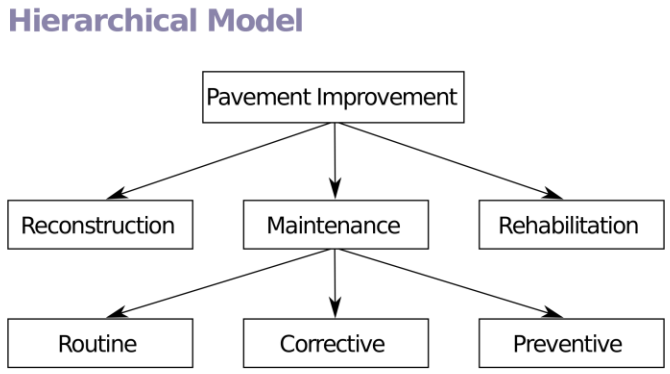
Data Models

The *hierarchical database model* is a data model in which data is organized and stored in a tree-like structure. All data is stored as records and are linked to one another by links. For the sake of comparisons, a record in the hierarchical data model is like a row in the relational database model. These records are groups of fields with each field containing only one value. Throughout this tree-like structure, there are child and parent records. The hierarchical database model mandates that a child record can only have one parent (just like leaf nodes in a tree) but a parent record can have one or more child (again… just like a node in a tree). Being that the hierarchical database model implements this parent/child relationship, the performance of this database model is very fast. Although the hierarchical database model is fast, there is a huge disadvantage that this model has – its rigid structure. If you wanted to add a field to a table, the database management system would need to create a new table for the records. In short, if you wanted to create a new relationship, you would have to build a new database structure which increases the chances of redundancy.



The *Network pre-relational data model* is very similar to the hierarchical database model, but unlike the hierarchical that mandates that children records may only have one parent, the Network pre-relational data model allows children to have more than one parent.

This again allows the performance of this data model to be very fast, but the rigid structure is still the huge disadvantage until Codd's relational database model came along.