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Database Design for GIS: II. Implementation and Examples.

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The physical design of a database involves the evaluation of implementation alternatives using the data model of the target Database Management System (DBMS). The results of the conceptual design of a soil database were mapped to the relational data model. The resulting database is free from update anomalies (i.e., each elementary fact can be updated independently of other elementary facts), while preserving all dependencies among attributes. The database was implemented using a microcomputer-based DBMS, and loaded with data provided by the Soil Conservation Service (Forms 5 and 6). This database will provide information for soil erosion and soil management studies, and land appraisal for tax assessment, at county level. To facilitate data retrieval, pre-defined queries have been developed to retrieve data based on various combinations of attributes. The results of queries can be presented as formatted reports, and linked to the cartographic database of a geographic information system.