

# Evolution and Adaptability in Scientific Databases

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Adaptability is defined as the ability of a system to adjust itself and function normally in an unpredictable and changing environment. Only those systems which are capable of evolution are said to be adaptable. Biological systems are the most obvious example of systems capable of evolution and, therefore, are adaptable. Concepts of evolution in databases are well defined. In databases, evolution can take place at tuple level or schema level or both. However, there has been no serious attempt to define the concepts of adaptability in databases. The nature and concepts of evolution in scientific databases, which represents a separate class of databases, are different than in common databases. This difference is due to the fact that scientific databases have dramatically different characteristics than general purpose traditional databases. Generally, scientific databases are large in volume, complex in nature and represents multitude of information from different scientific disciplines. Therefore, the concepts of evolution and hence, adaptability needs to be redefined. In this paper, an attempt has been made to develop a formal methodology to categorize evolution in databases in general and in scientific databases in particular. An attempt has also been made to prepare a frame work and establish a relationship between scientific databases and adaptability.