

Data vs. Information

Information is composed of data, but data by itself is meaningless. Data can be just numbers, and without a context, it does not provide any useful information. When scientists conduct research, they gather a lot of data in order to use it within their context or field of study, to turn it into useful information. If a biologist wants to find out how enzymes behave depending on temperature changes, he or she will conduct research with pH level, and the concentration of the enzyme as controlled variables, enzyme activity as a dependent variable, and temperature as an independent variable. However, if the scientist does not specify which temperature scale he or she used in the research, then the work will not make any sense and will be completely useless. Even by having the international measurement system, it is important to indicate which units are used in any research or findings, in my country we consider Kelvin as being the most accurate and useful scale; however, in the U.S. Celsius is considered to be suitable for science purposes. If the scientist does indicate the exact scale he or she used, then other people can repeat the experiment and use it for further findings.

Units, however, is not the only context that is important. In the enzyme research it is important to specify which variables are controlled, independent, and dependent ones, because enzymes behave differently. This type of context is just as important and useful as units. Different types of enzymes have different optimal temperature levels as well as other factors, so specifying the type of enzymes is very relevant as well.

Overall, data by itself is useless and can be dangerous without relevant context. Data is like a tool that helps better describe an activity and draw conclusions. Information is what people need to know first.

Essay 2:

Hierarchical Data Model: is an Information Management System that is abstract and consists of vertices and nodes. It helps people to visualize how data is being stored and arranged. It has consistency and can be used on many different platforms, it works the same way. It has the physical data independence. However, it has no closed cycles or loops, which results in duplicate data.

Network Data Model: is also an Information Management System and is similar to Hierarchical one. It is also abstract, consistent, and has the physical data independence. Network Model, in addition to all the advantages of Hierarchical model, does include loops, thus eliminates the problem of duplicated data.

Both Hierarchical and Network models are a semi structured data, which is the way it is represented in XML. The tags in XML represent the roles of each piece of data. Operating this sort of data model involves following paths to specific elements, and then sub elements. The data in this case is operated at a relatively physical level, which makes it difficult for programmers to work with the data and write a high-level code to extract the data.

Relational Data model, on the contrary, consists of tables with rows and columns. It is a two-dimensional structure that represents relations. The model provides a more efficient access to the data stored as well as an easier way to modify it. There is a limited collection of operations that can be performed using the relational model, which enables programmers to use languages such as SQL to

work with the data. This is a high-level language that can be optimized to work faster and easier for programmers.

pgAdmin:



