INFORMATION MODEL, MODELING AND ITS CHARACTERISTICS, PROPERTIES AND IMPORTANCE

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Annotation:
Currently, modeling is of a general scientific nature and is used in the study of living and inanimate nature, in the sciences of Man and society. The main purpose of scientific models is to explain the sum of information related to the subject of knowledge . Therefore, it would be wrong to see the main purpose and function of the model only as a means of obtaining information about the prototype. Explaining an object using its model means gaining new knowledge about it.

Keywords: model, modeling, physical model, mathematical model, hypertext, links, interactivity, information systems, interconnection, data structure construction.

Introduction

A Model is an artificially created object that replaces some kind of object (modeling object) of the real world and reproduces a limited number of its properties. The concept of a Model denotes fundamental general scientific concepts, while modeling is a way of knowing reality used by different disciplines.

An object of modeling is a broad concept that includes objects, processes and phenomena of living or inanimate nature. The model itself can be a physical or ideal object. The first are called full-scale models, the second is called information models. For example, a building model is a full - scale model of a building, while a drawing of the same building is an information model presented in its graphic form (graphic model).

In experimental scientific research, full-scale models are used that allow you to study the laws of the phenomenon or process being studied. For example, by blowing an aircraft model with airflow in a wind tunnel, the flight process of the

aircraft is simulated. This determines, for example, the loads on the body of the aircraft that occur in real flight.

Information models are used in theoretical studies of modeling objects. Currently, the main means of modeling information are computer technology and Information Technology.

Computer modeling involves the progress of information model realism in computing and the study - calculation experience of the modeling object using this model.

Formalization. The subject of Computer Science includes computer modeling tools and methods. A computer model can only be created on the basis of a well-formalized information model. What is formalization?

Formalization of information about some object is its reflection to a certain extent. You can also say this: formalization is the reduction of content to form. Formulas describing physical processes are formalities of these processes. The radio circuit of an electronic device is the formalization of the operation of this device. Notes written on a sheet of music are the formalization of music, etc.

A formalized information model is a set of certain symbols (symbols) that exist separately from the modeling object and can be transmitted and processed. The implementation of an information model on a computer involves formalizing it to data formats that the computer can "work" with.

But we can talk about the other side of the formalization in relation to the computer. A program in a specific programming language is a formalized image of the data processing process. This does not contradict the above definition of the formalized information model as a character set, since the machine program has a character image. A computer program is a model of human activity in information processing, reduced to a sequence of elementary operations that a computer processor can perform. Therefore, programming on a computer is the formalization of the information processing process. And the computer acts as the official executor of the program.

Modeling is one of the methods of introducing a computer into learning, which provides an active type of educational activity. The benefits of educational computer modeling are associated with the elimination of the formality of knowledge acquisition, the development of research and design skills, as well as the intellectual abilities of students. In addition, the use of computer modeling in the educational process (research of phenomena on the basis of ready-made

models (imitation) and the construction of models (modeling) by the students themselves) makes it possible to increase the intensity of training.

Computer modeling is based on the organization of a computational experience with data presented in the form of databases and knowledge bases, which are information models of the field of Science under study.

Today, information is already seen as the most important substance or tool created by researchers and constantly updated.

It is impossible to model any system without prior formalization.

Information modeling is based on three postulates:

1. Everything consists of elements.

2. Elements have properties (attributes).

3. Elements are connected by relationships.

The object to which these postulates are applied can be represented by a physical or mathematical model and, in particular, its information model. The information model depends on the purpose of its use and partly on the implementation environment.

Based on the previous definitions, the following characteristics of information models were identified:

• by the number of variable values (static and dynamic);

• by the method of characterizing variables (natural and symbolic: formalized and formalized);

• by the method of building variables: graphic, ideographic, graphic, text, algorithmic.

Let's look at the definitions of the simplest concepts of Information Modeling.

An example would be an image of a real object using a certain set of properties that are important for solving a particular information problem (which serves as a context for building an information model). A set of examples with the same properties and subject to the same rules is called an object.

Thus, an object is an abstraction of objects in the real world, united by common features and behavior.

The information model of any real system consists of objects. Each object in the model must be assigned a specific and meaningful name (as well as an identifier that serves as a key to indicate that object and its relationship to other objects of the model). Thus, the designation, name of the object is an elementary procedure for modeling information.

The object represents one typical (but undefined) example of something in the real world and is the simplest information model. Objects represent certain "essences" of real-world objects associated with the problem being solved.

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