Concrete Operation Encyclopedia Article

Concrete Operation

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Concrete Operation

A concrete **operation** is, as the name implies, a type of operation. Generally an operation specifies am **action** on an **object**. A concrete operation is a more refined type of action. As an operation, a concrete operation specifies an action. In doing this task, a concrete operation also invokes what is termed an implementation. An implementation is a definition of how something is constructed or computed. Put another way, a concrete operation specifies an action on an object and provides information as to how the action will be carried out.

A concrete operation enables an abstract specification of an action to be made tangible--the linking of an object to an action--by specifying the conditions necessary for the action to occur. The concrete operation is used in **object-oriented programming** languages, such as **Java** and **C++**.

For example, an abstract concept could be drawing **data**. The action, however, cannot occur, as no information is available as to how the drawing will be accomplished. A concrete operation would provide the instructions or the link to the information necessary to complete the drawing.

Another example of a concrete operation is sending a **message** to a specified recipient. To accomplish this task, the message is linked with a corresponding operation. When the message is accepted, the operation is triggered and the routing of the message to the recipient occurs. The simplest form of a concrete operation is a sequence of messages, each of which is being send to a different recipient.