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Wikipedia Contribution

CS 499: Open Source Software

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I made a contribution to the wiki page on Computer Science at the following link: (https://en.wikipedia.org/wiki/Computer_science#Programming_Paradigms)

My contribution was aimed at introducing visitors to four basic programming paradigms (Object-Oriented, Imperative, Functional, and Procedural). I provided external links for users to learn more about the topics, but I figured a small section on programming paradigms would be a good addition to the computer science page! It appears that my addition has been accepted as of this time (it may be going through review), but below is a screenshot of my addition!

Programming Paradigms

For more detailed information, see: Programming paradigm

Programming languages can be leveraged as tools to accomplish a variety of tasks. Therefore, different programming paradigms exist. A few basic programming paradigms used throughout computer science are:

- Object-Oriented Programming[55]: The aim of this paradigm is to make use of the "Four Pillars" to represent solutions as objects in code.
    1. **Abstraction** - "*abstraction reduces code complexity and at the same time it makes your aesthetically pleasant.*"
    2. **Encapsulation** - "*when you hide your modules internal data and all other implementation details/mechanism from other modules. it is also a way of restricting access to certain properties or component.*"
    3. **Inheritance** - *The base class(the existing class sometimes called as the Parent class) has properties and methods that will be inherited by the sub class(sometimes called a subtype or child class) and it can have additional properties or methods.*"

       In essence, it is "the ability of creating a new class from an existing class."
    4. **Polymorphism** - "*Polymorphism is the ability of an object to change behavior on runtime*"
- Imperative Programming: "In computer science, imperative programming is a programming paradigm that uses statements that change a program's state. In much the same way that the imperative mood in natural languages expresses commands, an imperative program consists of commands for the computer to perform. Imperative programming focuses on describing how a program operates."[56]
- Functional Programming: "In computer science, functional programming is a programming paradigm—a style of building the structure and elements of computer programs—that treats computation as the evaluation of mathematical functions and avoids changing-state and mutable data. It is a declarative programming paradigm, which means programming is done with expressions or declarations instead of statements."[57]
- Procedural Programming: "Procedural programming is a programming paradigm, derived from structured programming, based upon the concept of the procedure call. Procedures, also known as routines, subroutines, or functions (not to be confused with mathematical functions, but similar to those used in functional programming), simply contain a series of computational steps to be carried out."[58]