Homework

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Data 1-A

Algorithms fundamentals

There are six stages of compiling a program

1. *Lexical análisis:*

* Keywords, constants and identifiers are replaced by 'tokens', which are symbolic strings to identify what the elements are.
* Comments and unnecessary spaces are removed.

1. *Symbol table construction:*

* A table stores the names and addresses of all variables, constants and arrays.
* Variables are checked to make sure they have been declared and to determine the data types used.

1. *Syntax análisis*:

* Tokens are checked to see if they match the syntax of the programming language.
* If syntax errors are found, error messages are produced.

1. *Semantic análisis:*

* Variables are checked to make sure they have been correctly declared and contain the correct data type.
* Operations are checked to ensure that they are appropriate for the type of variable being used.

1. *Code generation:*

* Machine code is generated in this stage.

1. *Optimisation:*

* Code optimisation makes the program more efficient so it runs faster and uses fewer resources.

Levels of progamming

*Low-level language:*

The low-level language is a programming language that provides no abstraction from the hardware, and it is represented in 0 or 1 forms, which are the machine instructions. The languages that come under this category are the Machine level language and Assembly language.

One example of this is the binary code

*High-Level Language:*

The high-level language is a programming language that allows a programmer to write the programs which are independent of a particular type of computer. The high-level languages are considered as high-level because they are closer to human languages than machine-level languages.

When writing a program in a high-level language, then the whole attention needs to be paid to the logic of the problem.

A compiler is required to translate a high-level language into a low-level language.

One example of this is c++ and C Sharp

REFERENCES:

<https://www.javatpoint.com/classification-of-programming-languages>