OCR Computer Science GCSE

2.5 – Programming languages and Integrated Development Environments

Flashcards

What is a high-level programming language?

What is a high-level programming language?

A language designed to be easy for humans to read and write (e.g. Python, Java, C#).

What is a low-level language?

What is a low-level language?

A language that is, or is close to, machine code, like assembly language.

Give two advantages of high-level languages.

Give two advantages of high-level languages.

Easier to write, read, and debug.

Programs written in a high-level language are portable between different hardware and devices.

Give two disadvantages of high-level languages.

Give two disadvantages of high-level languages.

Slower to execute than low-level languages.

Must be translated into machine code.

Give two advantages of low-level languages.

Give two advantages of low-level languages.

Faster and more efficient to execute.

Gives more control over hardware, including direct control of the registers.

Give two disadvantages of low-level languages.

Give two disadvantages of low-level languages.

Harder to read, write, and maintain.

Not portable - specific to one type of processor.

Why do programs need translators?

Why do programs need translators?

Because computers can only understand machine code (binary).

What does a compiler do?

What does a compiler do?

Takes a high-level program as their source code, checks it for any errors and then translates the entire program at once, creating an executable file.

What does an interpreter do?

What does an interpreter do?

Translates high-level programs into machine code statements line-by-line, which are then immediately executed.

True or false: interpreters generate machine code directly.

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False. They call appropriate machine code subroutines within their own code to carry out statements.

Which is faster during execution: compilers or interpreters?

Which is faster during execution: compilers or interpreters?

Compiler - after compiling, the program runs quickly.

Can a compiler create a separate machine code file?

Can a compiler create a separate machine code file?

Yes - the code is saved as an executable file and can be run again without recompiling.

Is machine code portable across devices?

Is machine code portable across devices?

No - it only works on the specific processor it was compiled for.

What is an Integrated Development Environment (IDE)?

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An IDE is a platform containing features which help programmers write clear and maintainable code.

What are some features of an IDE?

What are some features of an IDE?

Auto-indentation, auto-suggestion, auto-correction, line numbers, debugging tools, variable tracing, interpreters, error diagnostics, and a runtime environment.

What are run-time environments?

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Run-time environments use virtual machines to allow programs to run on several types of machine/device which they were not designed to run on.