Computer Program

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1:1 DOUBT

High Level Language Vs Low Level Language

What are High-Level Languages?

- One can easily interpret and combine these languages as compared to the low-level languages.
- They are very easy to understand.
- Such languages are programmer-friendly.
- Debugging is not very difficult.
- They come with easy maintenance and are thus simple and manageable.
- One can easily run them on different platforms.
- They require a compiler/interpreter for translation into machine code.
- A user can port them from one location to another.
- Such languages have a low efficiency of memory. So it consumes more memory than the low-level languages.
- They are very widely used and popular in today's times.
- Java, C, C++, Python, etc., are a few examples of high-level languages.

What are Low-Level Languages?

- They are also called machine-level languages.
- Machines can easily understand it.
- Debugging them is very difficult.
- They are not very easy to understand.
- All the languages come with complex maintenance.
- They are not portable.
- These languages depend on machines. Thus, one can run it on various platforms.
- They always require assemblers for translating instructions.
- Low-level languages do not have a very wide application in today's times.

Difference Between High-Level and Low-Level Languages

Parameter	High-Level Language	Low-Level Language

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Basic	These are programmer-friendly languages that are manageable, easy to understand, debug, and widely used in today's times.	These are machine-friendly languages that are very difficult to understand by human beings but easy to interpret by machines.
Ease of Execution	These are very easy to execute.	These are very difficult to execute.
Process of Translation	High-level languages require the use of a compiler or an interpreter for their translation into the machine code.	Low-level language requires an assembler for directly translating the instructions of the machine language.
Efficiency of Memory	These languages have a very low memory efficiency. It means that they consume more memory than any low-level language.	These languages have a very high memory efficiency. It means that they consume less energy as compared to any high-level language.
Portability	These are portable from any one device to another.	A user cannot port these from one device to another.
Comprehensibility	High-level languages are human-friendly. They are, thus, very easy to understand and learn by any programmer.	Low-level languages are machine-friendly. They are, thus, very difficult to understand and learn by any human.
Dependency on Machines	High-level languages do not depend on machines.	Low-level languages are machine-dependent and thus very difficult to understand by a normal user.
Debugging	It is very easy to debug these languages.	A programmer cannot easily debug these languages.
Maintenance	High-level languages have a simple and comprehensive maintenance technique.	It is quite complex to maintain any low-level language.

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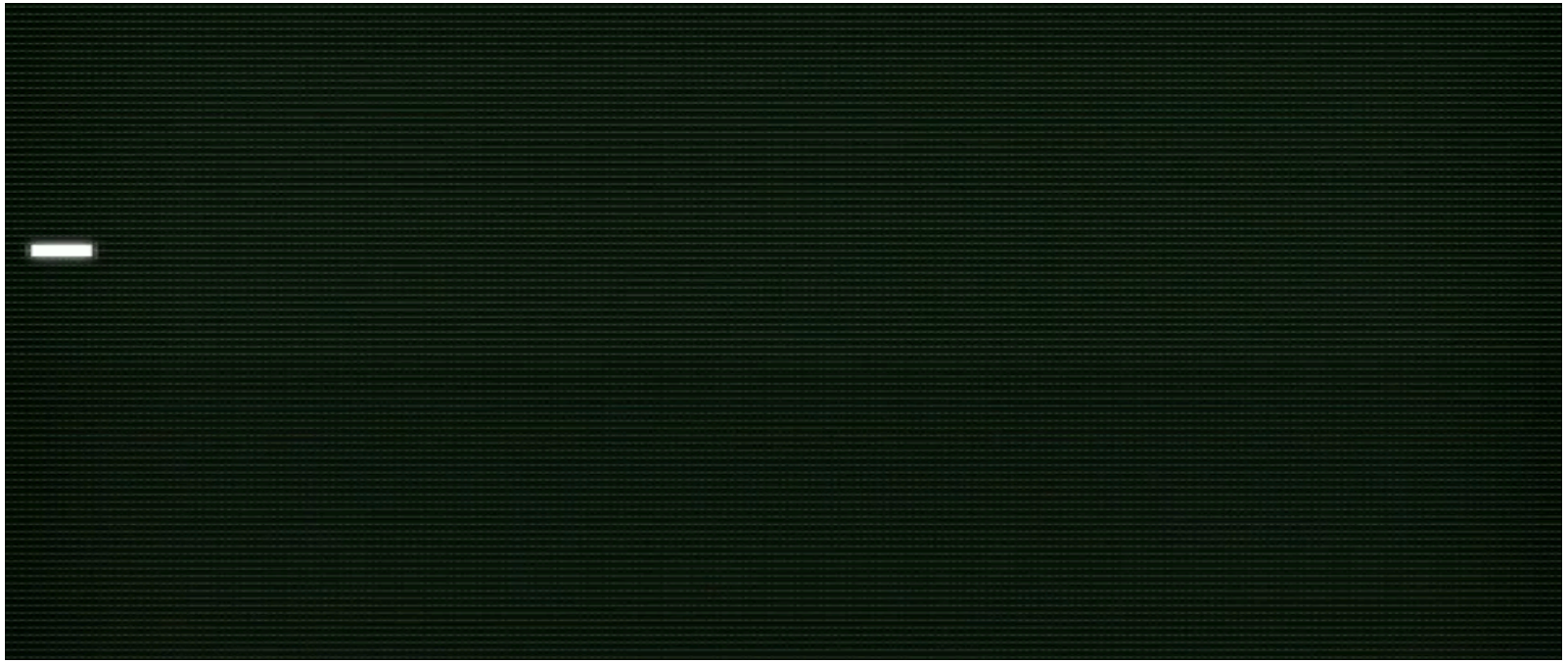
Usage	High-level languages are very common and widely used for programming in today's times.	Low-level languages are not very common nowadays for programming.
Speed of Execution	High-level languages take more time for execution as compared to low-level languages because these require a translation program.	The translation speed of low-level languages is very high.
Abstraction	High-level languages allow a higher abstraction.	Low-level languages allow very little abstraction or no abstraction at all.
Knowledge of Underlying hardware	One does not require a knowledge of hardware for writing programs.	Having knowledge of hardware is a prerequisite to writing programs.
Facilities Provided	High-level languages do not provide various facilities at the hardware level.	Low-level languages are very close to the hardware. They help in writing various programs at the hardware level.
Ease of Modification	The process of modifying programs is very difficult with high-level programs. It is because every single statement in it may execute a bunch of instructions.	The process of modifying programs is very easy in low-level programs. Here, it can directly map the statements to the processor instructions.
Examples	Java, C, C++, Python, etc. are examples of High level languages.	Some examples of low-level languages include the Machine language and Assembly language.



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