**ITELIMA FAITH IBIFUBARA HAPPINESS**

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**Assembly language:**

It is a low level programming language that allows a user to write a program using alphanumeric mnemonic codes instead of numeric codes for a set of instructions. It requires a translator known as assembler to convert assembly language into machine code so that it can be understood by the computer. It is easier to remember and write than machine language.

**Machine language:**

It is the language written as strings of binary 1’s and 0’s. it is the only language a computer understands without a translation program. A machine language instruction has two parts. The first part is the operation code which tells the computer what function to perform and the second part is the operand which tells the computer where to find or store the data which is to be manipulated. A programmer needs to write numeric codes for the instruction and storage location of data.

**High level language:**

It is a machine independent language. It enables a user to write a program in a language which resembles English words and familiar mathematical symbols. Each statement in a high level langauge is a micro instruction which is translated into several machine language instructions.

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|  | Basis of comparison | Machine Langauge | Assembly Language | High level Language |
| 1. | Level of programming langauge | Machine language ranks as the lowest level programming language. In this language, instructions are executed directly via the Central Processing Unit. | Assembly language refers to a low-level programming language that needs an assembler for converting the instructions to machine or object codes. | It is a machine independent language. It is translated using a compiler or an interpreter. One statement translates into many machine code instructions. |
| 2. | Ease of comprehension | Machine language cannot be deciphered by humans and can be comprehended only by computers. | Assembly language can be understood, used, and applied by humans. | High level languages can be understood , used and applied by humans and the computer. |
| 3. | Nature of syntax | Machine languages comprise of binary digits 0s and 1s. | Assembly languages have a syntax that is similar to the English language; therefore, they can be understood by programmers and users alike. | High level languages have a syntax that resembles English words and mathematical symbols. |
| 4. | Dependency | Machine languages are platform-dependent, and their features vary accordingly. | Assembly language comprises of standard instruction sets. | High level languages are independent of hardware(portable). |
| 5. | Areas of application | Machine language serves as a machine code only. | Assembly languages are used for developing code for specialist hardware such as device drivers. | High level languages are used for real-time systems and microprocessor-based applications/ devices. |