

Human and Computer Languages

Since, programming involves languages that we write in order for computers to understand, how is it actually related to human language? If we are the programmer, then it should be easy for us to learn and use as a human. We don't want to transform into computers.

Computer languages (High level at least) is similar to human languages. It has structure, semantics and syntax (like grammar for us). Here is a comparison table depicting the relation between the smallest and largest components of both kinds of languages:

Human Language	Computer Language
Alphabet	ASCII character set
Word	Token
Parts of Speech	Data types
Grammar	Syntax
Sentence	Statement
Paragraph	Code blocks
Story / Essay	Program
Dictionary	Library

- **ASCII**, short for **American Standard Code for Information Interchange** is a set of all upper case and lower case alphabets, numbers and special symbols that can be understood by the computer, much like the 26 alphabets in the English language.
- Much like words in the human language, tokens in programming define the smallest meaningful units. They can be:
 - Keywords
 - Identifiers
 - Constants
 - Punctuators

- Similar to how human languages have parts of speech (noun, verb, adjective etc), programming languages come with various data types such as int, float, string etc.
- Syntax is very important to keep in mind while programming, because they act like grammar in human language, and would make no sense if not correct.
- A statement is one instruction that will be executed by the computer, much like how one sentence talks about something complete in human languages.
- A group of sentences that talks about something in common, and are connected forms a paragraph. Similarly, a group of consecutive statements that does a specific task can be called as a block.
- Multiple blocks builds a program, that can do several tasks related to something specific, like how an essay or story is built up of multiple paragraphs that talks about a single topic.
- A library is like a dictionary, consisting of all necessary functions for programming, like a dictionary which contains a list of words commonly used while speaking.