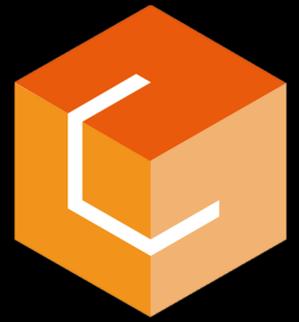


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# GLOSSARY OF TERMS

FOR THE TECHNICALLY CHALLENGED

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# API

An API or Application Programming Interface, is commonly used to refer to a communication protocol by which a computer program or piece of software makes data and information within it, accessible externally.

The API provides a set procedure for accessing information in a certain way, and produces data in a set reproducible format so that it can be manipulated and used in a consistent fashion.

In a lot of modern software, an API is accessed over the web by a request-response protocol called HTTP (HyperText Transfer Protocol). In other words, a request with certain parameters is sent to a server at a particular web address, and the server sends a defined response in a particular format.

The response format for an API can take a number of forms, including HTML, XML, JSON, plain text etc.

# CPU (Cores)

CPU stands for Central Processing Unit and its function is to process and carry out instructions that are given to it by a computer program - logical, arithmetic and other instructions. These instructions are necessary to drive the expected functions and inputs and outputs of a computer program.

When we speak about cores in relation to CPUs, and usually in this context more than one, we refer to an integrated circuit that has more than one processing unit that processes and carries out instructions.

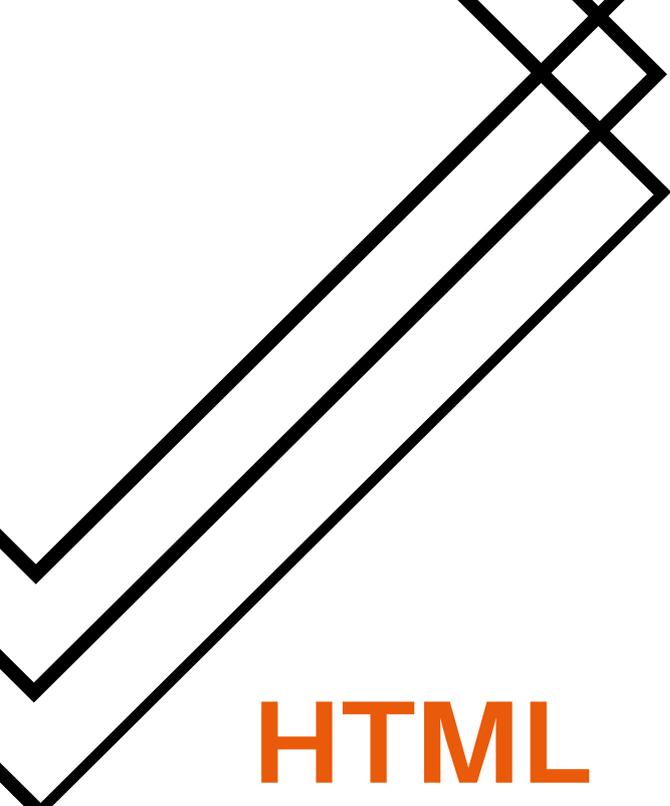
Theoretically, the more cores a CPU has, the faster it can perform the computational instructions necessary for the program it is running; It achieves this by simultaneous parallel execution of the instructions that make the application run.

# GPU

A GPU is a Graphics Processing Unit. Its function within a computer is to perform the calculations and instructions necessary to render complex 3D graphics for display on a monitor.

GPUs because of their focus on 3D graphics, are faster and more efficient than a CPU at certain mathematical instructions and operations (such as Integer and Floating point calculations).

As a result, they have been commandeered for use in machine learning and AI applications which utilise those operations. A GPU can in certain calculations be up to 200x faster, whilst being more energy efficient, than a CPU.



# HTML

HTML (HyperText Markup Language) is a computer language used for the creation of web pages and web applications.

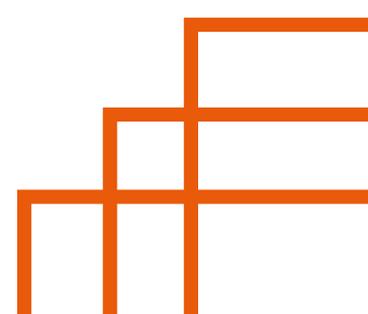
HTML, unlike XML, has a schema with defined elements such as `<p>` for paragraphs, `<h1>` for a header etc. By utilising the defined elements and setting certain attributes, a consistent reproduction of a webpage or application can be produced using a web browser (such as Internet Explorer, Google Chrome etc).

# JavaScript

Often abbreviated JS, JavaScript is a programming language used in web pages and web applications.

It is often used to manipulate HTML elements within a webpage, and detect and make changes based on certain events when interacting with a webpage.

For example, when a user click a button, JavaScript may be used to detect the click event and display an overlay window.



# JSON

JSON stands for JavaScript Object Notation. It is a file and communication format that uses plain-text attribute and value pairs.

In other words, it is an object, which has attributes, that sets out characteristics of that object by named attributes, take the following as an example:

```
{  
  "firstName": "John",  
  "lastName": "Smith",  
  "isAlive": true,  
  "age": 27,  
  "address": {  
    "streetAddress": "21 2nd Street",  
    "city": "New York",  
    "state": "NY",  
    "postalCode": "10021-3100"  
  }  
}
```

Above, the attribute name is "firstName", and that attribute name is used to access the value, which is "John". The above object could be described as a Person object.

This object can be used to pass data between computer programs and servers, using an API.

# ML

Machine Learning involves the use of algorithms and statistical models to perform a specific task, relying on patterns and inference instead of pre-determined and pre-programmed instructions.

It is a subset of artificial intelligence. Machine learning algorithms build a mathematical model based on sample data, known as "training data", in order to make predictions or decisions based on further data that it is presented with.

# NLP

Natural Language Processing involves the processing of natural and ordinary human language by computer systems and programs.

In general, there are two approaches to NLP which are used:-

1. The use of preset and pre-determined rules to derive inferences about the language used (such as for example Regular Expressions).
2. Machine learning using statistical inference, where by utilising a corpus of "sample" documents, the computer system or program develops a set of rules from that data which it then applies to further data that it encounters.

The second method - Machine Learning - tends to be more robust since:

- A. it is better able to handle unfamiliar input - such as structures and words that it has not encountered before, and for example where words are mis-spelt; and
- B. it is possible to make the system more accurate by supplying more data, whereas with pre-determined rules, you must manually program more complex rules to make it more accurate.

# XML

XML - Extensible Markup Language

XML is a computer language used for storing and communicating data in a way that can be read by computers and by humans.

XML has no defined vocabulary of terms, such as for example for headers or paragraphs. XML consists of defined elements, with attribute nodes, and value pairs.

For example:-

```
<note>  
  <to>Tove</to>  
  <from>Jani</from>  
  <heading>Reminder</heading>  
  <body>Don't forget me this weekend!</body>  
</note>
```

Here we have an element called 'note', which has a node attribute called 'to', with a value pair of 'Tove'.

We could have just as easily called the element <memo> rather than <note>. This is defined by the software or program that creates the XML, and is not a requirement of the language itself. To that extent it is a very portable and flexible language.

