Machine learning is an application of artificial intelligence (AI) that provides systems with the ability to automatically learn and improve from experience, without being explicitly programmed. Machine learning is much helped by the use of TensorFlow.js, an open source JavaScript library.

**TensorFlow**

TensorFlow is an open source software library for numerical computations and it uses dataflow graphs. It is an interface for expressing machine learning algorithms, and an implementation for executing such algorithms . TensorFlow was originally developed by researchers and engineers working at google.It is a  well-known open-source library for deep learning developed by Google.

**TensorFlow.JS**

TensorFlow.JS is an open source library that makes use of JavaScript and a high level layer API to define, train as well as run machine learning models entirely in the browser. This open source library is powered by WebGL, which provides a high level layer API for defining models, and offers a low level API for linear algebra and automatic differentiation

**Benefits of TensorFlow.js**

* It supports WebGL, out-of-the-box.
* It supports GPU acceleration.
* Even from a mobile device you can open your webpage.

**Core concepts of TensorFlow.js**

TensorFlow.js provides low-level building blocks for machine learning as well as a high level, Keras-inspired API for constructing neural networks .The core components are:

**Tensors:** The central unit of data in TensorFlow.js is the tensor: a set of numerical values shaped into an array of one or more dimensions.A nstance has a shape attribute that defines the array shape (i.e., how many values are in each dimension of the array).