Tensor flow

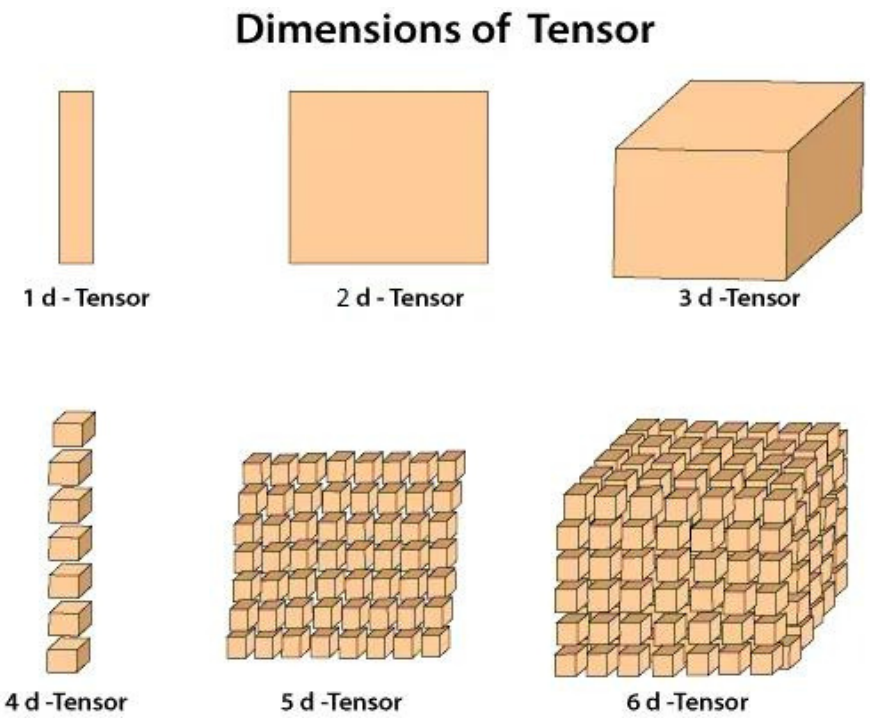
Tensorflow:

- Tensorflow is a open source Machine learning **Framework . used to build deep learning models.**
- The Framework is developed by Google brain Team**.**
- It widely used to perform in a **Deepnetwork.**
- Tensorflow is a library that perform in
    i. Python
    ii. Java & Javascript
    iii. c & c++ and
    iv. R.

- In the tensor flow module we done operations like **Linearalgebra** and **Statistics** etc.

Dimensions of the Tensor:

Tensors in most cases can be thought of as **nested arrays of values that can have any number of dimensions**. A tensor with one dimension can be thought of as a vector, a tensor with two dimensions as a matrix and a tensor with three dimensions can be thought of as a cuboid.



Features of the Tensorflow:

- Flexible architecture: TensorFlow offers a flexible architecture that allows users to define and execute computational graphs efficiently.
- Scalability: TensorFlow supports distributed computing, enabling training on multiple GPUs and distributed systems.
- Extensive ecosystem: TensorFlow provides a rich ecosystem of libraries and tools for tasks such as data preprocessing, model evaluation, and deployment.
- TensorFlow 2.x: The latest version of TensorFlow, TensorFlow 2.x, simplifies the development process with eager execution and a high-level Keras API.

Characteristics of Tensor:

- Multi-dimensional Arrays: Understanding how tensors represent data in multiple dimensions.
- Shape and Rank: Exploring the concept of tensor shapes and ranks, and their significance in deep learning.
- Data Types in Tensors: Overview of different data types supported by tensors and their implications.
- Tensor Operations: Comprehensive look into mathematical operations performed on tensors.
- Broadcasting in Tensors: Explanation of broadcasting and its role in performing operations on tensors with different shapes.
- Tensor Indexing and Slicing: Techniques for accessing and manipulating specific elements or sub-tensors within a tensor.
- Reshaping and Transforming Tensors: Methods for changing the shape and dimensions of tensors.

Building Models with TensorFlow :

- Defining placeholders and variables
- Adding layers: Dense, Convolutional, Recurrent
- Activation functions
- Loss functions
- Optimizers

Applications of Tensorflow:

- Image Classification
- Natural Language proccesing (NLP)
- Self Driving cars
- Fraud Detection
- Recommendation Engines

Conclusion:

This conclusion highlights TensorFlow's significance in various domains and provides examples of its applications, showcasing its broad utility and impact in the field of machine learning and artificial intelligence.