**What is Artificial Intelligence:**

Artificial Intelligence is process of creating intelligent entities.

It’s an approach to make a computer or a robot or an application or a product think like a human brain.

**Everyday Examples of Artificial Intelligence:**

1. Self-Driving Cars
2. Email Spam Filters
3. Video Recommendations on different Video Platforms like YouTube, Netflix.
4. Facebook’s Facial Recognition
5. Smart Personal Assistants like Google Assistant, Alexa etc.

There are lot of Real-world Examples which follows Artificial Intelligence.

**Machine Learning:**

Machine Learning is a subset of Artificial Intelligence. It is a concept in which algorithms parse the data, learn from the data and apply their learning to make informed decisions.

The algorithms are designed in a way that that those can learn and improve over time when exposed to new data.

**Example:**

Let’s assume we have a flashlight that will turn on whenever we will say “it’s dark”. In Machine Learning, it recognizes different phrases containing the word “dark” and turn on the light when we say “it’s dark”.

**Deep Learning:**

Deep Learning is a subset of Machine Learning. It is a model designed to continuously analyse the data and draw conclusions like human being. Deep learning uses a layered structure of algorithms called an **artificial neural network** that can learn and make intelligent decisions on its own. This **artificial neural network** is inspired by how our human brain works. The main computational element of our brain is neuron. The complex connected network of neurons are responsible to make decisions after gathering all information. Artificial Neural networks works similarly like the network of neurons in human brain.

**Example:**

For the flashlight example, Deep Learning could be programmed to turn on the flash light when it recognizes the audible cue of someone saying the word “dark and also it could pick up any phrase similar to “dark”. Now if the flashlight had a deep learning model, it should turn on with the cues “I can’t see” or “the light switch won’t work”. A deep learning model can learn through its own method of computing.

**Difference between Machine Learning and Deep Learning:**

* Deep Learning algorithms need a large amount of data to perform well. When the size of the data is small, Deep learning algorithms does not perform well. But Machine learning algorithms can perform well with smaller amount of data.
* Deep Learning algorithms are heavily dependent on high end machines. But Machine Learning algorithms can perform well on low end machines.
* Deep Learning algorithms takes longer time to train the data as it has huge amount of data. But Machine Learning algorithms relatively takes much less time to train the data.
* Deep Learning algorithms takes much less time to execute or learn, but for Machine Learning algorithms, the execution time increases when size of the data increases.
* In Machine Learning, most of the algorithms are easy to interpret (Logistic Regression, Decision Tree), some are almost impossible (SVM, XGBoost). But in Deep Learning, it’s difficult and impossible to interpret (why it chose what it chose, so it is difficult to interpret the reasoning behind it.).