

## About AI

Artificial Intelligence (AI) is the process of making machine intelligent and capable to do works humans do. It is a technique in which a machine becomes intelligent after experience at some work. It is a booming field in present time as it can be used to automate works humans do.

Supervised Learning is a technique in AI in which the data is labelled and the data is either done classification or regression task. The model is trained until it can detect the underlying patterns and relationships between the input data and the output labels, enabling it to yield accurate labeling results when presented with never-before-seen data. Supervised learning is good at classification and regression problems, such as determining what category a news article belongs to or predicting the volume of sales for a given future date. In supervised learning, the aim is to make sense of data within the context of a specific question.

In contrast to supervised learning is unsupervised learning. In this approach, the algorithm is presented with unlabeled data and is designed to detect patterns or similarities on its own. It can be done by different clustering algorithms.

The chief difference between unsupervised and supervised learning is in how the algorithm learns. In unsupervised learning, the algorithm is given unlabeled data as a training set. Unlike in supervised learning, there are no correct output values; the algorithm determines the patterns and similarities within the data, as opposed to relating it to some external measurement. In other words, algorithms are able to function freely in order to learn more about the data and find interesting or unexpected findings that human beings weren't looking for. Unsupervised learning is popular in applications of clustering (the act of uncovering groups within data) and association (the act of predicting rules that describe the data).

Terms in AI:

Artificial Intelligence, Data Science, NLP, clustering, regression, classification, algorithm, labels, row, column, features, keras, matplotlib, TensorFlow.

About WEB Web development refers to the tasks associated with creating, building, and maintaining websites and web applications that run online on a browser. Web development is closely related to the job of designing the features and functionality of websites and apps (often called “web design”), but the “web development” term is usually reserved for the actual construction and programming of websites and apps. The basic tools involved are programming languages called HTML (Hypertext Markup Language), CSS (Cascading Style Sheets), and JavaScript. Website development is a way to make people aware of the services and/or products you are offering, understand why your products are relevant and even necessary for them to buy or use, and see which of your company's qualities set it apart from competitors. Displaying this information with high-quality images and thought-out presentation will have a large influence on customers, and it is important to strive towards making your product as

relatable and appealing as possible. Additionally, with website development you can: Communicate with your visitors effectively, Improve your connectivity, Prove your reliability. It mainly has two parts associated with it frontend and backend. Front end development is a style of computer programming that focuses on the coding and creation of elements and features of a website that will then be seen by the user. It's about making sure the visual aspects of a website are functional. You can also think of front end as the "client side" of an application. So let's say you're a front end developer. This means your job is to code and bring to life the visual elements of a website. You'd be more focused on what the user sees when they visit a website or app. And, you'd want to make sure the site is easy to interact with while also running smoothly. Back end development focuses on the side of the website users can't see. It's what makes a site interactive. You can also refer to the back end as the "server side" of a website. For instance, let's say you're running a social media website. You need an accessible place to store all of your users' information. This storage center is called a database and a few widely used examples include Oracle, SQL Server, and MySQL. Databases are run from a server, which is essentially a remote computer. A back end developer will help manage this database, as well as the site contents stored on it. There are various frameworks for web development such as HTML, CSS, React, Vue, Ember, Bootstrap, Angular for frontend and Django, Ruby On Rails, Spring, Express, ASP.NET Core for backend.

**Web development** Web development refers to the building, creating, and maintaining of websites. It includes aspects such as web design, web publishing, web programming, and database management. It is the creation of an application that works over the internet i.e. Websites. Web Development The word Web Development is made up of two words, that is: Web: It refers to websites, web pages or anything that works over the internet. Development: Building the application from scratch. Web Development can be classified into two ways: Frontend Development: The part of a website that the user interacts directly is termed as front end. It is also referred to as the 'client side' of the application. Backend Development: Backend is the server side of a website. It is the part of the website that users cannot see and interact. It is the part of the website that users cannot see and interact. It is the portion of a software that does not come in direct contact with the users. It is used to store and arrange data. Web development in literal sense means spider developing its web but in technical terms means developing web pages along with a complete working framework. Web development refers in general to the tasks associated with developing websites for hosting via intranet or internet. The web development process includes web design, web content development, clientside/server-side scripting and network security configuration, among other tasks. In a broader sense, web development encompasses all the actions, updates, and operations required to build, maintain and manage a website to ensure its performance, user experience, and speed are optimal. Web development is the coding or programming that enables website functionality, per the owner's requirements. It mainly deals with the non-design aspect of building websites, which includes coding and writing markup. Web development ranges from creating plain text pages to complex web-based applications, social network applications and electronic business applications. Web development is important as it can easily reach to customers and reach new audiences. Any working web system comprises of two components namely frontend and backend which is called full stack. Frontend refers to the display (web pages) that are visible to audience i.e. that are shown on the web browser. The part of a website that the user interacts with directly is termed the front end. It is also referred to as the 'client side' of the application. It includes everything that users experience directly: text colors and styles, images, graphs and tables, buttons, colors, and navigation menu. HTML, CSS, and JavaScript are the languages used for Front End development. The structure, design, behaviour, and content of everything seen on browser screens when websites, web applications,

or mobile apps are opened up, is implemented by front End developers. Backend refers to the subsystem that is residing in the server and its task is to make overall system work. Backend is responsible for instructing frontend. Backend is the server-side of the website. It stores and arranges data, and also makes sure everything on the client-side of the website works fine. It is the part of the website that you cannot see and interact with. It is the portion of software that does not come in direct contact with the users. The parts and characteristics developed by backend designers are indirectly accessed by users through a front-end application. Activities, like writing APIs, creating libraries, and working with system components without user interfaces or even systems of scientific programming, are also included in the backend. With the development of numerous frameworks based on different programming languages, developing web applications has become significantly easier. That is one of the reasons for the high demand to hire backend developers and front-end developers. Python, JavaScript, PHP, Ruby, . NET, etc., are a few prominent backend languages. React, Vue, Ember, Bootstrap, and Angular are the most famous front-end frameworks. Django, Ruby On Rails, Spring, Express, ASP.NET Core. There are various frameworks like Django, Laravel, Express etc are used for development.

#### AI Frameworks:

- Tensor Flow.

Hailing from the Google family, Tensor Flow proves to be a robust open-source framework that supports deep learning and which can be accessed even from a mobile device.

Tensor flow is considered an apt tool for statistic program development. As it offers distributed training, machine models can be trained a lot more effectively at any level of abstraction that the user prefers.

#### Features

- A scalable multi programming interface for easy programming
- Strong growth drivers, with a strong open-source community
- Provides extensive and well-documented manuals for people

#### Pros

- The language used by tensor flow is Python, which is very popular nowadays.
- This framework is capable of high computational power. Hence, it can be used on any CPU or GPU.
- Uses computational graph abstraction to create machine models

#### Cons

- To make a decision or prediction, the framework passes the input data through multiple nodes. This can be time-consuming.

- It also lacks many of the pre-trained models of AI.

- Microsoft CNTK.

Microsoft CNTK is a faster and more versatile open-source framework that is based on neural networks that support text, message, and voice remodeling.

It provides an efficient scaling environment due to a faster overall evaluation of the machine models while taking care of accuracy.

Microsoft CNTK has integrations with major massive datasets, making it the leading choice to be adopted by big players like Skype, Cortana, etc., with a very expressive easy-to-use architecture as well.

### **Features**

- Highly optimized to provide efficiency, scalability, speed, and high-level integrations
- Has built-in components such as hyperparameter tuning, supervised learning models, reinforcement, CNN, RNN, etc.
- Resources are utilized to provide the best efficiency.
- Own networks that can be expressed efficiently such as full APIs, both high level and low level

### **Pros**

- As it supports Python and C++, this framework can work with multiple servers at once and hence makes the learning process quicker.
- It has been developed keeping in mind the recent developments in the world of AI. Microsoft CNTK's architecture supports GAN, RNN, and CNN.
- It permits distributed training to train machine models effectively.

### **Cons**

- It lacks a visualization board and mobile ARM support.

- Caffe.

Caffe is a deep learning network that comes along with the preloaded set of trained neural networks. This should be your first pick if your deadline is close.

Known for its image processing capabilities, this framework also has extended support of MATLAB.

### **Features**

- All of its models are written in plaintext schemas
- It offers massive speed and highly efficient work since it is already preloaded.
- An active open-source community for discussion and collaborative code.

### **Pros**

- Interlinking C, C++, and Python, it also supports the modeling of CNN(convolutional neural networks)
- Efficient when computing numerical tasks due to its speed.

### **Cons**

- Caffe is not capable of handling complex data but is comparatively fast while handling the visual processing of images.
- Theano.
- Amazon machine learning.
- Torch.
- Accord.Net.
- Apache Mahout.