**Natural Language**

**Definition**

* Natural language is a way with which we humans communicate with each other, e.g. Text, speech
* We are surrounded by the text. E.g. Signs, Menus, emails, SMS, web pages and …
* Speech: we speak to each other, watch TV, listen radio, listen songs
* The natural language processing is a filed of Artificial Intelligence that deals with the interaction between computers and humans using the natural language
* NLP gives machines ability to read, understand, and derive meaning from human languages
* Most of the NLP techniques rely on machine learning to derive the meaning from human languages.

**Applications**

* **Machine Translation**: translate information from one language to another, when the same thing is done by a machine, then it is called as machine translation, the best known application is : Google Translator.
* **Speech Recognition**: Now a days we have a variety of speech recognition software programs that allow us to decode the human voice. Speech recognition is a hot topic and it is a part of large number of products
* **Sentiment Analysis**: sentiment analysis is an interesting type of data mining, it measures the inclination of people’s opinions; Sentiment analysis helps us to check whether customers are satisfied with goods and services; e.g. movie review or an emotional state caused by this movie
* **Question Answering**: they are the systems that automatically answer questions posed by humans in a natural language; e.g. Siri, OK Google, chat boxes and virtual assistants;
* **Automatic Summarization**: There is a huge amount of information available out there, it’s really a drawback but now we have automatic summarization.

It is a process of creating short, accurate, and fluent summary of a longer text document.

Automatic summarization reduces the reading time

APIs for the Automatic Summarization:

Aylien Text Analysis, MeaningCloud Summarization, ML Analyzer, Summarize Text, Text Summary

* **Chatbots**: chatbots currently operate on several channels, including internet, mobile application, and messaging platforms.

Business today are interested in developing bots that can not only understand a person but also communicate with them on a certain level;

* **Text Classification**: It is the task of assigning a set predefined category to free-text. Text classification can be used to organize, structure, and categorize pretty much anything which is text.

By using NLP, text classifiers can automatically analyze text and then assign a set of pre-defined tags or categories based on its content.

* **Character Recognition**: Character Recognition systems also have numerous applications like receipt character recognition, invoice character recognition, check character recognition, legal billing document character recognition and so on…
* **Spell Checking**: it is a software tool that identifies and corrects any spelling mistakes in a text; e.g. Grammarly App

It is a online grammar checker that scans your text for all types of mistakes, from typos to sentence structure problems and beyond;

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