III. Technical Background

"A computer would deserve to be called intelligent if it could deceive a human into believing that it was human. Alan Turing." A machine capable of understanding a text like we humans do? I know, it seems hard to believe, and for years it seemed like magic , until I discovered Natural Language Processing (NLP), a field that deals with this kind of problems.Yes, by combining the power of artificial intelligence, computational linguistics and computer science, NLP allows a machine to understand natural language, a task that was so far the exclusive privilege of humans. NLP is everywhere even if we don’t know it. Language transaltor used in different social media sites or websites are just one example of NLP at work. Another example which we are focusing on is Question Answering. The Question Answering (QA) task aims to provide precise and quick answers to user questions from a collection of documents or a database.Also if we are talking about information handled by computers, we can co-relate this to a Expert system. Expert systems is a piece of software programmed using artificial intelligence techniques. Such systems use databases of expert knowledge to offer advice or make decisions in such areas as medical diagnosis and trading on the stock exchange. This kind of IR system is sorely needed with the dramatic growth of digital information. One domain that is mostly in need of this QA systems is medical domain. Why ? simply because every act of knowledge and application in medicine is now worked by computers. One example is an online web application called "webmd" this application serves as a portal for questioning and it gives results and information to the user. There are many application that is involving medical fields in Natural language Processing. IBM watson is one of the most famous artificial intelligence that uses NLP and IR (information retreival) for its main functionality of answering questions. In engaging in this field of study, it is recommended to be familiar with the unimaginable number of exsisting application or tools to be use (tenserflow, apache open nlp, ibm watson, etc..)

**Natural Language Processing**

A field of computer science, artificial intelligence, and computational linguistics concerned with the interactions between computers and human (natural) languages. As such, NLP is related to the area of human–computer interaction.

**Question Answering System**

Question Answer (Q AND A) is a computer science discipline within the fields of information retrieval and natural language processing (NLP), which is concerned with building systems that automatically answer questions posed by humans in a natural language.

**Information Retreival**

Information retrieval (IR) is the activity of obtaining information resources relevant to an information need from a collection of information

**Expert System**

A computer application that performs a task that would otherwise be performed by a human expert. For example, there are expert systems that can diagnose human illnesses, make financial forecasts, and schedule routes for delivery vehicles. Some expert systems are designed to take the place of human experts, while others are designed to aid them. Expert systems are part of a general category of computer applications known as artificial intelligence .

**Artificial Intelligence**

Artificial intelligence (AI) is intelligence exhibited by machines. In computer science, an ideal "intelligent" machine is a flexible rational agent that perceives its environment and takes actions that maximize its chance of success at some goal.