Machine learning is the process of teaching computers to recognize patterns in data in order to analyze it and make predictions of future trends.

The method of machine learning requires three important factors, namely data, pattern recognition, and accuracy. Without data, there would be nothing for computers to analyze, making the whole process unviable. Pattern recognition is also extremely important because it is the entire process where the machine learns and improves over time by analyzing the data. Finally, without accuracy, there would be no point in analyzing the data in the first place. By achieving a high level of accuracy, programmers can rely on the results of machine learning to analyze data and subsequently make predictions.

Although artificial intelligence and machine learning are similar, machine learning is more specified and can be considered an aspect of artificial intelligence. By using the data and results gleaned from machine learning, artificial intelligence can be improved and made more lifelike.

One example of a modern machine learning application is using computers to recognize if an image is a type of animal or not. By feeding a machine images of a cat, machine learning can recognize the patterns that make up a cat, and this can be applied to other images to accurately recognize if the image is of a cat. This would not be possible with traditional programming because there are too many factors at play to accurately code how to recognize what a cat looks like. Another example of a modern machine learning application is the process of speech to text. Using machine learning to recognize patterns in human speech, computers can accurately transcribe speech into text. This would also not be possible with traditional programming because everyone's method of speaking is different and it would not be possible to hard code every aspect of human speech into text.

In machine learning, an observation is another term for a row of data in a data table. Observations are every instance of data that has been inputted for a machine to learn from. Features, on the other hand, are the columns of a data table that describe the features making up one part of each observation. Quantitative data is numerical data that is important to know certain quantities of data. Qualitative data, on the other hand, cannot be counted or measured and instead describes certain qualities of the data. Machine learning makes use of both types of data for analysis, and observations and features describe the important data being analyzed.

As a data science major, machine learning is an extremely large aspect of data analysis that is used in the profession. I do not have any background experience or knowledge on machine

learning, which is why I am interested in finding out more. In the future, I am unsure if I want to focus on the machine learning aspect of data science, but this class will be the perfect experience to develop a deeper understanding and see if I am interested in pursuing a career in machine learning.