Portfolio Assignment: Getting Started Name: Muhammad Shariq Azeem

Overview of ML

a. Machine Learning is the process of training computers to accurately recognize patterns in huge amounts of data; patterns that can later be used to make predictions or selecting certain actions by automated systems.
b. Data is the most important aspect of machine learning. If there is no data, we can't teach anything to the computer. Data can be in several forms, but most of the time, data is displayed in a table. Each row in a table represents an instance of the data and each column represents an attribute of the instances. When we have enough data available, the next step is to teach computers to recognize patterns in that data. This process allows the computer to learn new things and make decisions. Lastly, it is also very important to make a system that makes accurate decisions and predictions because if they are not accurate, then they are just guesses.
c. ML is a branch of AI.
d. One problem that can't be solved with traditional programming is teaching a computer how to recognize faces. We don't even know the exact rules our mind uses to recognize people's faces; how can we teach the computer to do so? In this case, we can use machine learning to train the computer to recognize edges and regions of photos that can be parts of someone's face. Another such problem occurs when there is a huge amount of information to go through. It would take millions of hours to first find patterns in the data and then use that to generate rules for the computer. However, machine learning algorithms can do that in a fraction of that time.
e. An observation is another name for a row of a table, and a feature is another name for a column of a table. Quantitative data is numerical data and qualitative data is categorical data where a value can only be from a finite set of values. All of these concepts are important in machine learning because knowing the structure and type of data allows the computer to better recognize the patterns.
f. Initially, I took this course because I couldn't take the AI course due to scheduling constraints, but now, after being introduced to this topic, I believe this might have turned out to be a better choice for me at this time. The reason I say that is because ML is a branch of AI which means after I grasp the concept of ML, it will be a lot easier for me to understand the larger picture which is Artificial Intelligence. Not only that, but this course will also give me a chance to go in a field that is pretty new and has a lot of scope.