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CS 4375.004
Overview of ML

a. define ML in your own words.

   Machine learning is when we have a computer use a set of data to notice patterns by creating models and algorithms.

b. in a paragraph, summarize the importance of data, pattern recognition, and accuracy in machine learning.

   Data is important because without it the computer would never be able to learn/develop further. The more data the computer has the better it does when creating models/noticing patterns.
   Pattern recognition is how the computer uses that large set of data to help make models/algorithms to predict other data. Without pattern recognition the computer would not be able to make any sense of the data.
   Accuracy is how we tell if the computer made good predictions or not. The computer will check its accuracy on predictions to continue to develop.

c. describe the relationship between AI and ML

   AI is when a computer is programmed to act more similar to how humans work by a programmer. ML is when a computer learns/develops on its own when given data without being programmed.

d. list at least 2 examples of modern machine learning applications and explain why this application could not be built with traditional programming.

   Self-driving cars use machine learning because of programmers cannot code for every scenario so we must use machine learning so the computer can notice what is a road or what is a car when given data. ChatGPT is also another scenario because of the scale of possible inputs would be impossible to code by programmers. Machine learning allows it to generate responses based on all the data it has access to.

e. In a paragraph, define the terms observation, feature, quantitative data, and qualitative data and discuss their importance in machine learning.

   When given a data set, an observation is a data point, row, or a specific sample. A feature is an attribute, column, or a predictor. Quantitative data is values that are numeric while qualitative

data is values that are factors or categorical. We need these definitions to clearly distinguish what is what when looking at the data given, and models produced in machine learning.

f. write a paragraph describing your personal interest in ML and whether/how you would like to learn more about ML for personal projects and/or professional application.

I find machine learning interesting because that is how I imagine we get to all the science fiction creations in media. I also believe this field will applicable to many things that come in the future. I hope to learn a lot from this class and maybe other classes that use machine learning as a base to do more specific things like computer vision.