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Topics in Computer Science: Machine learning

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HW: 2 => Please answer the first 8 questions after Chapter 1.

1. How would you define Machine Learning
   1. Machine learning is the science of programming computers so they can learn for data
2. Can you name 4 types of problems where it shines?
   1. Existing solutions require a log of hand-tuning or long list of rules
   2. Complex problems for which there is no good solution at all using a traditional approach
   3. Fluctuating environments
   4. Getting insights about complex problems and large amounts of data
3. What is a labeled training set?
   1. A set of data that is categorized as either part of the desired out-come or part of the undesired outcome so the program has stuff to compare with real world problems
4. What are the two most common supervised tasks?
   1. K nearest neighbors
   2. Linear reg
   3. Logistical reg
   4. Support vector machines
5. Can you name four common unsupervised tasks?
   1. K – mean
   2. HCA
   3. PCA
   4. Apriori
6. What type of machine learning algorithm would you use to allow a robot to walk in various unknown terrains?
   1. Reinforcement Learning Algorithms where the robot can learn from response of the terrain to optimize itself
7. What type of algorithm would you use to segment your customers into multiple groups ?
   1. The best algorithm to segment customers into multiple groups is either supervised learning (if the groups have known labels) or unsupervised learning (if there are no group labels).
8. Would you frame the problem of spam detection as a supervised learning problem or an unsupervised learning problem?
   1. The problem of spam would be categorized as supervised learning problem