Machine Learning
Assignment 1

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1. What is machine learning?

   (a) Machine learning usually refers to the changes in system that perform tasks associated with artificial intelligence. [1]

   (b) Machine learning is the subfield of computer science that, according to Arthur Samuel, gives computer the ability to learn without being explicitly programmed. [2]

2. Give an example of machine learning implementations!

   An example of implementations of machine learning is the automated classification made by Fayyad et al. The classification was designed whit two purposes: first, to classify objects in DPOSS (Digitized Second Palomar Observatory Sky Survey) to the faintest limits of the data; second, to fully generalize to future classification efforst, including classification of galaxies by morphology and improving the existing DPOSS star/galaxy classifiers once a larger volume of data are in hand [3]

3. There are 3 models of machine learning that can be distinguished according to their main intuition. Explain the 3 models, and give an example of algorithms/methods that belongs to each model!

4. What are supervised learning, unsupervised learning, semi-supervised learning and reinforcement learning?

5. What are dataset, a data object and an attribute?

6. What is data preprocessing?

7. Many machine learning algorithms use measures of similarity or dissimilarity between data objects. Explain dierences between similarity and dissimilarity measures!

8. There are many similarity measures, explain 3 of them!

9. There are many dissimilarity measures, explain 3 of them!

10. What is the goal of data visualization?