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Machine Learning and Pattern Identification

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Assignment 1

1. a. What is Machine Learning?

Machine Learning(ML) is a subsection of Artificial Intelligence that uses algorithms and data to model how humans learn. IBM says that there are three main parts to a ML algorithm:

1. A decision process: Makes estimate about data.

2. An error function: accuracy of model.

3. A model optimization problem: weighting of model will be adjusted for better fit.

<https://www.ibm.com/cloud/learn/machine-learning>

Another source says that ML are algorithms that use statistics to interpretate data. <https://www.technologyreview.com/2018/11/17/103781/what-is-machine-learning-we-drew-you-another-flowchart/>

b. What are the differences between Machine Learning and Statistics?

Statistics uses a data set to come up with a model that predicts future values and infer a relationship between variables while machine learning uses the data to train the model and then take more data to be used as a test to see how well it will predict the value. So the way the problem is approached between machine learning and statistics is different but the outcome can be the same.

<https://towardsdatascience.com/the-actual-difference-between-statistics-and-machine-learning-64b49f07ea3>

Note: Problem 3C and 5B are attached as .ipynb on a separate file to run.

