**Coursera: Machine Learning (Week 1) Quiz - Introduction | Andrew NG**

1. A computer program is said to learn from experience E with respect to some task T and some performance measure P if its performance on T, as measured by P, improves with experience E. Suppose we feed a learning algorithm a lot of historical weather data, and have it learn to predict weather. **What would be a reasonable choice for P?**
   *  The probability of it correctly predicting a future date’s weather.
   *  The weather prediction task.
   *  The process of the algorithm examining a large amount of historical weather data.
   *  None of these.

1. A computer program is said to learn from experience E with respect to some task T and some performance measure P if its performance on T, as measured by P, improves with experience E. Suppose we feed a learning algorithm a lot of historical weather data, and have it learn to predict weather. In this setting, **what is T?**
   *  The weather prediction task.
   *  None of these.
   *  The probability of it correctly predicting a future date’s weather.
   *  The process of the algorithm examining a large amount of historical weather data.
2. Suppose you are working on weather prediction, and use a learning algorithm to predict tomorrow’s temperature (in degrees Centigrade/Fahrenheit).  
   Would you treat this as a classification or a regression problem?
   *  Regression
   *  Classification
3. Suppose you are working on weather prediction, and your weather station makes one of three predictions for each day’s weather: **Sunny, Cloudy or Rainy**. You’d like to use a learning algorithm to predict tomorrow’s weather.  
   Would you treat this as a classification or a regression problem?
   *  Regression
   *  Classification

1. Suppose you are working on stock market prediction, and you would like to predict the **price of a particular stock tomorrow (measured in dollars)**. You want to use a learning algorithm for this.  
   Would you treat this as a classification or a regression problem?
   *  Regression
   *  Classification
2. Suppose you are working on stock market prediction. You would like to predict **whether or not a certain company will declare bankruptcy within the next 7 days** (by training on data of similar companies that had previously been at risk of bankruptcy).  
   Would you treat this as a classification or a regression problem?
   *  Regression
   *  Classification
3. Suppose you are working on stock market prediction, Typically tens of millions of shares of Microsoft stock are traded (i.e., bought/sold) each day. You would like to predict the number of Microsoft shares that will be traded tomorrow.  
   Would you treat this as a classification or a regression problem?
   *  Regression
   *  Classification
4. Some of the problems below are best addressed using a supervised learning algorithm, and the others with an unsupervised learning algorithm. Which of the following would you apply supervised learning to? (Select all that apply.) In each case, assume some appropriate dataset is available for your algorithm to learn from.
   *  Given historical data of children’s ages and heights, predict children’s height as a function of their age.
   *  Given 50 articles written by male authors, and 50 articles written by female authors, learn to predict the gender of a new manuscript’s author (when the identity of this author is unknown).
   *  Take a collection of 1000 essays written on the US Economy, and find a way to automatically group these essays into a small number of groups of essays that are somehow “similar” or “related”.
   *  Examine a large collection of emails that are known to be spam email, to discover if there are sub-types of spam mail.
5. Some of the problems below are best addressed using a supervised learning algorithm, and the others with an unsupervised learning algorithm. Which of the following would you apply supervised learning to? (Select all that apply.) In each case, assume some appropriate dataset is available for your algorithm to learn from.
   *  Given data on how 1000 medical patients respond to an experimental drug (such as effectiveness of the treatment, side effects, etc.), discover whether there are different categories or “types” of patients in terms of how they respond to the drug, and if so what these categories are.
   *  Given a large dataset of medical records from patients suffering from heart disease, try to learn whether there might be different clusters of such patients for which we might tailor separate treatments.
   *  Have a computer examine an audio clip of a piece of music, and classify whether or not there are vocals (i.e., a human voice singing) in that audio clip, or if it is a clip of only musical instruments (and no vocals).
   *  Given genetic (DNA) data from a person, predict the odds of him/her developing diabetes over the next 10 years.
6. Some of the problems below are best addressed using a supervised learning algorithm, and the others with an unsupervised learning algorithm. Which of the following would you apply supervised learning to? (Select all that apply.) In each case, assume some appropriate dataset is available for your algorithm to learn from.
   *  Take a collection of 1000 essays written on the US Economy, and find a way to automatically group these essays into a small number of groups of essays that are somehow “similar” or “related”.
   *  Given genetic (DNA) data from a person, predict the odds of him/her developing diabetes over the next 10 years.
   *  Examine a large collection of emails that are known to be spam email, to discover if there are sub-types of spam mail.
   *  Examine the statistics of two football teams, and predict which team will win tomorrow’s match (given historical data of teams’ wins/losses to learn from).

1. Which of these is a reasonable definition of machine learning?
   *  Machine learning is the science of programming computers.
   *  Machine learning learns from labeled data.
   *  Machine learning is the field of allowing robots to act intelligently.
   *  Machine learning is the field of study that gives computers the ability to learn without being explicitly programmed.