2.5 Compare and explain each algorithm's performance.

The accuracy of Naïve Bayes, Perceptron, Logistic regression and Adaboost are 65.7068%, 88.6618%, 92.1556%, 92.4787% respectively. Adaboost is the algorithm that has the highest accuracy. Naïve Bayes is using the probability of the data that is a leg or not, it's hard to decide it directly because maybe some data's probability that is a leg is larger but it's not a leg, so Naïve Bayes algorithm's accuracy will be the lowest. Perceptron is trying to use a line or hyperplane to separate data in to two parts and logistic regression is similar but using differential logistic function, logistic regression can solve the case that can't solve using perceptron, for example, XOR, so the accuracy of Logistic regression will better then perceptron. Adaboost make five weak classifiers become a strong classifier, this algorithm has the highest accuracy because it can know that which classifiers is better and give it more alpha to make this classifiers more important than other classifiers.

3. Prove LRTA* is a special case of Q-learning.

In LRTA* H(s) is similar to Q-learning's Q(s,a). LRTA* is finding the minimum of all c(s,a,s') + h(s'), Q-learning is finding the maximum of Q(s',a') and then update Q(s,a). H(s) is the case that $\gamma = 1$ and reward change to cost, it will change maximum to minimum too since finding optimal solution is to find the maximum reward or the minimum cost.