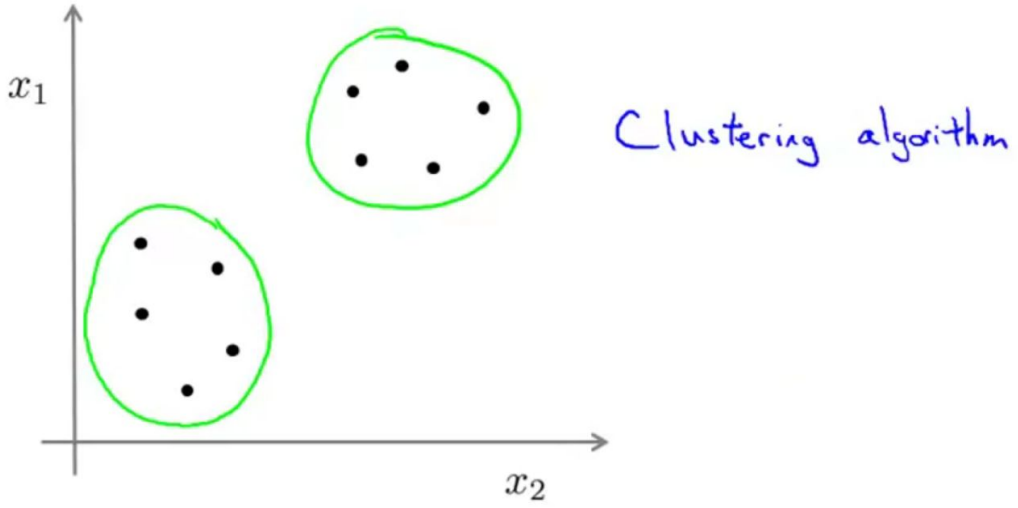
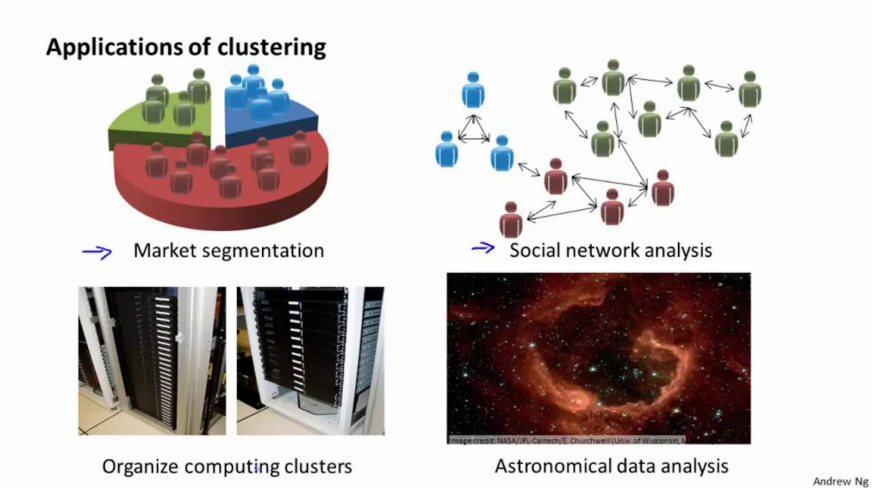
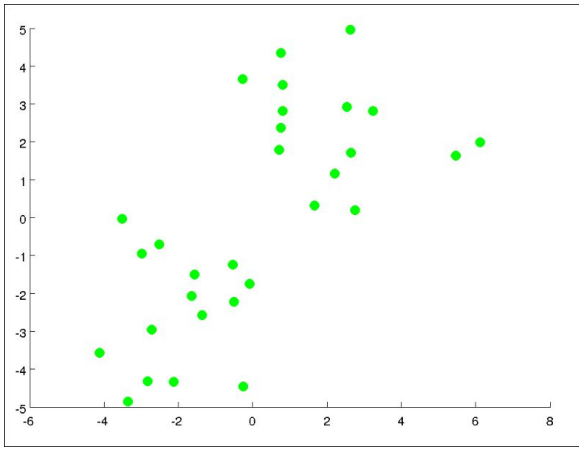
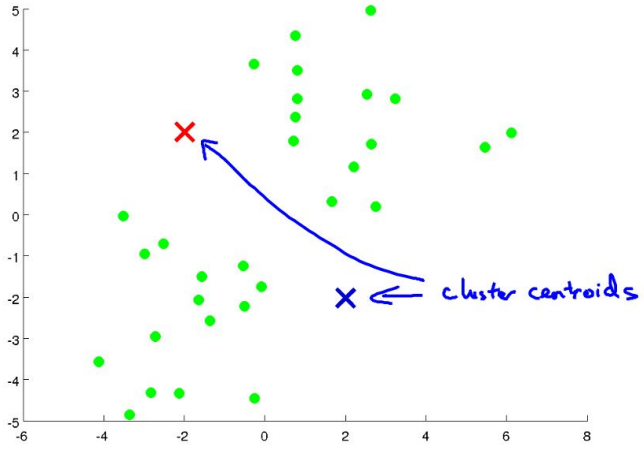
Plan

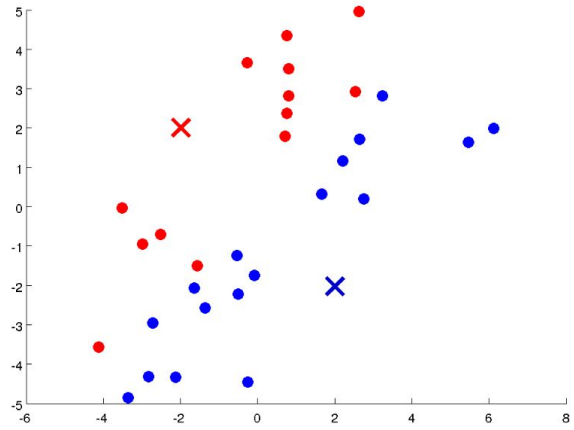
1. **Unsupervised learning. Introduction to another sphere of machine learning**
    a. **Clustering**
    b. **K-Means**
    c. **Building a clustering model**
2. **Understanding K-means. The math behind the k-means algorithm**
    a. **Optimization objective**
    b. **Random initialization**
    c. **Choosing the number of clusters, “Elbow method”**

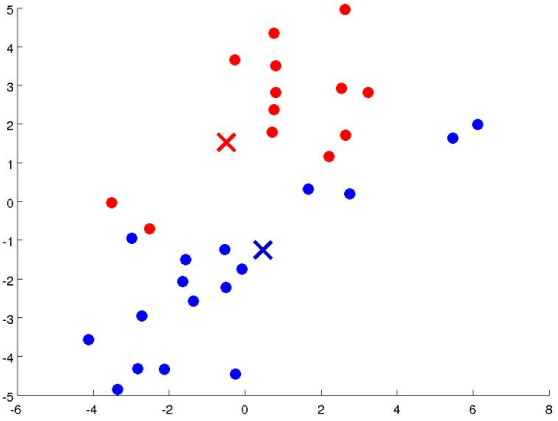


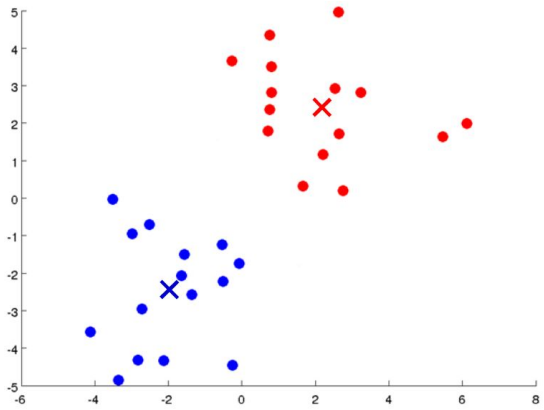




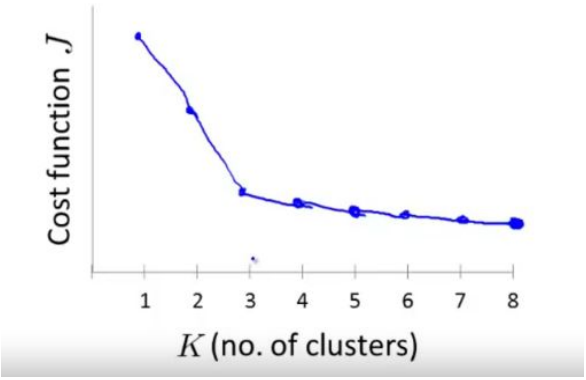








Elbow method:



Questions*:*

1. ***For what kind of learning we use clustering algorithms?***
2. ***What's the difference between supervised and unsupervised learning?***
3. ***What's the recommended way to initialize cluster centroids in k-means algorithm?***

Glossary:
Unsupervised Learning - learning with no “right answers” given - *Clustering is an unsupervised learning type of problem.*
K-means - unsupervised-learning clustering algorithm - *I’m out of ideas... if only I had some sort of k-means model implemented to clusterize my thoughts...*