Lecture 01

1. The essence of machine learning:
   1. A pattern exists
   2. We cannot pin it down mathematically
   3. We have data on it
2. E.g in movie rating, we started with a rating and randomly came up the viewer profile and movie profiles. Since we will run through 100 million of viewers and movies, we may come up a good list of viewer factors and movie factors. It is a reverse process. Instead of having viewer profiles and movie profile, we have viewer rating and try to get the profiles.
3. Components of learning:
   1. Input: x
   2. Output: y
   3. Target function f: x -> y, it is unknown to us which we try to find out
   4. Data: (x1, y1), (x2,y2)…
   5. Hypothesis: g: x -> y which is an approximation of f