# **Capstone Project 2: Project Proposal**

1. What is the problem you want to solve?

* With the huge number of choices available to users, there is a need for relevant information on items. Recommendation systems can study user preferences to prioritize and recommend items which the users would like.
* Recommendations systems are a big value-add for large companies like Google, Amazon, Facebook, Netflix etc. as they drive significant customer engagement and revenue.
* Most of the movies that users watch on Netflix, Amazon prime are from recommendation algorithms.
* Here in this project I want to focus on Book Recommendations. If possible, I will extend this case study to movies data.

1. What data are you using? How will you acquire the data?

* Multiple datasets available on the net below are the ones I found feasible.

<http://www2.informatik.uni-freiburg.de/~cziegler/BX/>

<http://mobblog.cs.ucl.ac.uk/datasets/>

1. Briefly outline how you’ll solve this problem. Your approach may change later, but this is a good first step to get you thinking about a method and solution.

Below are recommendation methods I would like to use and come up with predictions.

For each of the below approach I would come up with the metrics so that these approaches can be compared.

* Popularity-based.
  + Get the list of books based on popularity ratings.
  + Suggest most popular ones.
* Collaborative Filtering Based recommendations.

Say we want to decide if we can recommend book1 to user1 .

* + Find other k-Users with similar behavior as user1.
    - Using cosine similarity or Pearson correlations of users.
  + Find the Weighted average of the ratings for the k-users for the book1.
  + If the rating obtained is higher then we can recommend book1 to user1.
* Content Based recommendations.

Say we want to decide if we can recommend book1 to user1.

* + Find other Users history of the ratings, for similar k-books.
    - Using cosine similarity or Pearson correlations of books.
  + Find the Weighted average of the ratings for the k-books by user1.
  + If the rating obtained is higher than we can recommend book1 to user1.
* Hybrid Approach.
  + To be explored.

1. What are your deliverables? Typically, this includes code, a paper, or a slide deck.

I will share below on my git hub account.

* Jupyter Note Book with required python code.
* Python scripts.
* PDF reports.