

Assignment 3: Recommender System

In this assignment you will implement a simple movie recommender system. You will use the 1M MovieLens dataset from the sample movie ratings data <http://grouplens.org/datasets/movielens/>. Familiarize yourself with the format of the data by reading the README.txt file. This homework should be done individually.

You should submit 2 files via Blackboard: Assignment3.java which contains your code and Lab3.pdf which answers the following questions:

- [4 points] Determine the top-10 recommendations for user #100 using user-user collaborative filtering with Pearson correlation and cosine similarity.
- [4 points] Evaluate your recommendation system. Use precision and recall at 10, neighborhood size from 2 to 50, Pearson correlation and cosine similarity to produce plots similar to Figure 2(a) and (b) in assignment 2.
- [2 points] Determine the top-10 similar movies to (Toy Story) and (Batman Forever).
- [Optional, 0 points] What difficulties have you encountered and how did you deal with them? (max: 3 lines)

Install Ubuntu

- How to install Ubuntu on VirtualBox?
<http://askubuntu.com/questions/142549/how-to-install-ubuntu-on-virtualbox>
- Install Ubuntu Linux on VirtualBox in Windows 7
<https://www.youtube.com/watch?v=CkDd6jClqEE>

Install Java, Maven and Eclipse

- https://wiki.opendaylight.org/view/Getting_Started:Eclipse:Installing_Eclipse_on_Ubuntu
- Step 6: you can also download from <https://eclipse.org/downloads/>
- Step 9: run eclipse-inst -> Eclipse IDE for Java Developer

Eclipse tips

- Organize Imports: Ctrl + Shift + O
<http://help.eclipse.org/luna/index.jsp?topic=%2Forg.eclipse.platform.doc.user%2FPreference%2Fref-keybindings.htm>

Tutorials

- Creating a **User-Based** Recommender in 5 minutes
<https://mahout.apache.org/users/recommender/userbased-5-minutes.html>
- Mahout **User Recommender** Tutorial with Eclipse and Maven
<https://www.youtube.com/watch?v=63k560Livmg>
- Mahout **Item Recommender** Tutorial using Java and Eclipse
<https://www.youtube.com/watch?v=yD40rVKUwPI> + Code
<https://github.com/RevBooyah/Static-mahout-recommender-tutorial>
- Apache Mahout Tutorial - Recommendation - 2013/2014
<http://www.slideshare.net/Cataldo/apache-mahout-tutorial-recommendation-20132014>

Useful tips

- **apt-get stuck at 0 [Connecting to us.archive.ubuntu.com]**
<http://askubuntu.com/questions/574569/apt-get-stuck-at-0-connecting-to-us-archive-ubuntu-com>
- **Edit a file as the root** <https://help.gnome.org/users/gedit/stable/gedit-edit-as-root.html.en>
- **Ubuntu full screen** <https://www.youtube.com/watch?v=JOcjXNkc8og>