

A decorative background featuring a network diagram with nodes and connecting lines. The nodes are represented by circles of varying sizes and colors (blue, grey, white), and the lines are thin and grey. The network is more dense on the left and right sides of the slide, framing the central text.

AI Training Room Recommendation System



Hello!

I am Dennis

I am here to present machine learning
methods trial for new recommender system.
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Presentation Agenda

- ◎ Introduction
- ◎ Exploratory Data Analysis
- ◎ Recommender Systems Models
- ◎ Conclusion



1. Introduction

Project Background:

Explore and compare various machine learning models for course recommender system



1. Introduction

Problem Statement:

Learners need to be able to get suitable course recommendations that fit in their interests

Hypothesis:

A model that approximates the target function and performs mappings of inputs to output



2. Data Analysis

Interesting findings on courses:



Word Cloud



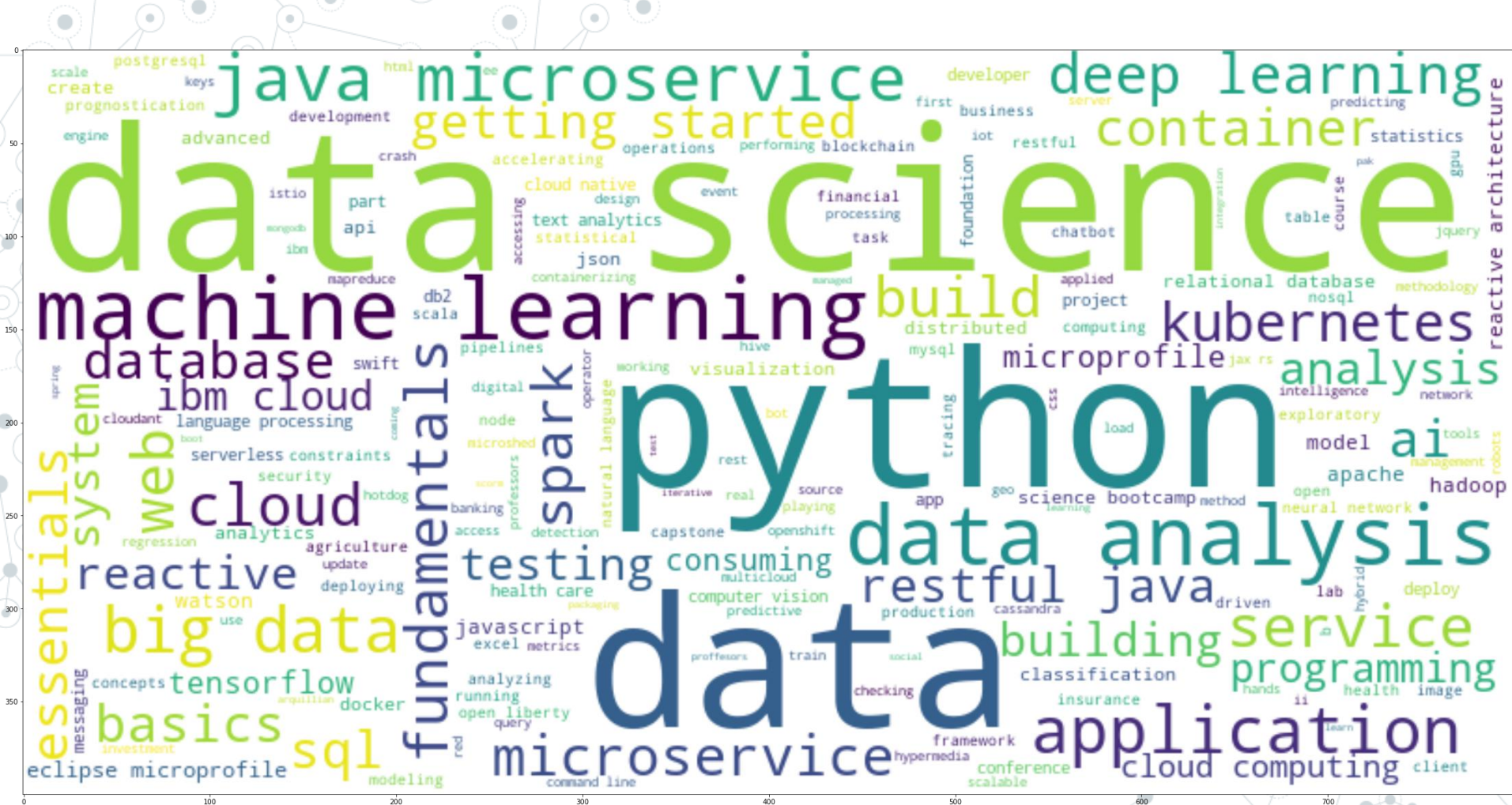
Courses by count

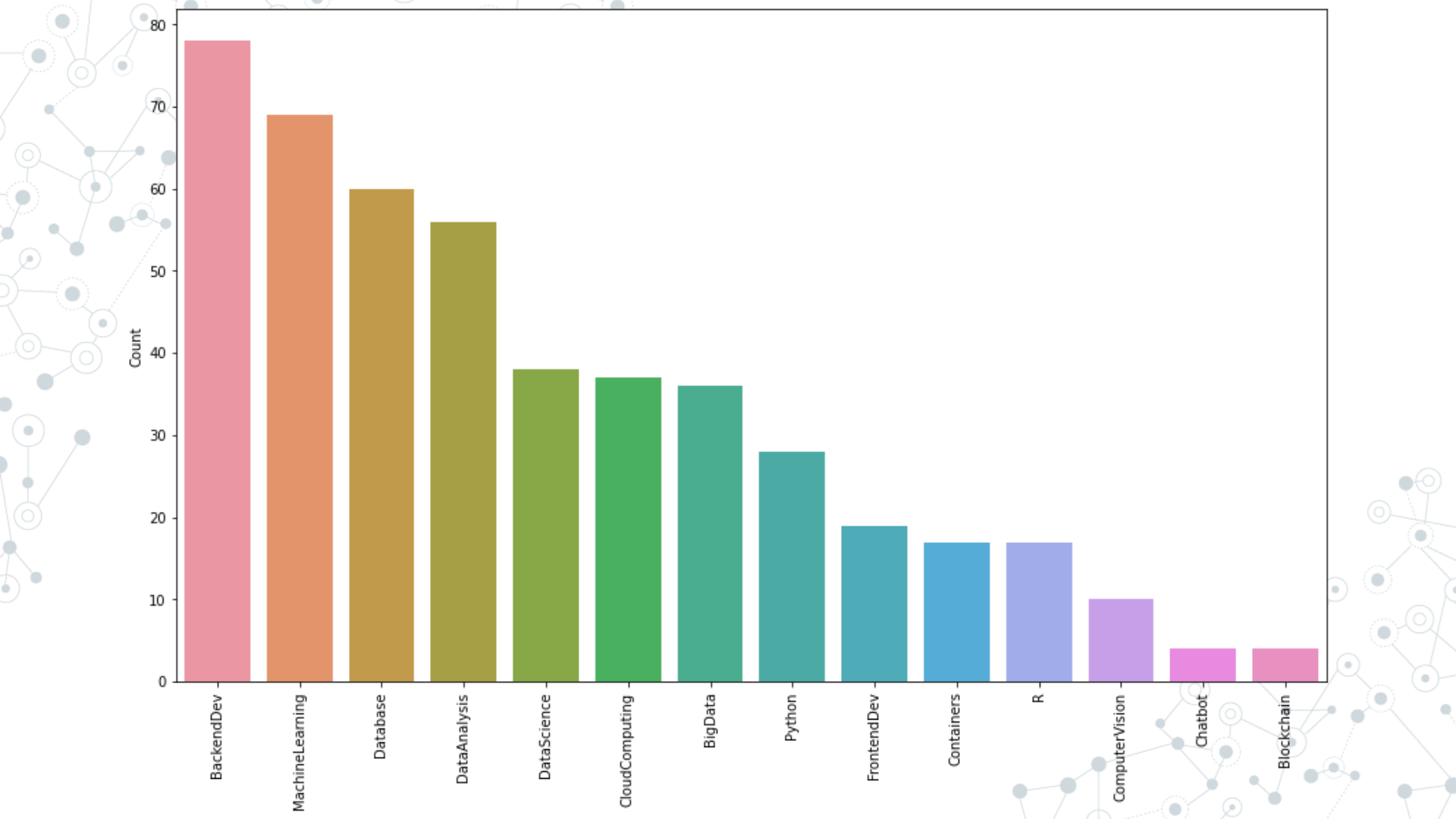


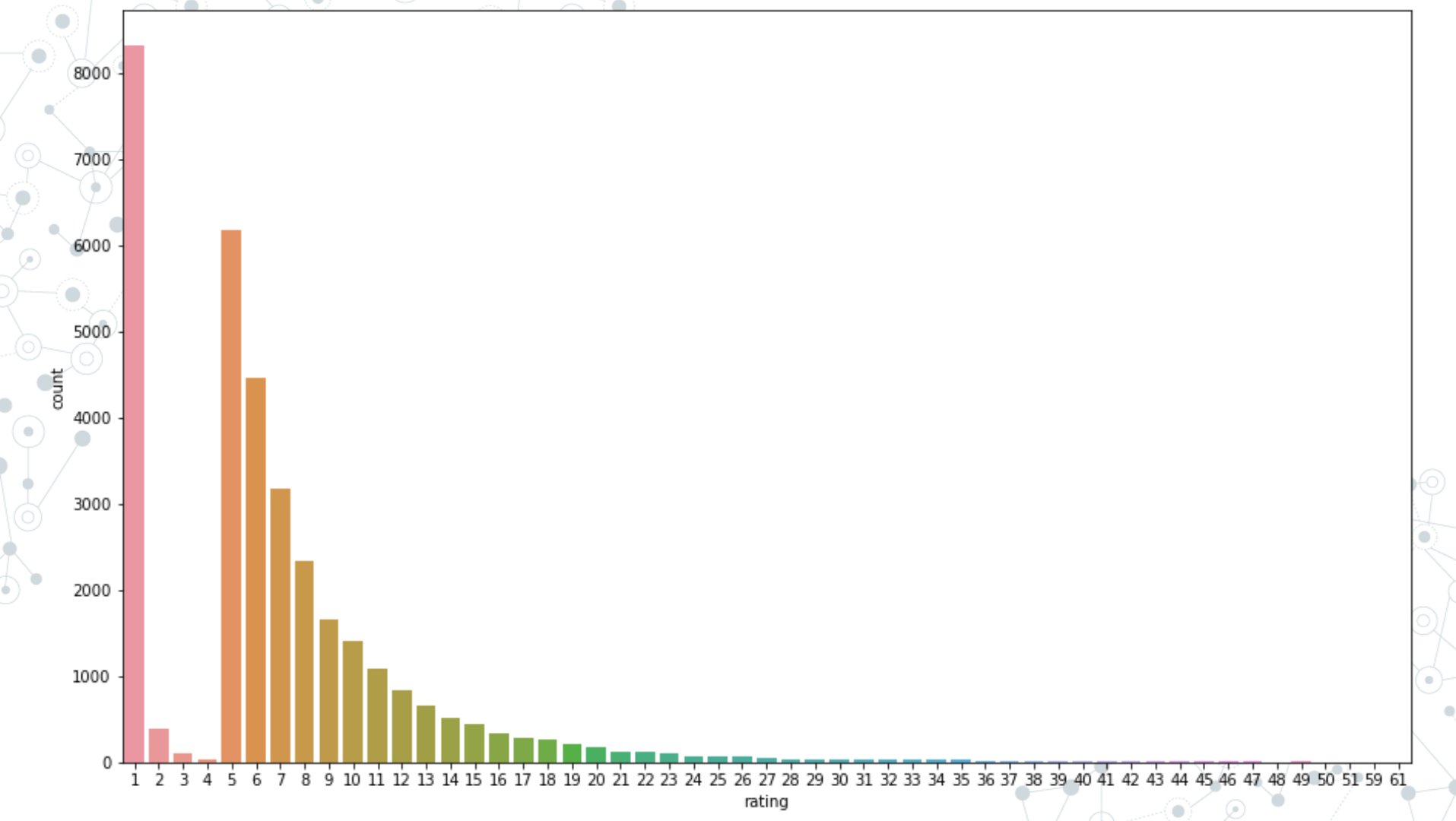
User ratings count



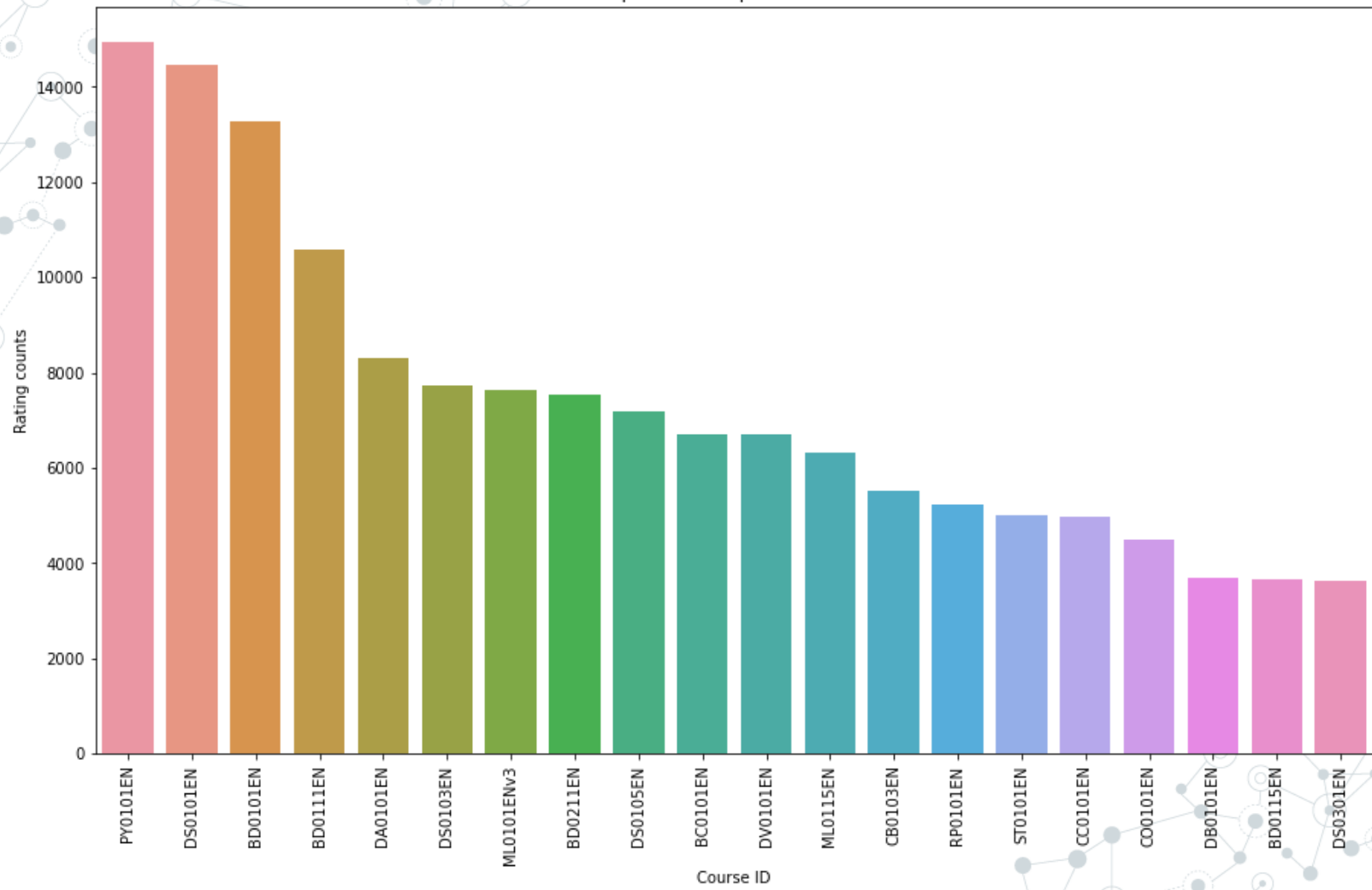
Top 20 courses







Top 20 Most Popular Courses





3. Recommender Systems Models

Content-based recommender system based on user profiles:

- Create user profiles
- Score is calculated
- Set a threshold
- Advised to limit to maximum 20 results



3. Recommender Systems Models

Content-based recommender system based on course similarity:

- Create course similarity matrix
- Extract keywords using NLP methods
- Calculate indexes and compare scores
- Set similarity threshold



3. Recommender Systems Models

Content-based recommender system based on user profile clustering:

- User profiles are grouped by similarity
- Apply K-Means or PCA algorithms
- Recommends the unselected courses from the popular course lists



3. Recommender Systems Models

Collaborative Filtering Based
Recommender System using KNN:

- Create user-item interactivity matrix
- Compute similarity between users/items
- Simple but memory intensive



3. Recommender Systems Models

Collaborative Filtering Based
Recommender System using NMF:

- Solve big matrix issues
- Use Surprise Python library



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3. Recommender Systems Models

Rating Prediction Based On Neural Network Embedding:

- Extract the user and item latent features
- Can be used to predict user ratings



3. Recommender Systems Models

Rating Prediction Based On Regression and Classification:

- Embedding are inputs and ratings are output
- Depending on the model, several metrics are used to assess the model performance



4. Conclusion

- If content (words) too many, content based will be taxing on time and high system requirements
- Personalized content will be still challenging to unknown user who have unusual taste
- Items that has no rating does pose a challenge



Thanks!

Any questions?

You can find me at:
`dennis@aitrainingroom`

Credits

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