Course Recommendation Systems

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Introduction to Course and Recommendation Systems

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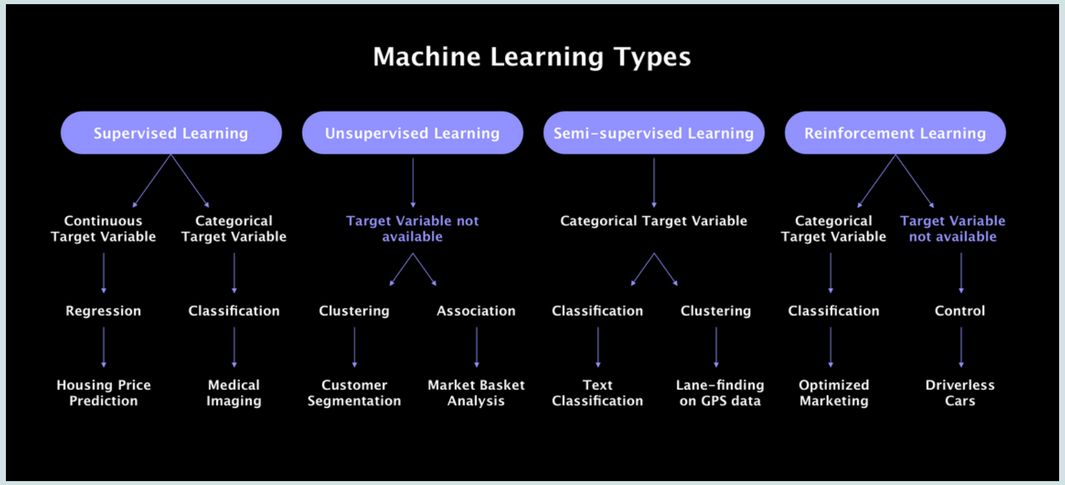
Coursera is an online learning platform that offers thousands of courses from various domains. Recommendation systems are used to personalize users' experiences and make the process of choosing a course easier. Keep reading to discover more about the types of recommendation systems used at Coursera.

Content-based Filtering



Categorizing Courses

Content-based filtering leverages machine-learning algorithms to categorize courses based on their attributes, such as the topic of the course, the skills required to complete it, and the course difficulty level.

Course Suggestions

This system suggests courses that are similar to the ones you've completed in the past. It analyses the topics and keywords associated with the course content to recommend courses that match your interests.

Collaborative filtering

Understanding the User

This type of recommendation system considers the behaviour of similar users to know the preferences of a user. It suggests courses that similar users have enjoyed, making recommendations based on user preferences

Rating and Feedbacks

The collaborative filtering approach uses the ratings and feedback provided by other users to recommend courses. This system helps you find courses from different domains that have received high ratings and were found useful by other users

Hybrid Recommender Systems

Awareness

Understanding the basics of AI and its potential implications

Hybrid Approach

The hybrid system offers the best of both worlds. It helps create new suggestions and keeps users engaged with more personalized and accurate recommendations

Content-based to Collaborative

The hybrid system uses content-based filtering with collaborative filtering to create a better user experience. The interest and behaviour of similar users are used to personalize recommendations.

Collaborative to Content-based

The hybrid system also uses the feedback provided by the users to personalize the user experience. The course content is analyzed to search for the most appropriate courses based on the users' tastes and preferences

Evaluation Metrics for Recommendation Systems

RMSE Root Mean Squared Error

RMSE is one of the most commonly used evaluation metrics for recommendation systems. It measures the difference between the predicted rating and the actual rating of a user.

Precision

Precision measures how relevant the recommended courses are to the user. In simpler terms, it answers the question, How many of the recommended courses are relevant to the user’s interests?

Recall

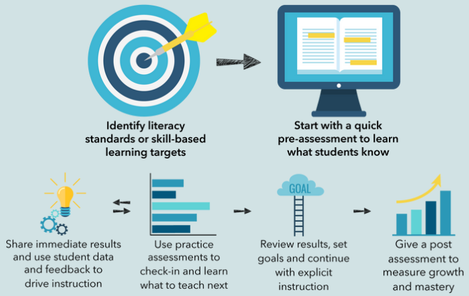
Recall measures how accurate the recommendations are. It measures the ratio of the number of relevant courses extracted from the system to the total number of relevant courses.

Applications of Course Recommendation System

Courses for Certificates

The Coursera recommendation system recommends courses that are relevant and essential for earning a certificate in a particular field.

The recommendation system suggests courses that aid in the development of skills required in today's industry and across a wide range of topics.



Performance Improvement

The recommendation system suggests courses that aid in the development of skills required in today's industry and across a wide range of topics.

Collaborative Learning

The Coursera recommendation system suggests courses that other users with similar interests and backgrounds are also taking.

Challenges and Future of Coursera Recommendation System

Diversity of Courses

Coursera offers thousands of courses, and we want our recommendation system to personalize the user experience and improve course discovery. One of the challenges we face is how to provide appropriate recommendations for less popular or emerging courses

Explosion of Data

As a platform that offers lifelong learning, the volume of data continues to increase with time. To provide accurate recommendations assuredly, we must find ways to handle large amounts of data.

Adoption of AI techniques

To keep pace with the state-of-the-art in serving personalized learning experiences to our users, we plan to incorporate more intelligent and powerful machine-learning models in our recommendation system

Research Paper

Author	Name of the paper	Publication
Yusfi Adilaksa and Aina Musdholifah	Recommendation System for Elective Courses using Content-based Filtering and Weighted Cosine Similarity	IEEE
Zheng Chen, Xueyue Liu, Li Shang	Improved course recommendation algorithm based on collaborative filtering	IEEE
Anupama V, M. Sudheep Elayidom	Course Recommendation System: Collaborative Filtering, Machine Learning and Topic Modelling	IEEE
Raghad Obeidat, Rehab Duwairl, Ahmad Al-Aiad	A Collaborative Recommendations for Online Course Recommendations	IEEE
Guldana Muzdybayeva, d Dinara Khashimova, Altynbek Amirzhano, Shirali Kadyrov	A Matrix Factorization-based Collaborative Filtering Framework for Course Recommendations in Higher Education	IEEE

THANK YOU