# Course Camp - Course Recommendation Platform

**Riddhi R. Mirajkar[1] , Abdullah Deshmukh[2], Sudhir Pawar[3], Omkar Jori[4], Digambar Ghodechor [5]**

*mirajkarriddhi@gmail.com[1],abdullahzakir99@gmail.com[2] ,pawarsudhir84@gmail.com[3]*
*omkar.jori123@gmail.com[4], digambargho9@gmail.com[5]*

***Abstract***

*The online courses are playing an important role in developing new skills in learners. Students or learners tend to prefer online courses, educational blogs for learning a new technology or a programming language. But there are often many courses offered by different platforms like Coursera, Udemy, and Educative. etc focusing on the same area learners might be interested in, and choosing the best among them can be an elusive task. It would be effective if there was some platform that can review and rate courses and also give information about the benefits provided to students. Recommendation systems can be developed in a variety of areas including movies, music, news, books, and courses are the one of them.*

*Keywords— Online courses, Course recommendation, Flutter, Flutter-web, NodeJS, MongoDB*

## I. INTRODUCTION

Many Online Course platforms like Udemy, Coursera, Educative, Udacity, etc. provide courses to improve learning skills. Multiple platforms have a huge number of courses to select the best among them is a critical task. To address this, a number of Recommendation Systems have been developed to help students or learners find courses of interest and value for money courses among huge databases.

A CourseCamp - Course Recommendation Platform is a system basically developed to find the best value for money course from a variety of courses provided by multiple platforms. The system has a connection system, just like LinkedIn. Connection system will help to recommend the courses to other users in the system. Once the connection is set up between users, if one user recommends the course it will appear in feed of his/her connections that will maintain the connectivity between the users of the system.

Flutter is one of technology to build effective applications, it is an open-source UI software development kit created by Google. It is used to develop applications for Android, iOS, Linux, Mac, Windows and the web from a single codebase. Furthermore, we have developed a personalized Mobile and web-based course recommendation platform.

CourseCamp mainly focused on trust factor therefore we built the connection system. Users will help each other to find the best course. Our platform has the text-based review for the courses that the user can give. One person's view of a 3 star may be considerably different from another's, so to overcome this problem we only provided the text-based review to the user.

Our platform has MongoDB as a Database. MongoDB is a Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas and Backend Server is based on NodeJS which is an open-source, cross-platform, back-end JavaScript runtime environment.

Previous research on Recommendation systems used Machine learning, Deep Learning concepts. In spite of the accuracy of Machine and Deep learning methodology, it's complicated and needs a predefined data which makes it hard to generalize.

## II. RELATED WORK

The recommendation systems are developed are mainly based on machine learning and deep learning which makes the complications. The system developed requires lots of user data to analyze and recommend the courses accordingly.

A recommendation of a course is done by analyzing the previously done undergraduate studies and their scores on particular subjects [1]. This kind of system requires a lot of data to analyze students' scores to recommend the best possible courses. but this should not be a way to recommend courses according to exam scores. If a student has less marks in Python but still a student is willing to learn

python to improve but as per the system, the python course will not get recommended to the student even though it's in his/her interest.

The next type of system developed that recommends courses according to the overall weight of the feature which includes length of time learners spend on content, whether the content is bookmarked or saved, and ratings given by users [5]. The system uses Collaborative Filtering Method to recommend courses. The main disadvantage of the system is Continuous monitoring of user's activity is required and the star ratings used in the system is not recommended.

### III. PROPOSED SYSTEM

We developed a platform for the Course Recommendation system by using Flutter with the frontend and NodeJS, MongoDB at the backend. By implementing flutter for frontend, the single code base can be easily deployed on user's mobile phones as well as web applications, so that they can use our platform efficiently and conveniently.

Also, this platform has implemented the connections system which can be helpful to keep up the connectivity between users and help each other to recommend the best course.

*A. Working*

Firstly, If the user is new, User will go through the Sign up process where we only provide a Google Sign In option. After confirmation from Google the user has given an option to enter a unique username then the user can proceed to the app else if the user is returning then the user log in through Google and can be ready to enter into the application.

After the Login and Signup process the application has 3 tabs to start Feed, Notifications and Profile with the Search bar to search courses on the App bar.

Profile section consists of Avatar of the user, domain interests, short summary of the user, connections, users recommended courses, and reviews.

Feed will display all the courses recommended by the user's connections and Notification tab will list all the recommended courses by the connections.

In the Add/Recommend course user has to provide information about the course like Course name, platform of the course, price, domain and the valid link for the course.

The Connection system works specifically as a sort of a Following and Followers method. If both users are followers of each other then they both will get courses recommended by each other. If only one user is a follower of the second user and if the second user is not following the first user then only the course recommended by the second user will be available in feed for the first user.
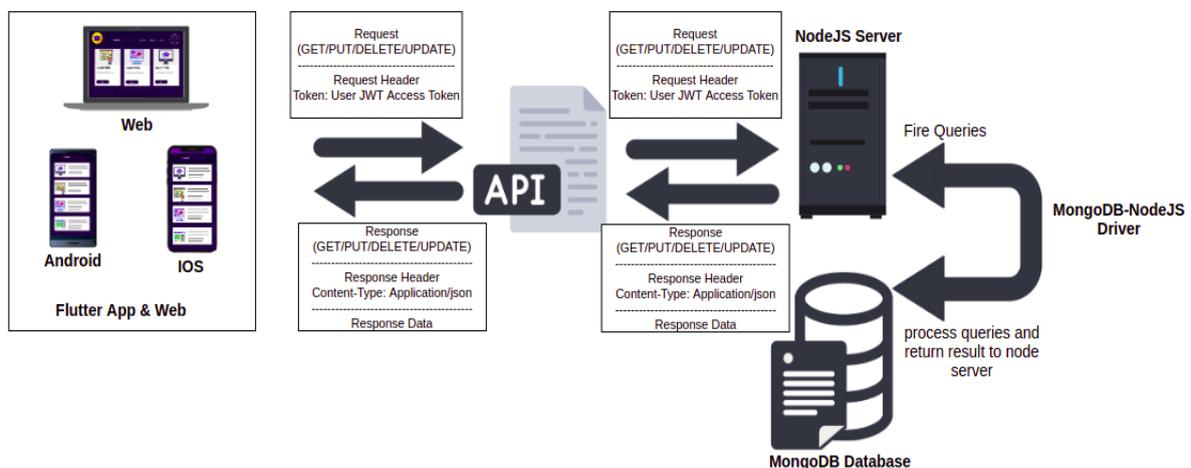
*B. System Architecture*



Figure shows the complete System Architecture with Android, Web and IOS applications

developed with Flutter and NodeJS is the server and MongoDB which is used for Database.

MongoDB and NodeJS are connected using the MongoDB-NodeJS driver. NodeJS fires queries as requested by the user through API into MongoDB and MongoDB will process the queries and return results to the server and NodeJS server will return the response back to the Mobile or Web application.

*C. Recommendation Process*

The user will provide Course information like Course name, platform of the course, price, domain and the valid link for the course. The data will be converted and sent to NodeJS server into JSON                                                                                          format.

NodeJS server will validate the token and course information. If it's valid and not already existed, the server will create and store the course document into the MongoDB database. After storing, User and connection document will get updated to Display the recommended course by the user to its connection and Server will send back this result to the application.

## IV. FUTURE SCOPE

This system can be further evolved to bring machine learning into action that will be beneficial to study the performance of the system. The notifications of courses will be provided to users if the added course consists of users' interest domain.

## V. ACKNOWLEDGMENT

## VI. CONCLUSION

A well-structured course recommendation portal where learners can find the best courses quickly and easily with immense confidence about their pick. A CourseCamp is an introduction to recommendation systems and the specialized field of eLearning Course Recommendation System.

Using reviews and the courses recommended by connections is a great way to recommend a course to a user. The emphasis will be on the improved performance of the learners. Recommendation of courses are important approaches to enhance learning experience on the internet.

## VII. REFERENCE

[1] Course Recommendation for students using Machine Learning - L Paul Jasmine Rani, Dr. D.C. Joy Winnie Wise, KV.Ajayram, T.Gokul, B.Kirubakaran (Rajalakshmi Institute of Technology, Chennai).

[2] Software Architecture for Adaptation and Recommendation of Course Content and Activities Based on Learning Analytics - Adelina Aleksieva-Petrova, Veska Gancheva, Milen Petrov  (Technical University of Sofia Sofia, Bulgaria).

[3]  A MultiView Courses Recommendation System Based on Deep Learning - Xing Pan, Xia Li, Meixiu Lu (Guangdong University of Foreign Studies Guangzhou, China).

[4]  A learning style-based Ontology Matching to enhance learning resources recommendation - Ouafae EL AISSAOUI, Lahcen OUGHDIR  (University of Sidi Mohammed Ben Abdellah Fez, Morocco).

[5]  Learning Content Recommendations on Personalized Learning Environment Using Collaborative Filtering Method - Adhyfa Fahmy Hidayat, Dawam Dwi Jatmiko Suwawi, Kusuma Ayu Laksitowening (School of Computing Telkom University Bandung, Indonesia).

[6]  Personalized Real-Time Movie Recommendation System: Practical Prototype and Evaluation - Jiang Zhang, Yufeng Wang, Zhiyuan Yuan, and Qun Jin  (Nanjing University of Posts and

Telecommunications (NUPT), China).

[7]  A course recommendation system based on grades  - Bhaskar Mondal, Om Patra, Sanket Mishra, and Priyadarshan Patra  (Xavier School of Computer Science and Engineering Bhubaneswar, India).

[8]  Investigation of College Students' Online Learning - Jianyun Zheng, Yongatao Huang, Shilian Li, Changtao Wang, Kangjia Zhong  (Guangdong Construction Polytechnic, Guangzhou, China)