PRESIDENCY UNIVERSITY
Private University Estd. in Karnataka State by Act No. 41 of 2013
Itgalpura, Rajankunte, Yelahanka, Bengaluru – 560064

A UNIFIED EDUCATIONAL RESOURCE SEARCH ENGINE WITH INTELLIGENT RANKING FOR SMART EDUCATION

A PROJECT REPORT

Submitted by

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IN

INFORMATION SCIENCE AND ENGINEERING

PRESIDENCY UNIVERSITY

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PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

Certified that this report "A Unified Educational Resource Search Engine with Intelligent Ranking for Smart Education" is a Bonafide work of "Nithin M S (20221ISE0066), Aditya V S (20221ISE0032), Chiranthan T C Nadig (20221ISE0062)", who have successfully carried out the project work and submitted the report for partial fulfilment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY in INFORMATION SCIENCE AND ENGINEERING, during 2025-26.

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DECLARATION

We the students of final year B.Tech in INFORMATION SCIENCE AND ENGINEERING, at Presidency University, Bengaluru, named Nithin M S, Aditya V S, Chiranthan T C Nadig, hereby declare that the project work titled "A Unified Educational Resource Search Engine with Intelligent Ranking for Smart Education" has been independently carried out by us and submitted in partial fulfilment for the award of the degree of B.Tech in INFORMATION SCIENCE AND ENGINEERING, during the academic year of 2025-26. Further, the matter embodied in the project has not been submitted previously by anybody for the award of any Degree or Diploma to any other institution.

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ABSTRACT

The growth of the digital learning methods and open access educational resources has changed the information retrieval methods that the learners, researchers, developers use to obtain the required information from various platforms. YouTube, GitHub, arXiv and Kaggle are the various important sources for finding video tutorials, open-source code, research papers and datasets. However, even with the existence of all these resources, the learning process is still lacking. It still requires the user to independently browse the information from different sites, glance through the relevant and irrelevant information and decide resources are trustworthy and appropriate for their needs. The absence of a unified resource system is lacking in efficient learning and discovery of knowledge.

The project titled **"A Unified Educational Resource Search Engine with Intelligent Ranking For Smart Education"** aims to propose complete unified full stack federated search and recommendation system to solve the issue of dispersed resources. The proposed system includes frontend and backend designed using HTML5, CSS3, JavaScript, PHP, MySQL and it is hosted locally on XAMPP. The system allows users to register, sign-in and search for the required educational materials. It also provides a personalized dashboard for its users where the user will have five different categories such as videos for YouTube, code repositories from GitHub, research papers for arXiv, datasets from Kaggle. The system accesses platform specific APIs with real time data and provides the ranked results based on the stars, likes, recency and their usability. It uses a weighted score function that ensures that the retrieved contents are relevant and high-quality resources are provided with their ranks while the results are displayed.

The backend systems use the user search history and user interaction with the search results and offers a personalized recommendations to the users, stored in MySQL database. The system uses content-based filtering and frequency analysis on the user queries to offer recommendations that matches with the user's interest. The feedback from is stored in the backend to assist the system improvement.

This integration of advanced learning technology solves several important problems such as resource fragmentation, personalization and ineffective retrieval system. The use of unified search engine with the ranking system and recommendation system allows the user to engage with the wider variety of educational resources at a single platform for seamless education.