

A PROJECT REPORT  
ON  
**“ONLINE INTEGRATED PLATFORM FOR PROJECTS”**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE  
DEGREE OF  
BACHELOR OF COMPUTER ENGINEERING

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UNDER GUIDANCE OF  
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**UNIVERSITY OF MUMBAI**  
**DEPARTMENT OF COMPUTER ENGINEERING**  
**DATTA MEGHE COLLEGE OF ENGINEERING**  
**PLOT NO.98 SECTOR-3, AIROLI, NAVI MUMBAI**  
**ACADAMIC YEAR 2023-24**



**DATTA MEGHE COLLEGE OF ENGINEERING**

**AIROLI, NAVI MUMBAI**

## **CERTIFICATE**

This is to certify that the project entitled “**Online Integrated Platform For Projects**” is bona fide work of “**Vipul Sharma, Sanket Tupe, Manish Vaishnav, Ashish Yadav**” submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of “Undergraduate” in “Computer Engineering”.

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**DATTA MEGHE COLLEGE OF ENGINEERING**

**AIROLI, NAVI MUMBAI**

## **PROJECT APPROVAL**

This project report entitled “**Online Integrated Platform For Projects**” of the students  
“**Vipul Sharma, Sanket Tupe, Manish Vaishnav, Ashish Yadav**” approved for the degree  
of Computer Engineering.

Internal Examiner

Date:

Place:

External Examiner

Date:

Place:

## DECLARATION

We declare that, this written submission represents our ideas in our own words and where others' ideas or words have been included; we have adequately cited and referenced the original sources. We also declare that, we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Name of the Students

Signature

1) Vipul Kumar Sharma

2) Sanket Tupe

3) Manish Vaishnav

4) Ashish Yadav

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Motivation and guidance are the keys towards success. I would like to extend my thanks to all the sources of motivation.

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## ABSTRACT

This project is a dedicated endeavor to harness the untapped potential of these academic projects. It envisions the creation of a unified platform that transcends institutional boundaries, geography, and discipline. This integrated platform, at its core, embodies a sophisticated plagiarism-checking mechanism, ensuring the authenticity and originality of the projects shared within its digital realm.

The platform's mission is clear: to serve as a repository of academic projects from students across India's technical and higher educational institutions. By uniting a wealth of diverse projects and research findings, we aim to create an environment of shared knowledge, peer-to-peer learning, and cross-functional collaboration. Our vision is to empower students to take the reins of innovation, inspire unique projects, and foster an ecosystem that transcends the constraints of traditional education.

This report outlines the comprehensive design and methodology underpinning this ambitious endeavor. It leverages the MERN (MongoDB, Express.js, React, Node.js) stack, a powerhouse of technology, and the Model-View-Controller (MVC) architectural pattern to ensure a user-friendly, responsive, and scalable platform. The synthesis of technology and architecture promises a transformative platform that will enable students to seamlessly navigate the vast landscape of academic projects, collaborate with peers, and unlock the full potential of their academic journey.

The journey embarked upon through this project is a testament to our unwavering commitment to education's betterment. It is a declaration of our belief in the power of knowledge, collaboration, and innovation. As we embark on this journey to create an integrated platform for academic projects, we invite the academic community to join hands in shaping the future of education, where innovation, collaboration, and academic integrity reign supreme.

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# **1. INTRODUCTION**

In the pursuit of academic excellence and the advancement of knowledge, innovation stands as a fundamental cornerstone. Educational institutions, particularly universities and colleges, serve as breeding grounds for creative thought, research, and the exploration of novel ideas. At the heart of this academic journey lies the practice of undertaking projects as a vital component of the learning process. These projects not only serve as a means of assessment but also as a vehicle for fostering innovation, critical thinking, and problem-solving skills among students.

Recognizing the transformative potential of these academic projects, our project endeavors to provide a dynamic and forward-thinking solution to catalyze educational innovation. We propose the creation of an integrated platform designed to harness the collective knowledge, creativity, and ingenuity of students from technical and higher educational institutions across India.

This platform, with a sophisticated plagiarism-checking mechanism at its core, aims to bring together the diverse and brilliant projects initiated at various academic levels. By establishing a common knowledge-sharing hub that transcends geographical boundaries and institutional affiliations, we endeavor to pave the way for a dynamic and collaborative ecosystem within the realm of academia.

Our vision for this project is clear and comprehensive. We seek to develop an online integrated platform that will serve as a repository of academic projects undertaken by students in universities and colleges throughout the country. This platform will facilitate knowledge sharing, peer learning, and the collaborative exchange of ideas and research findings among the student community. By promoting cross-functional research and inspiring innovative project works, we aspire to foster an environment where education transcends the boundaries of classrooms and embraces the collective wisdom of diverse academic communities.

## 2. LITERATURE SURVEY

Sr No.	Name of paper	Author	Literature Findings
1.	A survey on Plagiarism Detection	Prasanth S., Rajshree R., Saravana Balaji	A survey on plagiarism detection systems has been introduced. With the evolution of the internet and the need for information the plagiarism continues to be a concern problem to universities, teachers, policy-makers and students. Concluding that, the need of plagiarism detection systems become very important issues and the use of plagiarism detection systems in E-Learning improve the integrity of academic, and also instances of plagiarism can be successfully reduced with the help of plagiarism detection systems.
2	A Literature Review on Plagiarism Detection in Computer Programming Assignments	Keerthana T V, Pushti Dixit, Rhuthu Hegde, Sonali S K, Prameetha Pai	Plagiarism is a ubiquitous problem faced by practitioners of different fields like academia, journalism, literature, art and so on for decades. The field has been researched intensively since the 1970's. With the advances in technology and the pervasiveness of the world wide web, everyone has all the information they need at their fingertips.
3	Survey on Plagiarism Challenges	Survey on Plagiarism Challenges	The conclusion underscores the dynamic nature of the plagiarism detection field. Some areas are making rapid progress, while others remain stagnant. It points out that cross-language plagiarism detection, once a complex task, now benefits from powerful tools and is expected to continue evolving. Currently, the most challenging task is detecting plagiarism in images

4	Plagiarism Detection using Enhanced Relative Frequency Model	Kotha Dinesh Reddy	In this research, our aim was to enhance the effectiveness of detecting plagiarism between source and suspicious documents. We accomplished this by employing the ERFM approach and successfully achieved the following objectives: 1. Utilizing word frequencies, as opposed to individual words alone. 2. Improving the relative frequency model by revising the method for calculating similarity values. 3. Implementing a stop word removal process to reduce computational costs and enhance overall efficiency.
5	Plagiarism detection for project report using Machine Learning	Niraj Mohabey1 , Yash Gavanang2 , Abubakkar Khan3 , Lavesh Singh Chib4, Bhushan Patil5	The literature review discusses different techniques for plagiarism detection, including manual detection, text similarity analysis, and automated detection using machine learning. The project utilizes methods like Longest Common Subsequence (LCS) and Cosine Similarity for detection.
6	Multi-Agents Indexing System (MAIS) for Plagiarism Detection	Samia Zouaoui, Khaled Rezeg	This paper introduces a novel approach for detecting plagiarism in Arabic documents. The primary goal is to leverage a semantic resource called Arabic ShemNet to semantically index the source documents, aiming to enhance the accuracy of plagiarism detection (PD) results. The system demonstrates impressive performance, achieving a recall rate of 93% and an accuracy score of 82%. It surpasses other systems in the PD Tr-ExAra-2015 Arabic corpus, boasting an PD f-score of 87%. This showcases the system's proficiency in identifying various forms of plagiarism, including semantic plagiarism

7	Online assignment plagiarism checker using Machine learning	Babitha V1 , Harshitha M2 ,Hindumathi A3 , Reshma Farhin J 4	The project aims to develop a system to check and detect plagiarism in students' assignments, with a focus on improving efficiency and accuracy compared to manual methods. The proposed system involves several steps, including input processing, tokenization, cleaning, stop word removal, stemming, similarity analysis, and report generation. The goal is to generate a report indicating the percentage of plagiarism detected in submitted documents.
8	Plagiarism Detection Process using Data Mining Techniques	Mahwish Abid!!", Muhammad Usman, Muhammad Waleed Ashraf	It covers approaches like Grammar-Based, SemanticBased, and Hybrid methods, as well as algorithms like the Longest Common Consecutive Word Algorithm and Match Detect Reveal (MDR). Additionally, it mentions popular plagiarism detection tools such as Turnitin and CopyCatch. The text also highlights the use of N-Gram, Bi-Gram, and Tri-Gram techniques for text analysis.
9	Online Assignment Plagiarism Checker	Priyanshu Rathore, Rakesh Nagar, Ritik Patidar, Rohit Mandloi	This project addresses the critical issue of plagiarism in academic assignments. Plagiarism undermines the integrity of learning experiences and affects the quality of education. The developed system employs advanced technologies like natural language processing and data mining to detect instances of copied work accurately. Through the use of techniques like Term Frequency and Cosine Similarity, the system provides a plagiarism percentage for submitted assignments.

10	Text and Image Plagiarism Detection	Sk. Mahaboob Basha, Pandi Anusha, Somineni Bhargavi, Kankanala Indu , Kandimalla Pravalika	Plagiarism is a growing concern in academia, with the internet enabling easy access to a vast amount of information. This has made it simpler for students to copy assignments without giving credit to the original authors. Traditional text-based plagiarism detection tools do not consider visual content, which is crucial in conveying information in research papers. Detecting plagiarism in images is challenging due to the diverse range of pictures and the volume of images present in computer-generated texts. The Histogram Model is proposed as a method to identify plagiarized images in research papers.
11	Evaluation of Different Plagiarism Detection Methods: A Fuzzy MCDM Perspective	Kamal Mansour Jambi 1,*, Imtiaz Hussain Khan 1 and Muazzam Ahmed Siddiqui	<p>The study on plagiarism detection methods has seen significant advancements in recent years. Various techniques and platforms have been developed to address the challenges of identifying and preventing plagiarism. The most common methods include Vector Space Models (VSM), Stylometry, Non-Textual Feature Analysis, N-Gram Comparisons, LSA, ESA, Semantic Graph Analysis, and Machine Learning.</p> <p>The evaluation of different plagiarism detection methods using a Fuzzy MCDM perspective has provided valuable insights into the strengths and limitations of various approaches. The research highlights the significance of choosing the most appropriate method based on specific criteria and priorities.</p>

12	Natural Language Processing: Applications, Techniques and Challenges	Irum Naz Sodhar, Akhtar Hussain Jalbani, Abdul Hafeez Buller, Azeem Ayaz Mirani and Anam Naz Sodhar	The literature survey underscores the vital role of Natural Language Processing (NLP) in the field of artificial intelligence and its diverse applications. NLP is crucial for understanding and interpreting human language, making it an integral part of technology and communication in today's world. The findings highlight that NLP encompasses core areas related to language modeling and application areas that address real-world challenges. NLP techniques, including machine learning algorithms, play a crucial role in solving various problems, from text classification to machine translation and sentiment analysis.
13	Plagiarism Detection Process using Data Mining Techniques	Mahwish Abid!!", Muhammad Usman, Muhammad Waleed Ashraf	It covers approaches like Grammar-Based, Semantic-Based, and Hybrid methods, as well as algorithms like the Longest Common Consecutive Word Algorithm and Match Detect Reveal (MDR). Additionally, it mentions popular plagiarism detection tools such as Turnitin and CopyCatch. The text also highlights the use of N-Gram, Bi-Gram, and Tri-Gram techniques for text analysis. The proposed methodology focuses on automating plagiarism detection through data mining techniques. It emphasizes pre-processing for standardizing data, using clustering for efficient comparison, and generating similarity scores. While the approach aims to enhance efficiency, its effectiveness may depend on factors like dataset characteristics and the evolving nature of plagiarism techniques.

14	A Survey of Plagiarism Detection Systems: Case of Use with English, French and Arabic Languages	Mehdi Abdelhamid <sup>1</sup> , Sofiane Batata <sup>1</sup> and Faiçal Azouaou <sup>1</sup>	Plagiarism detection systems have evolved to address the growing concern of academic dishonesty in the digital age. Early efforts were manual and inadequate, prompting the development of automated systems. These systems employ various techniques, including advanced algorithms and machine learning, to enhance accuracy.
15	Reliable plagiarism detection system based on deep learning approaches	Mohamed A. El-Rashidy, Ramy G. Mohamed <sup>1</sup> , Nawal A. El-Fishawy, Marwa A. Shouman	Plagiarism detection has become a critical concern in the face of increasing technological advancements in software, leading to a surge in cases of scientific plagiarism. Various research efforts have been directed towards addressing this issue, particularly in detecting lexical, syntactic, and semantic text plagiarism. These challenges have prompted the creation of a novel database encompassing features representing diverse forms of text similarity. This database serves as the foundation for an intelligent deep learning-based plagiarism detection system. Different deep learning approaches, including convolutional and recurrent neural network architectures, were explored during the development of this system. A comparative study was conducted to evaluate the proposed system against benchmark datasets, PAN 2013 and PAN 2014, demonstrating that the system based on long short-term memory (LSTM) achieved superior performance compared to contemporary ranking systems.

### **3. LIMITATION OF EXISTING SYSTEM**

#### **Lack of Centralization:**

Many academic institutions maintain their own separate databases and repositories for academic projects, leading to fragmentation of resources. There is no unified platform to access projects from multiple sources.

#### **Limited Exposure:**

Students' academic projects often remain within the confines of their institutions. This lack of exposure restricts the sharing of innovative ideas and research findings with a broader audience.

#### **Difficulty in Knowledge Sharing:**

Due to the lack of a common platform, students and researchers find it challenging to share their work with peers from other institutions or disciplines, inhibiting cross-functional collaboration.

#### **Limited Access to Insights:**

Researchers may have limited access to the projects and research conducted in other universities, leading to missed opportunities for gaining insights and building on existing knowledge.

#### **Plagiarism Concerns:**

In the absence of a reliable plagiarism-checking mechanism, there is an increased risk of academic dishonesty, making it challenging to maintain the integrity of project submissions.



## 4. PROBLEM STATEMENT

Innovation is the key to betterment of education and students in the Indian universities/colleges put a lot of efforts on the projects as a part of the academic requirements. If a common knowledge platform (with a facility for plagiarism) is created to bring all project works taken up at various levels by the students in Technical / Higher Educational Institutes and Universities throughout the country, then it will be a great source of knowledge and also will help the student community to take up unique/innovative project works. An integrated platform should be developed where in all the universities/Colleges provide information about the projects done by the students. The information on this platform will help in the peer learning and this will also help in cross functional research between various universities/colleges.

### **Objective:**

To develop an integrated online platform that aggregates and showcases the academic projects undertaken by students across various universities and colleges, fostering innovation, collaboration, and academic integrity.

In the subsequent sections of this report, we will delve into the detailed design, methodology, and implementation of this platform, highlighting the use of cutting-edge technology, including the MERN (MongoDB, Express.js, React, Node.js) stack, and a Model-View-Controller (MVC) architectural pattern. These elements will be intricately woven into the fabric of our platform to ensure its functionality, scalability, and user-friendliness.

Our journey to create this integrated knowledge-sharing platform is a testament to our commitment to fostering innovation, empowering students, and nurturing the boundless potential within the academic community. With this project, we embark on a transformative path toward shaping the future of education by promoting collaboration, creativity, and academic excellence among students in Indian universities and colleges.

## **5. PROPOSED SYSTEM**

### **5.1.1 Analysis**

#### **Project Scope and Objectives**

The project scope encompasses the creation of a comprehensive online platform that allows students from various technical and higher educational institutions across India to share and learn from each other's academic projects. The primary objectives include:

1. Fostering innovation in academic projects.
2. Facilitating peer-to-peer learning.
3. Encouraging cross-functional research.

#### **User Analysis**

Our target users include students, professors, and researchers. It is essential to understand their needs and preferences to design a platform that caters to their requirements effectively.

#### **Technical Requirements**

The project will be developed using the MERN stack, which includes MongoDB, Express.js, React, and Node.js. Machine learning models will be integrated to provide plagiarism detection functionality.

#### **Data Requirements**

The platform will collect, store, and process various data types, including project details, user profiles, and data necessary for plagiarism detection. Data security and privacy measures will be implemented to protect user information.

#### **Competitive Analysis**

To gain a better understanding of the competitive landscape, we conducted research on existing platforms that offer similar services, identifying strengths and weaknesses to inform our platform's design.

## **5.1.2 Framework**

### **System Architecture**

The proposed system architecture includes the following components:

1. Web application for user interaction.
2. Database for storing project details and user data.
3. Plagiarism checker powered by machine learning.
4. User authentication system for data security.

### **Database Design**

The database will be designed to store project details, user profiles, and other pertinent data, ensuring efficient retrieval and management of information.

### **User Interface (UI) Design**

The user interface will be designed to be user-friendly, intuitive, and responsive to cater to the needs of our target audience.

### **Functionality**

The core functionalities of the platform include:

1. User registration and profile management.
2. Project submission and search capabilities.
3. Plagiarism checking with a machine learning model.
4. User collaboration features, such as comments and discussion forums.

### **Machine Learning Integration**

Machine learning models for plagiarism detection will be integrated into the system using libraries or frameworks such as TensorFlow or PyTorch.

### **User Authentication**

A robust user authentication system will be implemented to safeguard user data and ensure privacy.

### **5.1.3 Algorithm**

#### **Data Preprocessing**

Text data from submitted projects will be preprocessed to remove noise and prepare it for plagiarism analysis.

#### **Feature Extraction**

Features will be extracted from the preprocessed text data using techniques such as TF-IDF or word embeddings (Word2Vec or GloVe).

#### **Similarity Measurement**

The similarity between submitted projects and existing projects in the database will be computed using metrics like cosine similarity or Jaccard index.

#### **Threshold Setting**

A plagiarism similarity threshold will be defined to identify potentially plagiarized content. This threshold can be adjusted to meet specific requirements.

#### **Reporting**

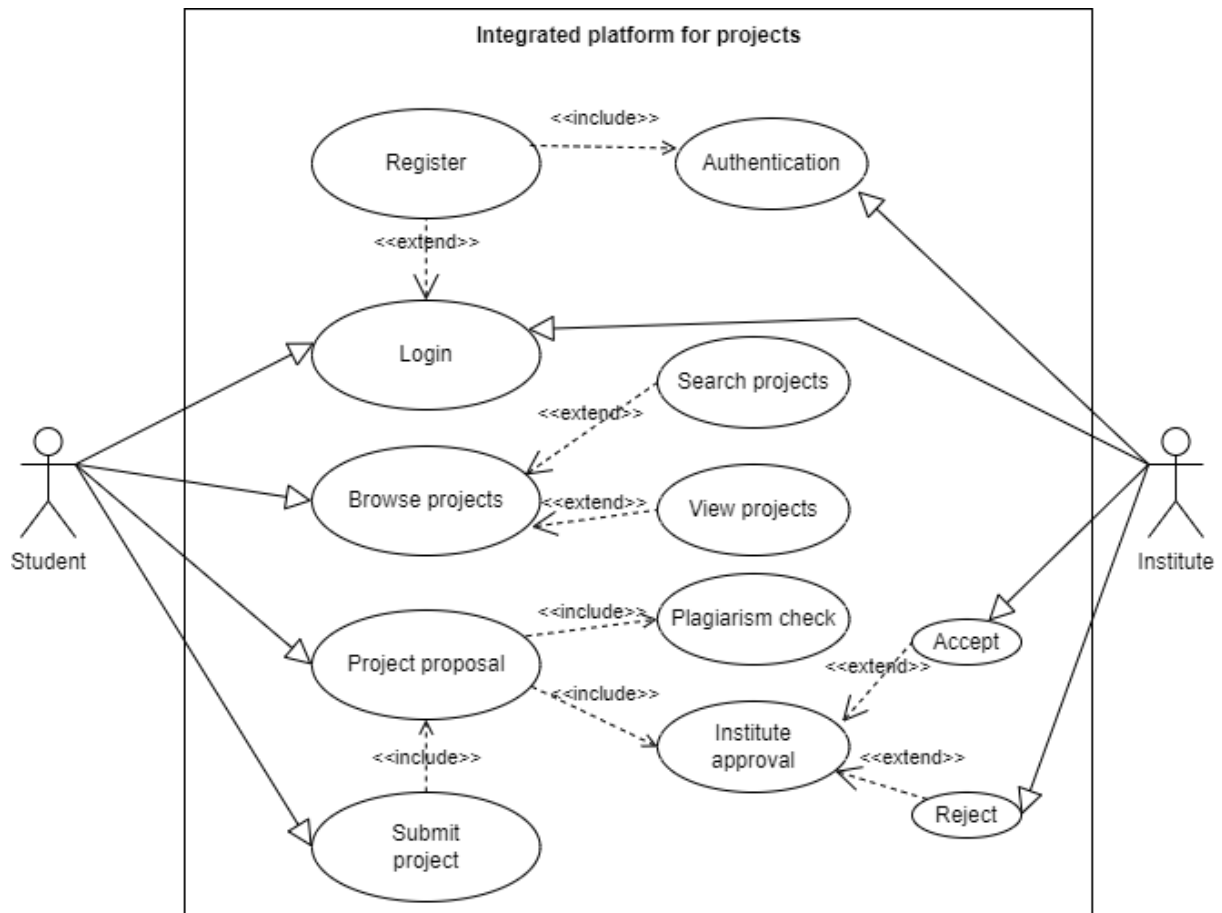
Plagiarism reports will be generated for submitted projects, highlighting sections that may contain potential plagiarism.

#### **User Notifications**

Users will be notified if their project is flagged for potential plagiarism. Options for reviewing and editing will be provided.

## 5.2 Design

### 5.2.1 Use case Diagram



#### Description :

The use case diagram showcases the functionalities of the application. In this case there are two actors viz. student and Institute. There are various functionalities which can be used by the actors. Students can Login which in turn requires registration. Students can browse through projects. They are provided with the option to search as well as view projects made by other peers. Students are required to approve their projects by using Project proposal functionality. The project proposal includes plagiarism check as well as approval from the institute and finally after project approval they can submit their projects. The Institutes plays the role of authenticating the students during registration so that on false registration takes place. Institute also approves or rejects projects shared by the students.

### 5.2.2 System Architecture

The architecture of the integrated platform for academic projects is based on the MERN (MongoDB, Express.js, React, Node.js) stack. This choice of technology stack forms the foundation of our system design:

1. **MongoDB:** The NoSQL database system will be utilized for efficient and flexible data storage, including project details, user profiles, and authentication data.
2. **Express.js:** As the backend framework, Express.js will handle routing, middleware, and interaction with the MongoDB database.
3. **React:** Our user interface (UI) will be built using React, providing a responsive and interactive front-end experience.
4. **Node.js:** As the runtime environment, Node.js will serve as the server-side platform to run our web application.

### 5.2.3 User Interface (UI) Design

Our UI design follows the principles of user-friendliness, responsiveness, and intuitiveness.

The design process includes:

1. Development of responsive UI components using React to ensure compatibility across various devices and screen sizes.
2. Utilization of UI design best practices to create a user-friendly and visually appealing interface.
3. Iterative design improvements based on user feedback and testing results.

## **5.3 Methodology**

### **5.3.1 Data Collection**

Data for the platform, including project details and user profiles, will be collected through a structured process:

1. Project details from universities and colleges will be obtained through a systematic data collection process, ensuring the acquisition of comprehensive and up-to-date information.
2. User profiles and authentication data will be gathered following secure registration and authentication procedures.

### **5.3.2 Development Process**

The development process of the platform will adhere to agile software development practices. Specifically, we will follow an iterative development methodology, where sprints, user stories, and frequent releases will be employed to ensure agility and responsiveness to change.

1. Git version control will be used to manage code changes, facilitate collaboration, and maintain a history of development.
2. Continuous integration and continuous deployment (CI/CD) practices will be employed to automate the build and deployment process.

### **5.3.3 Machine Learning Model for Plagiarism Detection**

The core component of our system is the machine learning model for plagiarism detection, integrated as part of the system's architecture:

1. Data preprocessing will involve text cleaning and tokenization to prepare project data for analysis.
2. Feature extraction will leverage TF-IDF (Term Frequency-Inverse Document Frequency) and word embeddings.
3. Similarity measurement will be carried out using cosine similarity, providing a quantitative measure of document similarity.
4. A plagiarism detection threshold will be set to identify potentially plagiarized content, and the system will provide detailed reports highlighting flagged sections.

#### **5.3.4 User Testing and Feedback**

Testing and feedback collection are essential aspects of our methodology:

1. Thorough testing, including functional, usability, and performance testing, will be conducted to ensure the platform's quality.
2. User feedback will be actively sought and collected through surveys, user testing sessions, and feedback forms.
3. Feedback will be used to drive iterative improvements and enhancements to the platform.

#### **5.3.5 Security and Privacy Measures**

Security and privacy are paramount:

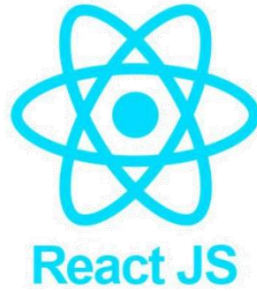
1. Robust encryption techniques, access control, and data security protocols will be implemented.
2. Privacy policies will be clearly communicated, and user data protection will be strictly observed.



## 6. TECHNOLOGY USED

### 6.1 Details

#### 1. ReactJs



React is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta and a community of individual developers and companies

#### 2. MongoDB



MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schema.

### 3. NodeJs



Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on a JavaScript Engine and executes JavaScript code outside a web browser, which was designed to build scalable network applications.

### 4. Styling Frameworks



Material UI and Tailwind CSS is an open source CSS framework.

## 6.2 Software and Hardware requirements

### **Hardware Requirements:**

- 1) **Operating system:** Windows, Linux, or macOS.
- 2) **RAM:** Recommended 4GB.
- 3) **Hard Disk:** Minimum 1GB.

### **Software Requirements:**

- 1) **Frontend:** React JS, Material UI, Tailwind CSS
- 2) **Backend:** Node JS
- 3) **Database:** MongoDB(NO-SQL DB)

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