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ABSTRACT:

The new MERN (MongoDB, Express, React, Node.js) stack-based online discussion platform named "*Student Connect*" is proposed specifically to meet the requirements of a learning institution like an engineering college. The platform intends to offer a setting for productive dialogue and engagement between students, academic staff, former students, and non-teaching personnel. It will provide a cooperative setting that makes it easier for students to receive precise and trustworthy responses to their questions from a variety of sources, such as seniors, fellow students, instructors, and alumni. Additionally, the platform allows to mentor grouping to assist the college's pupil mentor programme, boosting the educational experience for the students. The goal of this application is to fully address students the opportunity to grow their abilities, connect with professionals in the field, and participate in productive debates by offering a platform that encourages interaction among members of the educational community."Student Connect" also acts as a central location for all educational resources and activities. In order to communicate with students, impart knowledge, and help them on the path to professional success, it will give faculty and alumni a platform.

KEYWORDS: MERN Stack, Online discussion forum, Educational Organizations, Interaction, Mentor Grouping, Academic Queries, User Friendly platform

1. INTRODUCTION:

In today's digital age, web-based applications have become an integral part of educational institutions. One such application is to address the "Communication Capabilities between Students and Faculty" platform, which allows students and faculty members to interact and communicate in real-time. The platform provides a convenient and efficient way for students to clarify their doubts and get feedback from their professors, thus enhancing their learning experience. Additionally, the platform can be used to analyse student activity and performance, enabling faculty members to identify areas where students need additional support and tailor their teaching methods accordingly.With the ability to share knowledge and opinions, online forums has become a vital part. Forums can be quite helpful in fostering critical thinking and learning in educational settings. Technology advancements have made forums more participatory, and they are being used more frequently in educational contexts. The proposed student interface is an online forum created exclusively for teachers and students to post questions and exchange ideas. The forum is a significant tool for academic communities since it fosters knowledge production and active learning. The platform's capability to support causes such as fundraising is another important element. Students can plan and organize activities to support a cause or utilise the platform to generate money for other charity causes. This feature gives students a great opportunity to improve their leadership and organising skills while also fostering a feeling of community and social

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responsibility in them. The platform was conceived through group talks with the goal of establishing a secure environment where students can openly share their ideas without fear. Users with different degrees of technical competence can access the site. Thanks to its user-friendliness and simplicity of navigation.

Also, the "*Student Connect*" offer students a great chance to network with mentors and graduates, giving them the chance to get insightful assistance on their academic and professional endeavours. Students can connect with mentors who have experience and competence in their field of study using the platform's mentor grouping feature, which gives them access to information and advice they might not otherwise have. For educational institutions to be successful, this element develops a sense of community and teamwork. The website also has a notification system that alerts staff and students to forthcoming departmental events like conferences, workshops, and seminars. This function makes it possible for everyone to be informed of significant occurrences and adjust their calendars accordingly. Overall, this platform helps in improving both staff and student learning. It is a creative approach that makes use of technology to encourage collaboration, critical thinking, and knowledge creation in educational settings. This paper presents a thorough examination of the "Student Connect," including an examination of its features, architecture, and design as well as the effect it has on participation and learning among students. By publishing this paper, we seek to further the continuing conversation about the use of technology in education and encourage other academic institutions to implement similar strategies.

2. LITREATURE SURVEY:

The use of web-based apps to improve communication and cooperation in educational settings has gained popularity in recent years. Online forums can be a useful tool for enhancing student engagement and learning outcomes, according to numerous research (Ertmer & Newby, 2013; Rosé et al., 2017). Furthermore, forums have been demonstrated to encourage knowledge creation and peer-to-peer interaction, which promote critical thinking and active learning (Alavi, Yoo, & Vogel, 1997; Zhao & McDougall, 2008). Several studies have examined the usage of online discussion forums in higher education. For instance, Wu, Wu, Chen, and Kao (2012) looked at a computer science course to determine how well a forum-based learning technique worked. According to the study, students who took part in the online forums were more motivated and engaged than those who did not. The usage of forums in a mixed learning environment was studied in a different study by Lai and Hong (2014), which discovered that the forums improved student learning by encouraging critical thinking, teamwork, and self-directed learning. Several web-based solutions have been created in addition to forums to improve communication and teamwork in educational contexts. For instance, mentor grouping has been demonstrated to be successful in fostering student learning and engagement (Liu, Liu, & Lee, 2010; Wang, Li, & Sun, 2011). Additionally, it has been demonstrated that the usage of notification systems increases student involvement and attendance at academic events (Kim, Lee, & Choi, 2012; Sun, Chen, & Wu, 2017). Technology support for charitable giving has grown in prominence in recent years. To support diverse student projects and causes, many educational institutions have begun utilising crowd funding portals (Jia, Jia, & Ye, 2017; Wang, Wang, & Ye, 2016). The effectiveness of these platforms is encouraging student engagement and leadership skills, as well as fostering a sense of community and social responsibility among students. The "Student Connect" platform can be used to foster a feeling of community among users in additionto promoting communication and collaboration between students and professors. Allowing users to develop personalised profiles that highlight their interests, abilities, and experiences is one method to accomplish this. By doing this, users can discover people who share their interests, look for mentors or collaborators, and create deep connections that go beyond the classroom. The "Student Connect" platform appears to be a promising strategy for fostering communication and collaboration in educational settings, according to the body of research. Previous studies have proven that the platform's usage of online forums, mentor grouping, notification systems, and cause fundraising elements is an effective means of fostering student engagement, learning, and social responsibility.

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3. TECHNOLOGIES USED:

This Platform is a MERN stack-based online discussion platform built with four different technologies. MongoDB is used as the database management system, which allows for flexible and scalable data storage and retrieval. Express is used as the backend web framework for developing web applications, handling HTTP requests, and managing APIs. The backend runtime environment is Node.js, which provides a non-blocking I/O model that allows for scalability and high performance. Finally, React.js is used for frontend development of the application, which provides a responsive and interactive user interface for the platform. Here Fig.1 displays the three-layer architecture of MERN Stack.



Fig.1 Outline of the Technologies that are used

4. STUDENT CONNECT:

To address the issues identified by the current system and to bring a fresh way of learning with regard to a department, our suggested approach includes a Department Forum. We can find relevant and precise solutions to the questions that students may have in this system. This suggested system does not produce duplicate data or incorrect answers. Users get access to a wealth of information regarding the department's events. The questions that students ask most frequently can be better understood by the faculty.



Fig 2: Login Page of the Student Connect

Here Fig.2 displays the login page of the platform includes options for both student and faculty login. This ensures that students and faculty members have access to relevant features and information tailored to their needs. Upon login, each user is presented with a personalized dashboard that displays information relevant to their role, allowing them to quickly and easily access the tools and resources they need to succeed. This design feature helps to improve the overall user experience and ensure that the platform is accessible and user-friendly for all users.

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Fig 3: Admin Home Page

In the Fig 3 it shows the separate admin login in addition to student and teacher logins. The platform's user data, query logs, and metrics-generating system metrics can all be accessed by authorised administrators using this login. The admin login gives administrators a high-level view Page 29 DOI: 10.36893.JK.2023.V13I04N16.0027-0032 Copyright @ 2023 Author

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of platform activities and enables them to measure usage, spot possible problems, and make datadriven choices about how to best serve users. The admin login contributes to the platform's security, effectiveness, and efficiency by giving users a single point of access to all data and information linked to it in discussions with a community of knowledgeable individuals. The answering question feature of "Student Connect," which enables anybody to post a question and receive responses from other students, faculty members, or alumni, is another essential component of the platform. This function is especially useful for students who might be reluctant to ask questions in class or for those who require extra support outside of the classroom. Also, users can quickly report any issues or harassment they face on the site to the administrator, who will take the appropriate steps to protect the user's safety and comfort. Also, "Student Connect" has a fundraising option that can be utilised to generate money for students who are struggling financially or personally. Administrators may share details about the pupil and their circumstance on the platform, and users can contribute to the cause. This feature not only fosters a sense of community but also demonstrates the platform's commitment to supporting and uplifting its users.



Fig 4 Dynamic Graph Generation

The capacity to create dynamic graphs, in addition to the other capabilities already stated, distinguishes "Student Connect" from other online discussion platforms. Users can see and analyse data in real-time graphs as shown in the Fig 4 with this function, which makes it simpler to comprehend complex data and trends. Engineering students may find this feature particularly helpful because they frequently need to work with and evaluate enormous datasets to solve challenging challenges. The platform's dynamic graph feature is made to be user-friendly so that instructors and students with different levels of technical expertise can utilise it with ease. By including this function, "Student Connect" offer students a unique and efficient approach to learn and interact with their peers and teachers. This portal is a cutting-edge and practical platform that has included a number of new features employing cutting-edge technology. This is able to provide a user-friendly interface that enables simple navigation and access to a variety of information thanks to the MERN stack. A cutting-edge tool that aids faculty members in determining where students need more assistance is the addition of the dynamic graph feature, which offers real-time statistics on student activity and performance. The ability to ask and answer questions, report harassment, and collect money for charities are additional special elements that set this platform apart from others in the educational sector. This application gives educational institutions a complete solution to improve communication, engagement, and interaction between alumni, faculty, and students

5. RESULTS:

Fig 5 depicts a web page where people can post questions online. The page appears to have a straightforward and user-friendly interface, with a text box for the user to enter their query. There are also options to add tags or categories to the question, which can help other users, find and answer it more easily. The page also includes a button for submitting the completed question. Overall, this website appears to provide a simple and efficient way for people to ask questions and find answers online.

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Fig 6.Discussion Forum for Posting Question

Fig 6 portrays an online question and answer forum. The forum has a more complex interface than the previous web page. Users can create new topics or browse existing ones, and each topic contains multiple threads where users can discuss and provide answers to the posted questions. The forum also includes features like upvoting and downvoting responses, which can help the community, identify the most helpful answers. Overall, this discussion forum appears to provide a robust platform for users to ask questions and engage



Fig 7. Dynamic Graph Generation For Individual Performance

6. CONCLUSION:

The "Student Connect" platform is a potent instrument for fostering collaboration and communication inside educational institutions, it may be concluded. The platform supports a more active and engaged learning environment by giving students a quick and simple option to answer questions, assess their performance, and communicate with professors. Additionally, by giving students chances for both personal and professional growth, its fundraising and notification elements support the development of a feeling of community and social responsibility among students. As a result, this platform can be thought of having a great deal of potential for the future of education, and we anticipate seeing it continue to expand and be adopted by the educational community.

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