MINI PROJECT

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Secure E-Learning Chat Application

SYNOPSIS

Institute Of Engineering and Technology

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Problem Statement:

As we all know about the current pandemic situation due to COVID-19, because of which we all are locked at our homes for so many months and don't know what future situation will be. Especially for students, this situation seems very difficult to handle.

So many students are slowly developing big confusions and distractions in their brains. But many are doing e-learning courses and online classes to develop their skills, but then also there are many questions that are always inside them and they don't have anyone to guide them. So, to clear all these questions and put their cars back on track our app can really help. This app will connect students directly with the teachers of their fields and will help them to solve their queries.

Reason:

In the past few years, chat rooms have become a popular way to support a forum for n-way conversation or discussion among a set of people with interest in a common topic. Chat applications range from simple, text-based ones to entire virtual worlds with exotic graphics. But also, many of us still have many questions in our brains.

The reasons behind this maybe are:
1. There is no authority to check the mentors' guidance.
2. They have to rely only on their faculty and their guidance.
3. Delay in the response due to a bunch of emails to be filtered by them to give any reply to anyone.

4. The questions can be missed out by the faculty due to a lot of messages.
5. Fail to recall the consultation after a respective time.

So by taking all these points under consideration we proposed to build a project which can solve these issues, like:
1. If a reply is not given within an allotted time the ranking of the teacher will decrease.
2. Huge and the wide network is created by this app having all university teachers on a single platform.

Objective:

The main objective of the project is to make an E-learning chat mobile application at the university level where queries of students could be solved by teachers which can be achieved by the following:

- Login by University E-mail Id.
- Verifying teachers.
- Creating a chat-box.

Literature:

Nowadays, there are a lot of platforms for chatting and messaging but every platform has its purpose. The important messages can get mixed up with other messages. Streamlining the data coming to your mobile app is important.

Due to COVID-19, students have moved to e-learning but whenever we learn something new, we naturally get doubts, and clearing those doubts is important. In the offline mode, students could approach their teachers directly but now we need something for that. Using other platforms can be a bit disorganized and difficult therefore, we need something dedicated for this purpose only.
Using the platform proposed by us would decrease the response time of getting answers and could help in the smooth functioning of online classes.

Future Scope:

The application can be extended to cover a wide range of intra-organizational as well as extra-organizational issues. Apart from doubt sessions related to studies, other areas like management and mental wellness could also be touched upon.

It could evolve as a single platform for knowledge sharing within an organization. Content moderation can be done using the sentimental analysis to ensure the code of conduct. Extending it to Web Support.

Requirements:

1. Hardware:
   Ram required- 8GB or above
   Processor- core i5 or above

2. Software:
   Linux or Windows Operating System
   Android Studio or Vs-code
   Android or IOS Emulator or Physical Smartphone.

3. Technology Used:
   Flutter 1.20
   Dart Programming Language
   Firebase

Methodology:

The idea of this methodology is to develop an e-Learning system that favours the competitive position of the organization that uses it and is adaptable to suit the student's needs. It refers to the mode and manner in which they produce the content that will be used in training.

In this application students and the faculty can sign up using their university email id and help each other to solve the queries they have. Students can broadcast or can directly message to a particular faculty for their queries. Students can also tag their messages to a particular faculty or experts in that field. To differentiate between students and faculty we will provide verified tags to the faculty using this application and for that, the faculty just have to make a request on the verification request tab.

Modules: **Description:**

Login/Sign Up Screen	Users can sign up with their university email id and specify their role as student or faculty.
Contact Screen	Users can see the list of contacts they messaged previously or got a message from.
Chat Screen	Users can see the chats/messages they send or receive.
User Profile Screen	Users can see their information here.
Verification Screen	Faculty can send a verification request from this page.
Feedback Screen	The students can give their feedback or any suggestion regarding any topic.

Testing:

The Flutter framework provides comprehensive support for Flutter automated testing of mobile apps. Manually testing mobile apps can be hard, especially if your app has many features. Automated tests help to ensure that your app performs correctly before you publish it while maintaining your feature and bug-fix velocity.
Automated testing falls into a few categories:

- A unit testing tests a single function, method, or class.
- A widget test (in other UI frameworks referred to as component test) tests a single widget.
- An Integration Test tests a complete app or a large part of an app.

Contributions:

Today people know how to use smart devices and these devices are a huge part of their life. Hence, no time is better than now to introduce this technology (educational mobile app) via their mobile devices.
These mobile learning platforms are very appealing and will have the total attention of the learners.

E-learning is a new education concept by using internet technology, it delivers the digital content, provides a learner-orient environment for the teachers and students. E-learning promotes the construction of life-long learning opinions and learning society
.
E-Learning has completely transformed the way in which learning is imparted to students. Unlike traditional chalk and board methods of teaching, e-learning makes learning simpler, easier, and more effective.

E-Learning mobile app allows users to learn by using podcasts, videos and other mechanisms on their smartphone. Hence, they make the process of learning quite flexible for learners.

E-Learning mobile app allows the student to directly be in touch with the subject professors. Hence they can clear their doubts quickly. Often students suffer from lack of collaboration, however, these mobile learning apps offer them collaborative learning via online learning community app.

E-learning app ensure higher engagement, as learning is easily accessible by the students at any time and any place. One of the best benefits of e-learning is multi-device support.

Scope for Extension in Major Project:

The project can be updated in the future as and when the requirement for the same arises, as it is very flexible in terms of expansion. The following are the future scope of the project:

- **Group Meeting**: - Feature of meetings between teachers and students to solve their queries.

- **Voice call**: - The feature of Voice calls can be added.

- **Feedback**: - Students can give feedback to teachers after their queries have been solved so that the teacher can improve himself/herself.

- **File transfer**: - The option of sharing files can be added.

- **Domain extension**: - This Application is at the university level and in the future, it can be extended.

- **Login by Phone No.**: - In the future, the option of login by phone number can be added.

- **Easy Access**: - Users can easily access their data using the search bar.

- **Group**: - The feature of making groups for different fields can be added.

- **Help**: - To view different features of the app Help option can be added.

Conclusion:

From above discussion, it is evident how chat applications are purposed to play various roles in addition to acting as a chat communication medium.

The main objective of the project is to develop a Secure Chat Application. We had taken a wide range of literature review in order to achieve all the tasks, where we came to know about some of the products that are existing in the market. We made detailed research on that path to cover the loopholes that existing systems are facing and to eradicate them in our application. In the process of research, we came to know about the latest technologies and different algorithms.

References:

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3. About Dart Language https://dart.dev/.
4. Some of the contents are from Internet.