

Design & Development of Web based Application for Educational purpose

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Abstract: This paper presents the design & development of web-based application for education purpose. The website is designed using figma& developed using MERN (MongoDB, ExpressJS, NodeJS& ReactJS). The design flow of website is along with basic layout is shown in the paper with the help of application. This application has the following features: - easy communication, focus & attempt to boost productivity, provides lively interaction, develops a skill-oriented community, dedicated job portal, mentorship courses & sessions. The main purpose of this paper is to present the design of an application to bridge the gap the between colleges education and company requirements. The overall development of this application will help students to grow their skills and get prepared for the job.

Keywords- MongoDB, ExpressJS

I. INTRODUCTION

Today, India's Education technology (EdTech) industry is the second biggest in the world and it's only rising. The industry is set to touch \$3.2 billion by 2022. Indian youth is also driven towards the use of EdTech applications for not only enhancing their knowledge skills but also to plan for their future career development. In today's world there is a huge gap between the education system and industries. The things taught by education institute are very much outdated and doesn't match the requirements of industries. Apart from this there is a huge shortage of skill development courses, in market the skill development courses which are available is mostly related to coding side only there are hardly any course for other skills.

II. LITERATURE SURVEY

The literature available for design & development of web-based application are: -

In [1], AGILMAT is a web application designed to help students learn Mathematics, with focus on high-school algebra and calculus drills. A modular and extensible architecture and a wizard-based configuration interface decoupled from the system core are major design features of AGILMAT.

In [2], Recent developments in Web technologies and AI techniques to support efforts in making the Web more intelligent and provide higher-level services to its users have opened the door to building the Sematic Web. That fact has several important implications for Web-based education has become a very important branch of education technology.

In [3], Allowing students to use technology in the classroom has been increasingly more popular as technology advances and becomes more ubiquitous. However, many educators wrestle several aspects of edtech, including, how to start using edtech (Caukin, 2018), when to use edtech (National Education Technology Plan [NETP], 2017), how to incorporate it without creating more distractions for students (Thomas, 2019), and ways that edtech can move students towards higher levels of thinking (Caukin& Trail, 2019)

The objective of this application is to build a skill-oriented community and introduce a platform for students wherein they can interact with people of similar interest & skills. This way the students can stay connected & updated regarding their skills. It is an initiative for collective growth which shall help students in long run.

Some key features of the application proposed in this paper are as follows: -

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- Easy Communication.
- Focus and attempt to boost productivity.
- Provides lively interactions.
- Develop the community.
- Dedicated Job Portal
- Mentorship Courses
- Sessions

III. DESIGN METHODOLOGY

A. Technology Used

For the development of a web based ed-tech application tech stack used is MERN(MongoDB, ExpressJS, ReactJS & NodeJS) Stack. MERN stack is a JavaScript based framework.

Front-End: -

The front end of this website is designed using Figma & the development of front-end functionality is developed using ReactJS & CSS.

- Figma: -
Figma is used to design the user interface & user experience of the application.
- ReactJS: -
The ReactJS framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript.

Back-End: -

The database used for this website is MongoDB, & ExpressJS which is a NodeJS framework is used to connect MongoDB with the client side.

- ExpressJS: -
Express is a node js web application framework that provides broad features for building web and mobile applications. It is used to build a single page, multipage, and hybrid web application.
- NodeJS: -
Node is an open-source, cross-platform JavaScript runtime environment and library for running web applications outside the client's browser

- MongoDB: -

MongoDB is a document database used to build highly available and scalable internet applications.

- Bcrypt: -

It is a NodeJS framework which used for data encryption. It uses Blowfish encryption algorithm for encryption purposes.

B. Layout of Website

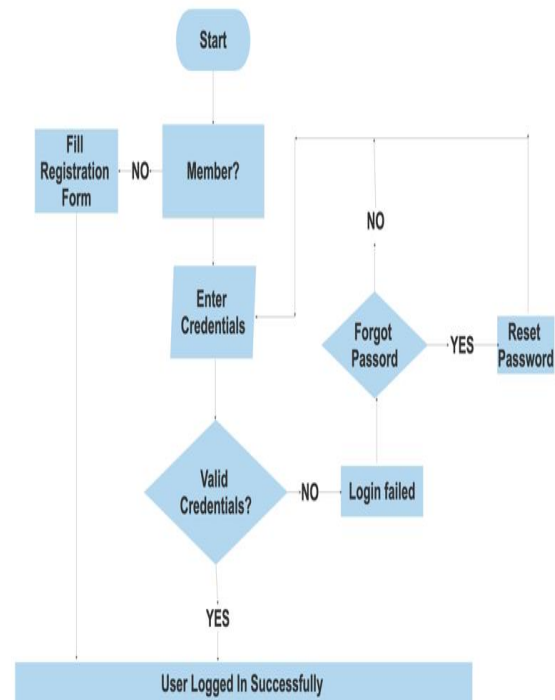


Figure. 1 User authentication flow chart.

In Fig.1, User authentication flow chart is shown where first the user will land to our authentication page, if the user is already registered then they will do a sign in & if user is not registered, they will do a sign up. If the user fails to sign in successfully then the user will have to reset his password if the email id of user is registered in our database.

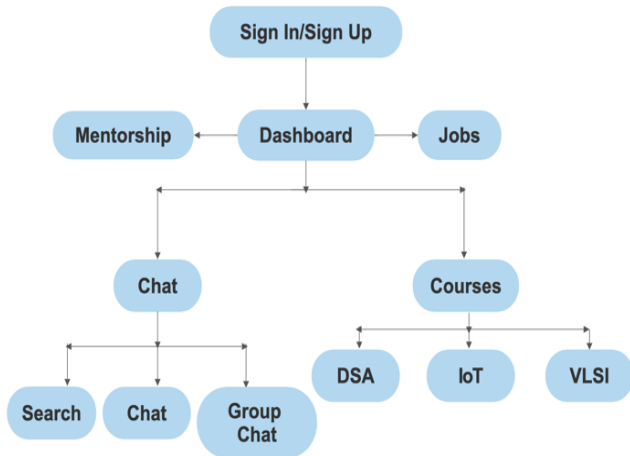


Figure. 2 Web application flow chart.

In fig. 2, Flow chart of the web application is displayed which explains the flow of pages in the application.

IV. RESULTS & DISCUSSION

Fig. 3 to 7 shows the different tabs of the proposed web-based application.

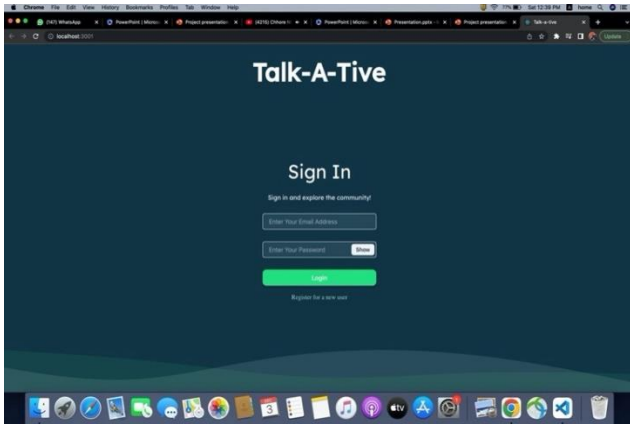


Figure. 3 Sign in Page

In fig. 3, Sign In page is shown where the user must enter the registered email id and password so that he can sign into the application.

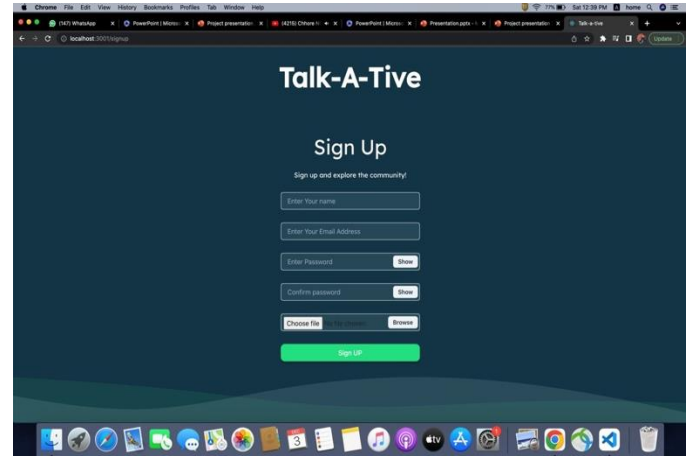


Figure . 4 Sign up Page

In fig. 4, Sign Up page is shown where the user must enter some basic details so that he can get registered in application's database.



Figure. 5 Dashboard

In fig. 5, when a user will do a successful sign in/up then he will land to the dashboard page where the user has 4 different options to select

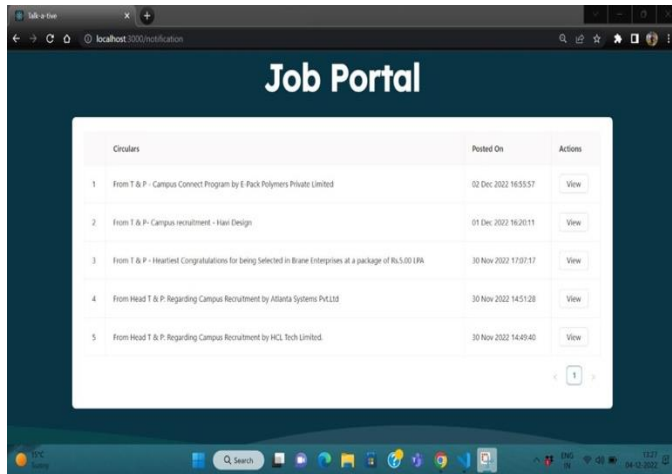


Figure. 6 Job Portal

In fig. 6, a job portal is shown where we have provided some different jobs option according to the skill set of users.

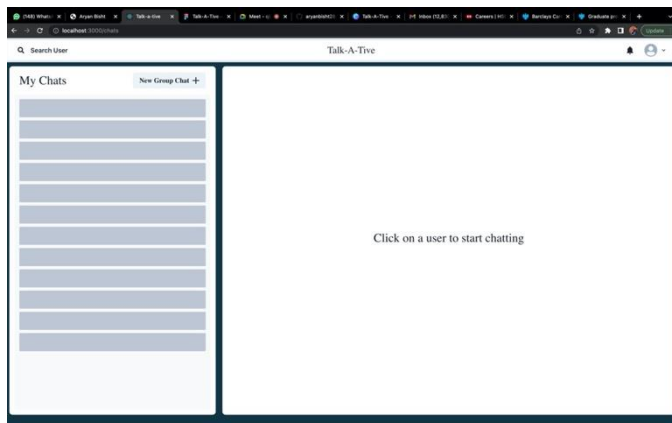


Figure. 7 Chat page

In fig. 7, chat page is shown where user can chat with his fellow user's or mentors

V. CONCLUSION

The design of web based ed – tech application is presented here to bridge the gap between people of interest in similar domain. It is a skill-oriented application unlike other applications which provides features like: Chatting ,Online Courses, Mentorship, Job portal.

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