

# ONLINE INTERVIEW PLATFORM USING NODE JS

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**Abstract**—Video communication has become an integral part of today's world for attending interviews, classes, meetings and a lot of other gatherings as well, in the COVID-19 era. Along with the increase in usage of video conferencing applications for conducting interviews, the quality of interviews has dropped since the candidates have found ways to malpractice and clear the interviews even though they lack the required skills. As a consequence, deserving candidates with the required skills lose out to those who find alternative ways to cheat and clear the interviews. In this paper, we propose a way to make the process of interviewing for roles in the software industry easier and to make it a fair experience for all the candidates. We introduce the Online Interview Platform, a web application built using NodeJS providing various features required for an interview such as a real time collaborative code editor along with a compiler that allowing users to collaborate in real time, test and run code, Video/audio conferencing feature, Chat box to communicate and a real time collaborative whiteboard allowing users to design or draw diagrams. All these features are included in the same tab, to make sure all the technical testing of candidates can be done in the same tab. With these features available, the candidate will have to stay on the same tab on their browser and would be able to perform the tasks required for the interview rather than switching tabs and trying to cheat. With the help of this web application, we'll be able to screen out candidates based on their qualifications, assess them properly and make decisions to hire based on his/her performance.

**Keywords-** Interviews, Online Interview Platform, Collaborative editing, Node JS

## I. INTRODUCTION

Ever since the start of COVID-19, a lot has changed in the way industries work. One of the many radical changes that we have witnessed came in the process of hiring new candidates, through the method of virtual interviews. Even though video calls and online conferencing had always been a part of hiring in certain organizations. However at present, it became the mandate to be followed by almost every other company on the planet over the course of the last year. These virtual job interviews are much similar to in-person interviews. The advantage is that he/she can take part in a

video job interview from the comfort of your home without any travel costs. During the interview, the interviewer will ask the candidate taking up the interview general questions pertaining to their field of work. And, much like the interviews that were held before disaster struck, the ones who performed well in the interview are selected on the basis of the answers to the questions asked to them and also based on their attitude during the interview.

Over time, candidates began to realize the shortcomings in this virtual environment and figured unique and innovative ways to malpractice their way to a job. With more such candidates clearing interviews by their deceitful ways, talented and budding individuals who gave it their all ended up missing out on an opportunity to work at their desired firm. Not just that, those candidates who cleared their interview by trickery do not make the cut in the industry and become deadwood at the firm they end up joining. And for that reason, we have decided to leverage the power of technology to make interviews foolproof.

Our application aims to make interviews more straightforward, by reducing the chances of a candidate malpracticing by providing a real time collaborative code editor[1] along with a built in compiler[2] in the same tab as the one where the video conferencing feature[3] has been connected. The candidate will be expected to type their solution to the problems given by the interviewer on the editor given in our page. And any changes made by the candidate on the editor will be immediately reflected in the editor displayed on the interviewer's screen.

Thus, the interviewer can keep track of every change made by the candidate, preventing the candidate from copying and pasting the code from another source. Also, since the candidate's video is being monitored live by the interviewer, the chances of any form of malpractice becomes little to none in our application. There is a chat box feature available in the application as well, to allow the candidate and interviewer to communicate with each other in case of any audio issues at either end of the application. Also, the interviewer can share his questions with the candidate through this chat box while conducting the interview. Models, charts, UML diagrams, flow charts, graphs, and

many other forms of drawings have become a crucial part of an engineer's work. And unlike an in-person interview, an interviewer cannot usually test a candidate's mettle in drawing as such, during a virtual interview. Our application helps quell this issue by providing a collaborative white board as well on the same page as the video interview. Similar to the code editor, any changes made on the drawing board are immediately reflected on the board at the interviewer's end thereby enabling the interviewer to rate a candidate's performance to a better standard. Thus, our application looks to solve some of the major issues faced by interviewers and organizations while conducting interviews virtually.

## II. RELATED WORK

Online Interview Platform is a Internet-based tool offering a virtual environment for remote interviews among geographically dispersed participants. Remote conferencing can be used to minimize travel expenses and time for face-to-face meetings and can also be put to good use during the COVID-19 pandemic. This explains the worldwide shift towards web based interviewing tools. Virtual platforms for video conferencing already exist. These virtual platforms are good for video conferencing but they are not as efficient when it comes to the conduction of an interview. These platforms do not test the competency of a candidate to the fullest and also do not have a proper means to filter out malpracticing candidates.

### A. Video conferencing

Video conferencing is a technology that allows users from diverse locations around the world to conduct face-to-face meetings without having to actually come into contact in-person. This technology is particularly useful for users because it saves time, expenses. In 2012, KV Rop and NK Bet of Jomo Kenyatta University explained how video conferencing applications enabled distance learning and how effective it was for the students in delivering subject matter[5]. In 2020, Antonio G Nanos and Anne E James of Coventry university published a paper on how having only video conferencing features in an application like Cisco Webex, MS Live have not been able to replace the direct meetings being held. They suggest ways in improving the quality of meetings with additional tools which can be able to serve a purpose [4]. A comparative analysis of video conferencing platforms was done in 2020 by Ravinder Singh and Somya Awasthi of Maharaja Surajmal institute of technology. They've analysed the ways a call could be protected and secured, privacy issues of applications, threat protection offered and number of users

allowed, registered, etc [6].

### B. Real time collaborative code editor

Real time collaborative editors allow multiple users to edit shared documents at the same time. These types of collaborative methods gained great popularity with the use of Google Docs, VS Code, etc. Collaboration could only be done with face to face meetings with additional tools such as version control systems. But with the introduction of algorithms such as Operational transformation algorithms. Operational transformation algorithms provide consistency control which are widely used in group editors [8]. Any part of shared documents can be edited at any time. An integrated review of the techniques of the above mentioned algorithm, the issues faced, the algorithm used and the challenges faced were studied [10].

### C. Discussions -

The quality of the Online Interview Platform can be improved with the information gained from the research. Existing video conferencing systems are very good at providing great features like conferencing over low bandwidth, Connecting more people, chat room, etc. Online Interactive code editors are very useful in practicing problems with friends, coding to develop applications with team members etc. Interactive drawing boards are useful in explaining concepts through diagrams. Collaborative code editors and compilers can be used in online interview platforms to improve the quality of interviews and make it easy and hassle free. The interviewer can keep a check on the code of the candidate taking up the interview to make sure that the approach carried out is correct, and also help the candidate at times. The collaborative drawing board can be used to design diagrams, models, system design, etc. to show that the candidate is skilled. Therefore by integrating the Collaborative code editor and whiteboards along with video conferencing applications, we can fulfill the necessities of interviews to replace the In- person interviews.

## III. IMPLEMENTATION

The Online working platform requires the interviewer to sign up with the platform either using the traditional email and password. The interviewer can also sign up using their Facebook account if they have one. The details entered will be stored in MongoDB Atlas. Once the interviewer registers, they'll have to login using their credentials submitted during registration. The platform will check with MongoDB Atlas and will let the user sign in if the login is valid.

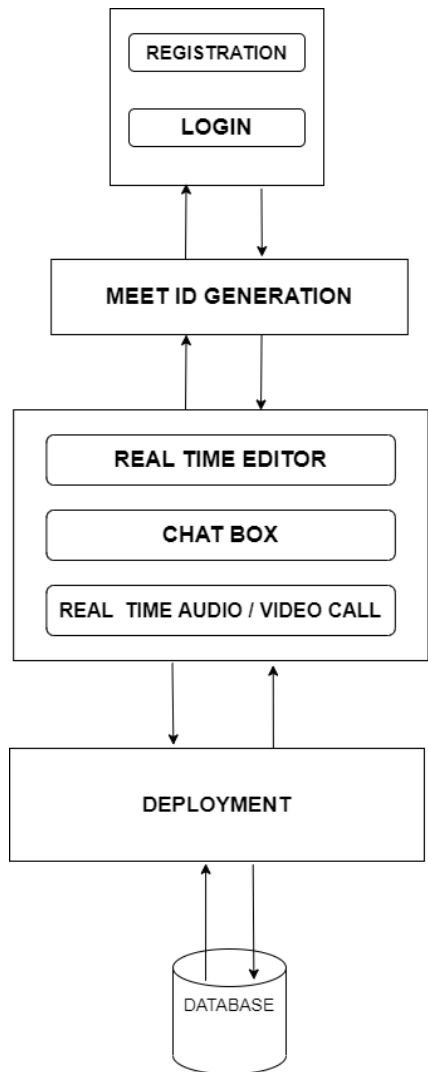


Fig 1. Architecture Diagram

The next step is to generate a meet Id to collaborate with the candidate taking up the interview. The interviewer has to just click on a button available on their homepage to open a new meet link with the collaborative editor, whiteboard, video conferencing application and chat box. Each meet link generated is unique and will be stored in the database along with the code entered in the collaborative editor. The meet link can be sent to the candidate taking up the interview through any means. Once the candidate joins the meet. A User ID will be generated for both the interviewer as well the candidate. The User ID can be shared with each other using the chat box provided. One of them must copy and paste the user Id and click on the Call button available. This will ask for permission to allow access to microphone

and camera for both. Once they grant the permission, the video call would work perfectly fine along with the audio. The application also has a feature to share the screen to present their projects, show their work, etc. The collaborative code editor can be accessed by both the interviewer as well as the candidate taking up the interview. Questions can be shared through the chat box available or through voice. Now whatever the candidate types on the editor will also be visible to the interviewer giving no space for malpractice to take place. The tab will also have a collaborative whiteboard present which is built using socket io package of Node JS. The whiteboard can be used to draw UML diagrams, answer questions on system design, etc.

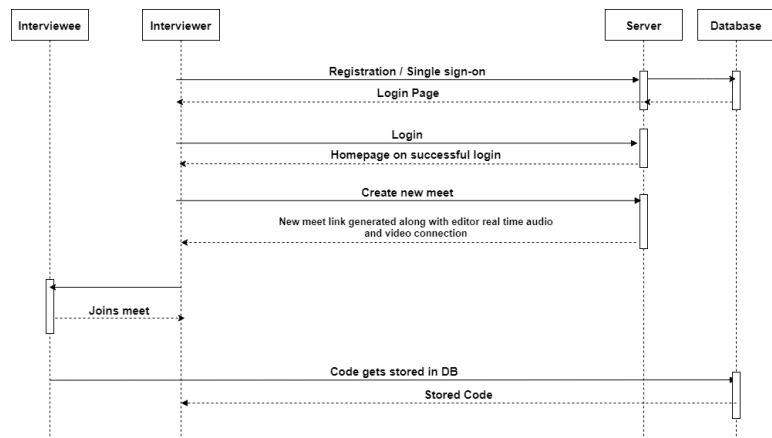


Fig 2. Sequence Diagram

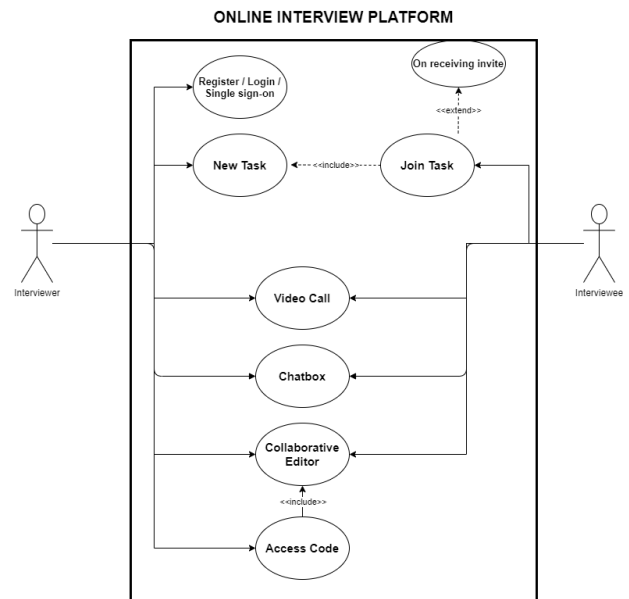


Fig 3. Use Case Diagram

## IV. RESULTS

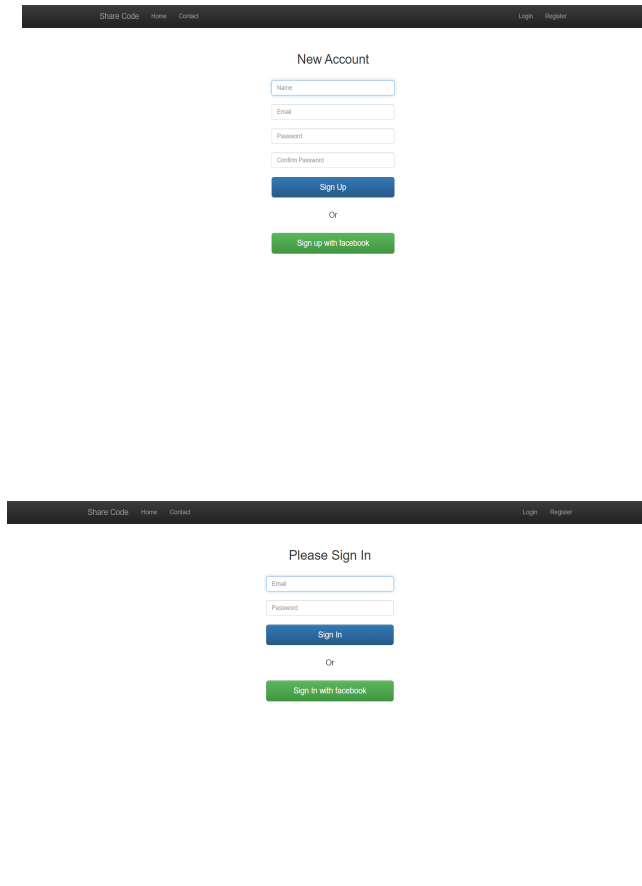


Figure 4. Registration and Login Page

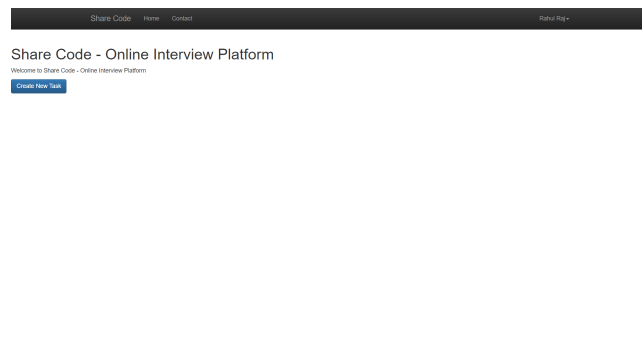


Figure 5. Homepage

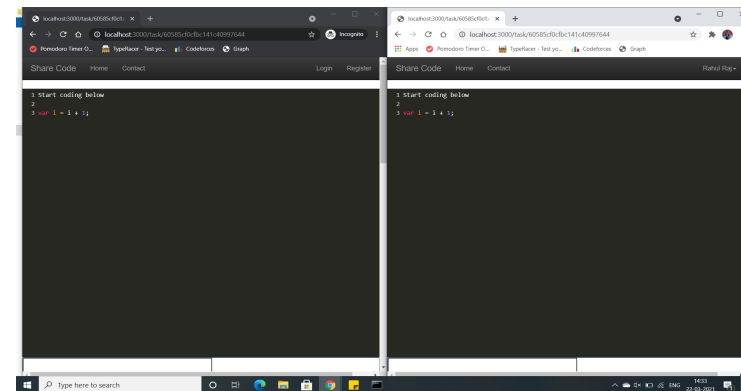
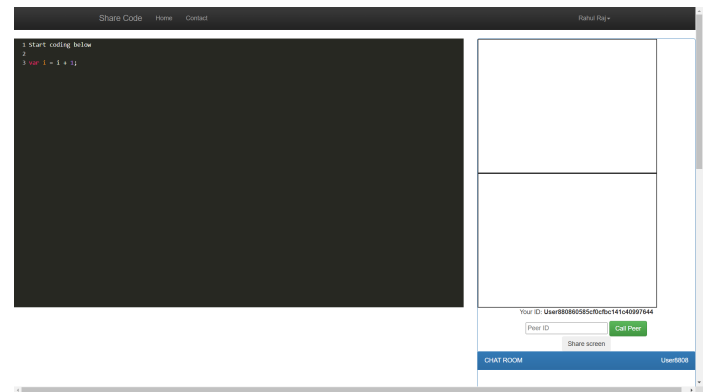


Figure 6. Code Editor

## V. Conclusion

This paper proposes an approach to make the process of conducting interviews easier and making them hassle free by reducing time and expenses. By using this application we would be able to reduce the malpractices taking place during an interview. This application would be useful during the times of COVID-19 or even after it to reduce the stress involved. We have included several features in this application such as a collaborative code editor along with a built in compiler, allowing both the interviewer and interviewee to collaborate while coding. Video/Audio camera feature to allow both of them to connect with each other. A collaborative whiteboard to handle design questions asked during interviews and a chat box to type and send questions. With all these features, we will be able to reduce the malpractice taking place during the interviews.

## V. Future Enhancements

Future works will aim at improving the support available to the editor to more programming languages. By improving the usability of the whiteboard by adding more shapes, and to include code generation features from diagrams. Another important feature will be to analyze videos of the candidate and immediately alert the interviewer in case of

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