



PLACEMENT PREPARATION PORTAL USING REACT.JS AND CLOUD FIREBASE

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Abstract: During placement preparation students will search for various websites to practice and search for important topics in the subject. To put all those study materials in a single place we have come up with a solution – a website that helps the user prepare for interviews. It has 3 sections – Practice, Test and Feedback. There are three types of users – Admin, Student and Alumni. As a student, the user will be able to access a curated selection of study material from various sources, take up tests, review them, and give feedback to help other users. In the practice section, the user can choose the field he has interest in, and study the relevant study material. In the test section, the user will have the freedom to choose from a variety of questions on whichever field he wants, such as Java, Data Structures and Algorithms, and General aptitude. After the test attempt, the user will be given a test report. The user can also view the feedback from other users, who have benefitted from the tests, and use their guidance for their preparation. The user can also give feedback, when they have secured a job themselves. As an admin, the user will be able to track the progress of all the students, and offer support to them. They can update the tests by adding/removing questions. As alumni, the users can add useful links and quiz questions that could be helpful for the students.

Key Words: Placement, Alumni, authentication, react.js, node.js, Firebase.

1.INTRODUCTION

Placement is one of the most important things in a student's life. In order to get a placement in a good IT company, a student must prepare his best for it. Aptitude, coding, Knowledge about computer fundamentals which includes database management, data structures and Networking are some of the most important things which are typically asked during placement rounds. There are many websites which give

information regarding these topics. Some websites lack information and others have more information which is difficult to digest for students. So our project focuses on providing all necessary information to crack placement rounds in one place which is easy for students to refer to and help them to prepare their best for their placement.

Problem statement

To build a software that aids students with placement preparation in a single window mechanism by providing the study materials and quiz questions.

Objectives

The main objectives of our project is to provide study materials which will help students to improve their technical knowledge, logical reasoning, coding and other skills. To motivate them by keeping track of their learning process. To make them test their skills by attempting topic wise quizzes. To collect feedback from seniors and provide it to them. And make admin to track the student progress.

2. LITERATURE SURVEY

The paper titled “A RESEARCH PAPER ON FIREBASE AUTHENTICATION”[1] by Ranganath Manohar Rane, Sandesh Suresh Kadam depicts the importance of Authentication and Authorization while designing websites. Authentication is one of the great ideas in computer security. Authentication is a process by which a user gains the right to identify himself. Techniques to authenticate a user can be passwords, biometric techniques, smart cards, certificates, etc.

The paper “ PRESENT DAY WEB DEVELOPMENT USING REACTJS”[2] by Archana Bhalla, Shivangi Garg, Priyangi Singh depicts the use of react in web development. React is a library for building secluded UIs. Respond fundamentally empowers improvement of enormous and complex electronic applications which can change its information without resulting page invigorates. Respond abstracts the Document Object Model, therefore offering a

straightforward, performing and vigorous application improvement experience. Response for the most part renders on server side utilizing NodeJS, and backing for local versatile applications is offered utilizing React Native.

The paper titled “PERFORMANCE INVESTIGATION ON NODE JS”[3] by Komal Paliwal tells about the performance of node js .In this time of computer and web, element web is the universal hotspot for standardizing; In this paper, test-driven improvement of a web application has been completed utilizing a generally new programming framework called node.JS(server side JavaScript technology) . Node.js, which is a suitable language for development of scalable network applications, has been used to develop a prototype. The paper “FIREBASE FOR REAL TIME AND ANDROID APPLICATION”[4] by Chunnu Khawas, Pritam Shah gives the use of NOSQL database in real time application. Firebase Realtime Database (Firebase) is a cloud-based NoSQL database that syncs and stores data between users in real-time. Users collaborate across various devices and create serverless apps. Developed by Google and launched in 2017, Firebase quickly syncs data via Android, iOS, and JavaScript SDKs, allowing for expressive queries that scale with the size of the result set. Users who don't require real-time data syncs might still benefit from the one-time reads feature. The server used for Android apps are Oracle SQL, Microsoft SQL Server, and MySQL which are connected to the server with PHP files. Then Firebase came into existence for Android apps which use JSON for storing data.

3. EXISTING METHODS

Geeksforgeeks

GeeksforGeeks is a website which provides articles, quizzes on programming and algorithms. Problems are categorized as school, easy, medium, hard, advanced. There are a huge variety of problems and there exists multiple solutions for each problem. It also provides courses related to many technologies. Blogs, articles related to various technologies etc included in this website.

Leetcode

LeetCode is one of the most well-known online judge platforms that is used to practice programming skills by solving coding questions. It has over 1,100 different problems, with support for over 18 programming languages.

Indiabix

Indiabix is an education website, which contains several multiple choice questions and answers from different subjects. It is best useful for students preparing for a written examination for placement in any company and also for government examination aspirants.

Faceprep

Faceprep is a website, contains aptitude and coding questions and solutions. It gives several courses to students. It includes articles, tests, videos and webinars.

The existing methods have too many questions to practice in which all are not very important. And questions complexity is high. And it is difficult to know which topic is important. And not entirely free to use. After knowing these limitations of the existing methods we decided to build this system.

4. PROPOSED WORK

The proposed system provides a solution in a single window for the students that gives 3 sections to prepare for the placement. Those are

- Practice
- Test
- Feedback

In the practice section important subjects' study materials are available. In the test section students can take quizzes on different levels. In the feedback section students will get feedback from seniors which tells about their interview experience. And after the student gets placed in the company they can also give feedback on the interview experience. And for the admin login the admin can see the progress of the student. The overall report will be generated for that student. For Alumni login they can give the study material link in which they were practiced and they can also add test questions for the student.

At this time the system is built for circuit branches which mainly includes computer science, information science, bachelor of computer application and master of computer application.

System Architecture

Below diagram describes the overall flow of data. And it shows all features available in our system.

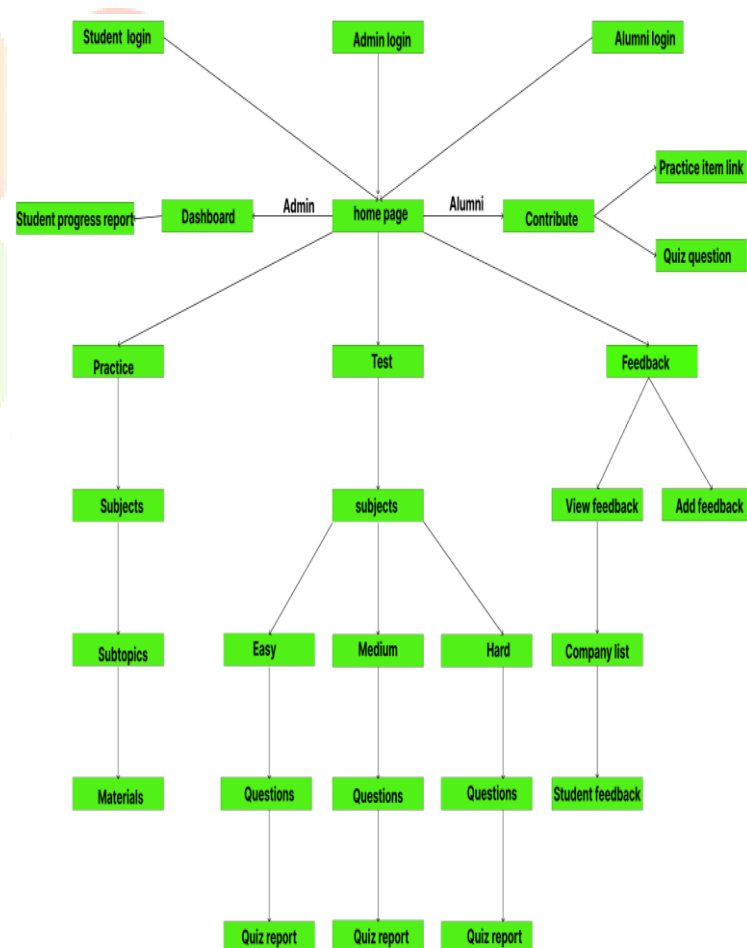


Fig.1- flow chart

Methodology

Login page

At first, for the authentication purpose the user should create a new account to get into the system. It has 3 types of login – as a student, as an admin, as an alumni. If he is authorized to a particular section then only the account will be created under that section. For next time they can login to the particular section.

Home page

After successful login, all available pages are shown under that section. For student practice, tests, feedback pages are available. For admin addition to this the dashboard will be there. An alumni contribution page will be there. Users can navigate to the different pages.

Practice page

On this page all subjects for a department are listed. The subjects are data structure and algorithm, operating system, computer networks, database management systems. For every subject subtopics will be there. After selecting a particular subtopic the important study materials link will be provided for that subtopic. The student can practice that topic by clicking the link. For some subtopics the theory as well as the coding questions are there to practice. Upon clicking the link students will navigate to the site like geeksforgeeks, leetcode, hackerRank to practice the topic. After reading the question, the student can tick the check button for that topic to know whether the topic is covered or not in his next login.

Test page

In the computer science department we found 5 subjects that are most important for the placement interview. Data structures and algorithm, operation system, computer networks, database systems, And java. This section also includes mathematics aptitude, and general knowledge questions which helps to crack the first level interview test. 3 levels (easy, medium, hard) will be there for each subject. For each level, a quiz will be given to the student. 15 questions will come in one test. The time limit is there for the level. Before that time limit, students should complete the test. After the time limit the test will be auto submitted. After submitting the test, students are able to see the quiz report in which the correct answers will be marked. So that the student can know the progress.

Feedback page

In the feedback page students can get the company wise feedback which was submitted by the seniors. The companies which come for SJCE placements are listed there. Students will have a drop down list to select the company for which he wants feedback. Feedback submitted to a particular company will be stored under that company name. The feedback contains the student name, job role in that company, CTC, and questions asked in the interview, and overall experience of the interview. One can submit the guidance for the placement preparation to the students. After reading the feedback, students will get some idea about the interview process. After being placed in the company that student can also give feedback so it will be helpful to remaining students.

Admin page

For admin additional to practice, test, feedback page the dashboard will be provided. In that dashboard admin can see the progress of any student. The overall quiz report will be generated for that student. So the admin can know the learning progress of that student.

Alumni page

This is the special page for alumni. Here a contribution page will be provided for an alumni. If that person referred to some special or important topic for any subjects he can add the link for that topic. So it will be useful for the student to prepare. They can also add the quiz question for the subjects.

5. RESULTS

Practice page

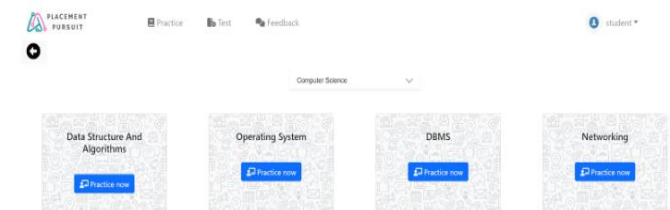


Fig.2- subjects list

Arrays

Index	Question name	Completed
1	reverse an array	Checked
2	Maximum and minimum of an array using minimum number of comparisons	Checked
3	Kth smallest element	Checked
4	Sort an array of 0s, 1s and 2s	Checked

Fig.3- study materials

Test page

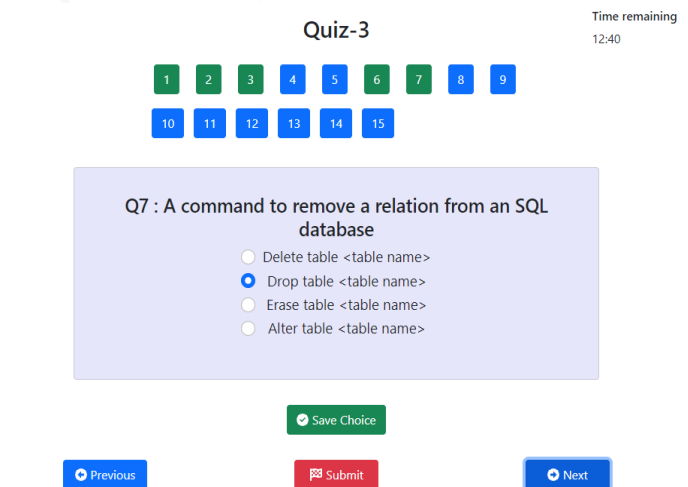


Fig.4- quiz question

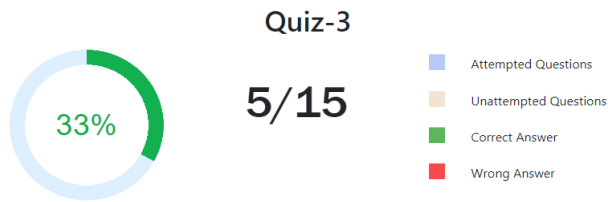


Fig.5-quiz report

Feedback page

Fig.6- feedback submission

Name : **Amogh Deshpande**

Company Name : **Amazon**

Role : **Cloud Support Associate**

CTC : **19**

Experience : Binary trees coding questions, Stacks and Queues coding question, Linux basic commands. Networking: Difference between router, switch. · What is a Broadcast Domain? · DHCP DORA process · DNS – detailed explanation. TCP/UDP and why? · Subnetting · MSS/MTU · Complete flow when you trigger amazon.com · OSI model with complete details and protocols on each layer. · TCP and SSL handshake · Difference between TCP/UDP, examples · Flow/error control ·

Fig.7- student feedback

6. CONCLUSION AND FUTURE WORK

We have developed a website that helps students prepare for their placements. The Website is developed with the purpose of helping students of different backgrounds succeed in their placements. This website aims to put all the information needed by the students for placements like study materials and quiz questions etc. Students can take tests and analyze their performance based on the results generated. They can also view their senior's feedback on placement procedures. After their placements they can also add feedback. This website is also helpful for admins as they can track students' progress and they can make decisions for future improvements. Alumni can add questions to the test section and the study material links which they used to prepare so it will be useful for the student. We hope being a real time project this system will be used in an efficient way.

The system can be improved by extending its reach to different streams like all electrical and non electrical subjects of engineering studies. This technology can be integrated with the current placement process. The system could be designed on an android platform.

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