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College Job Portal

Harikrishna Gonuguntla

A Project Submitted to

GRAND VALLEY STATE UNIVERSITY

In

Partial Fulfillment of the Requirements

For the Degree of

Master of Science in Applied Computer Science

School of Computing and Information Systems

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Abstract

Through this project, I am producing a portal called "College Job Portal" that will make life easier for students, colleges, and the companies who hire the students by handling the hiring process. On-campus job placements are a crucial component in contemporary educational institutions. By entering information about their educational history, grades, technological abilities, and CV, students would register with the portal. Like students, companies would sign up with the site by supplying basic details like their address and contact information for human resources. The college would be the portal's administrator. Companies can advertise job openings using this site by including information like the position's title, the number of openings, the minimum grade requirements, the skills necessary, and the deadline for applications. After receiving these details, the administrator can distribute the job advertisement to the students. The administrator will have access to information on the student, the company, and the job vacancy. Admin can send notifications to either Student job seekers, or students with jobs but lower income than the advertising provides, or all students who are registered in the portal. For the student to get the employment notice, they must be registered with the site. Students who get employment notifications can read job specifics, including position name, skills needed, minimum grade requirements, and the deadline for applications. Students who receive job listings through the site can submit applications. The information of students who submitted for a certain job ad, including the résumé, is then available to employers. After the interview, the firms may use this site to send the job offer letter, which contains the start date, the starting pay, the T&C, and other information, to the appropriate student along with the student status (selected/rejected). Additionally, companies can use this site to give students technical documents relating to the position, assisting them in getting ready for such positions.

Introduction

The online application College Job Portal was created using MySQL and PHP. The application is made to monitor the hiring procedure that occurs when college or university students are placed on-campus. The three key actors in the process—the student, the company, and the college—are brought together on one stage by this site, which also administers the whole process with little input from the actors. It's critical to have a structure in place that makes recruiting employees for on-campus postings less laborious for both employers and students.

The benefits of using this portal are listed below.

1. Companies must run a background check when a student seeks for a job. However, if this portal were to be used, the administration (College) would verify the student's information, and that information would then be sent to companies when a student applied for a job.
2. Students do not have to formally provide their information each time they seek for a job. Companies can access that information when students seek for a job. Students would only need to enter those details once while creating their profile in the portal.
3. Organizations are not compelled to create a fresh offer letter for each candidate they choose. When employers create a job offer, their information are kept, and the system uses those details to produce an offer letter automatically.
4. Companies may simply submit the technical papers pertinent to a post on the site, where all the students chosen for that specific position will have access to them.

By controlling the employment process such that just a minimal amount of manual work is necessary in the student recruiting process, I hope to simplify life for both students and employers.

Through the Web Architectures course, I learned the fundamentals of PHP, which I then expanded upon by studying online tutorials. I was able to create the database I needed for my project with the aid of the entire database ideas covered in the Principles of Database Design course. The project management ideas that were covered in the Systems Analysis and Design course were really helpful to me as I planned, designed, developed, and tested the project. I also learnt how to work with blob data in databases, which I utilized to store documents like resumes and technical documents in the database in addition to the knowledge I got during the curriculum. I developed the ability to generate documents automatically using the content found in the database, and I utilized this ability to generate offer letters. To finish this project, I learnt about concepts like user sessions, access control, etc.

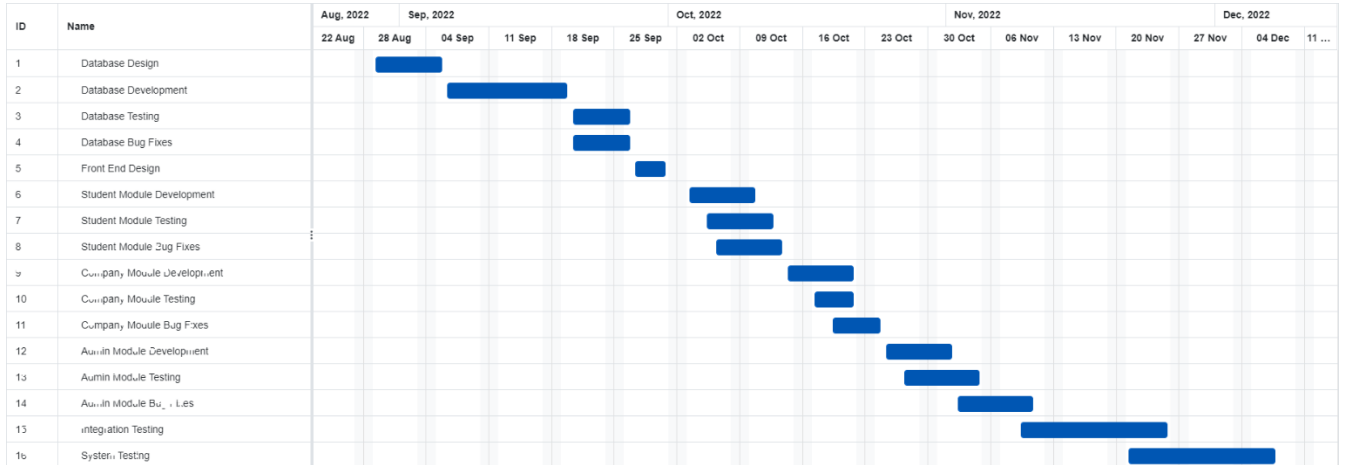
Project Management

The College Job Portal application was created using a waterfall model. By using this model, I can make sure that every stage of development is finished before moving on to the next. The fact that my project is modest and that its requirements are clear and won't change throughout the development or testing phases is another factor in my decision to choose this approach.

The waterfall model's phases are listed below.

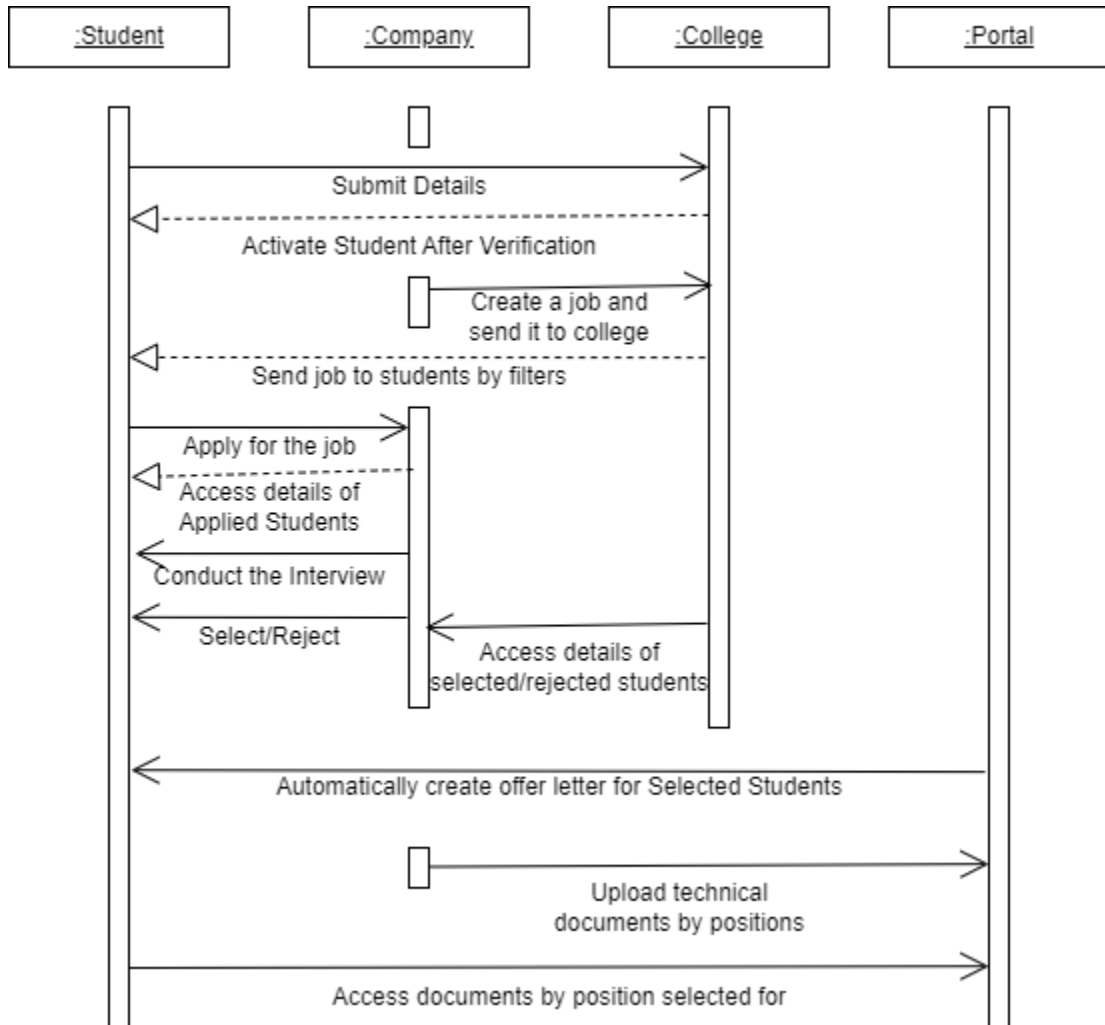
1. Requirement Gathering: The goal of this project is to create a portal that students and companies may use to recruit on-campus with the least amount of human interaction possible.
2. System Design: I intended to create the portal using the WAMP server, which stands for Windows Operating System, Apache Server, MySQL, and PHP.
3. Implementation: During this phase, the database and the web components were developed. The web modules include student, company, and college modules as well as a few more web pages including the home page, header, and footer.
4. System Testing: performed system testing along with unit testing, integration testing, and testing for each individual module. I carried out white box testing because I created the system, therefore I was familiar with its whole internal architecture.
5. Deployment: Because Google Cloud offers MySQL instances and supports Apache web server on its virtual machines, it is intended to deploy the project there.

I utilized a Gantt chart for the development backlog and burndown. The project backlog and development stages are shown on the left side of the Gantt chart in the picture below, and the timeframes for those phases are shown on the right side.



Organization

The sequence diagram that shows how the portal is structured is shown below.



There are 4 primary modules in this project. Student, College, Company, and the Portal/System.

1. **Student Module:** The student can register on the portal by providing the resume, academic, and personal information. After receiving admin approval, the student may see the job specifics, technical abilities needed, yearly income, etc. and apply for the job alerts they have received on the portal. The company's decision of the candidature is visible to the students. Selected students get access to the agreement and technical documentation that the company has uploaded.
2. **Company Module:** By giving information about the business and the main HR contact, companies may register on the platform. Companies can post jobs after registering by providing information about the position, including the title, the number of opportunities, the needed skills, etc. After a student applies for a job, employers may access the student's information, including the resume. Companies can use this portal to communicate their choice to the students following the interview. Companies can publish technical materials on the platform depending on the roles.
3. **College Module:** Once a student registers on the portal, the college, which serves as the portal's administrator, must confirm the student's information. Any employment generated by the company would be forwarded to the college, which would subsequently send the positions to the students in a variety of ways. The college has access to the student waiting list, rejected list, and selection list.
4. **Portal:** The portal oversees producing the offer letter by examining the information given by the employer when the position was created. In accordance with the roles they are chosen for, the portal must retain the technical documents submitted by the companies and grant access to the materials to the students.

Reflection

Creating this project allowed me to expand my PHP skills significantly. I gained knowledge about various database storage options for files. I appreciated how the websites employing sessions handled logins. I was able to better grasp access control by learning how to provide users access to just permitted information.

I created the database's initial design and development, as well as its stored procedures and triggers. However, I discovered that the foreign keys of the database I established are connected incorrectly while testing data insertions and deletions during database testing. I was thus unable to delete certain data from a table without also deleting the data from another table. Which wasn't the best situation for my portal. However, I was able to alter the database's design and extensively test it to ensure that such inconsistencies do not arise when the web portal was being developed.

I ran into a few minor problems when developing the web portal, but I was able to fix them by reading several internet blogs and tutorials. Other than that, I didn't run into any significant problems when building the web site. I was able to identify a few flaws during the testing process that were associated with data validations, illegal access, login problems, etc. I conducted unit testing, integration testing, and system testing to properly test the entire system once I resolved the errors. One website I frequently utilized to repair issues and mistakes was Stack Overflow.

In the end, I was able to create the portal with all the features I had planned to provide throughout the project's requirements collecting phase. However, I was unable to deploy the project into Google Cloud to make it live.

Conclusions

The final portal was hosted on my own computer and included every functionality I had in mind for it. I showed it to a handful of my friends and got their opinions.

Even while the site has a lot of features, it also has significant shortcomings, which leaves room for future improvements. Below is a list of a few of them.

1. Only one college is connected to the site. It wasn't the best idea for companies to sign up on a portal for every institution they want to hire students from. Future improvements will allow me to allow several institutions to register on the site in a manner much to how individuals and companies did.
2. When a student uses the portal to apply for a job, the employers must confirm that the student possesses the qualifications needed for the post. My goal was to engage people less, which is not the case in this situation. I must thus match the student's skill set and academic performance to the minimum standards needed for the position. Here, AI/ML will play a significant role, and I'm going to have a steep learning curve in this area.
3. Interview scheduling is necessary before conducting the interviews. For this site, I can incorporate a scheduling mechanism that will allow selected candidates to book company interviews during the times that the companies have open.
4. The hiring procedure includes several online examinations, which are followed by in-person and online interviews. The online exams may be taken through the portal, and the selected candidates can proceed to arranging company interviews.

Economic Feasibility

The proposed system calls for the use of free and readily accessible online development tools and software including PHP, WAMP, and MySQL. We need a variety of resources, including computer systems, an internet connection for e-help, the appropriate amount of disk space, and memory speed as specified in the technical requirements, to create the proposed system. By examining all these costs and contrasting them with the suggested approach, we can see several advantages, including

1. Since the current method is manual, data may not be precise, current, or available in a timely manner. However, the suggested method would be automated, allowing us to get around all the drawbacks of the current system. Additionally, this new approach will make it simpler to handle the insertion, deletion, and alteration of different types of data.
2. This technique will lessen the amount of paperwork. Additionally, data quality will be raised.

Considering the advantages and contrasting them with the various resource expenditures, we can say that the suggested method is economically viable.

Operational Feasibility

Without a certain, the suggested system is entirely GUI-based, extremely user-friendly, and all inputs are self-explanatory even to non-technical people. In addition, sufficient training has been provided to users, so they are familiar with the basics of the system and feel at ease using it. According to my analysis, the system has reduced the customers' workloads and doing, so they are comfortable and content.

I got a few of my friends with no knowledge in computer science to utilize the website, and they raved about how user-friendly it is. Through this service, my friends who are students were able to register and submit job applications. created new employment as businesses and discovered how simple it was to use the internet.

Timeline and Dates:

This project will need to be completed by December 15, 2022, at the latest.

Date:12/14/2022

Drafted By: Harikrishna Gonuguntla