Development of a Full Stack Job Application Tracker

FEASIBILITY REPORT

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Abstract

Designing a web application that meets the needs of the end users (Job Seekers) to be able to manage and follow up on their job applications. In the three months to July 2023 there are approximately 1.02 million job vacancies in the UK with a 3.9% unemployment rate (Statista 2023). In comparison to the previous year, the number of job vacancies is still at very high levels. This report examines the feasibility of an application that can potentially help those who are applying to a plethora of vacancies to keep track of their applications.

Overall, the goal of this project is to reduce the unemployment rate through the use of a user-friendly interface using a solution that will be decided after extensive background research and considerations of other factors.

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1 Project Overview

1.1 Introduction

In this project I aim to address the issue of lack of a concentrated application that can manage users job applications. With the constant need for jobs to be filled and the endless flow of applications a user will be submitting, the need for a system to keep on top of them is ever growing. The project will focus on developing a web application that utilizes tools and technologies such as a MySQL Database, Java Spring Boot and React to give users an organized way of reviewing their job applications thereby diminishing the use of multiple job boards to track the progress of jobs applied through them.

The database, like many applications, is a core component of the system. It will be designed based on an Entity-Relationship Diagram (ERD). This will allow me to create a scalable and efficient system that can handle many variables such as number of users and amount of data. I will also be conducting normalization so that it reduces data redundancy and improves data integrity.

The system also involves creating a user interface that guides the users through the process of managing their job applications. I will be conducting extensive testing to ensure that the system is functioning as expected.

1.2 Aims and Objectives

To achieve this aim, the following objectives must be completed:

1. Conduct research into job application trackers and related subjects
2. Based on the literature, the requirements are to develop a web application with a graphical user interface, database with correct data and a method to allow users to manage their applications.
3. Following strategies of the two previous objectives, create and design an application that results in a functioning system.
4. Plan a series of tests to show that the system executes operations using various appropriate testing procedures to ensure that the system is working as expected.
5. Conduct an evaluation of the system.

1.3 Project Approach

To fulfil the objectives described above, the following methods must be accomplished:

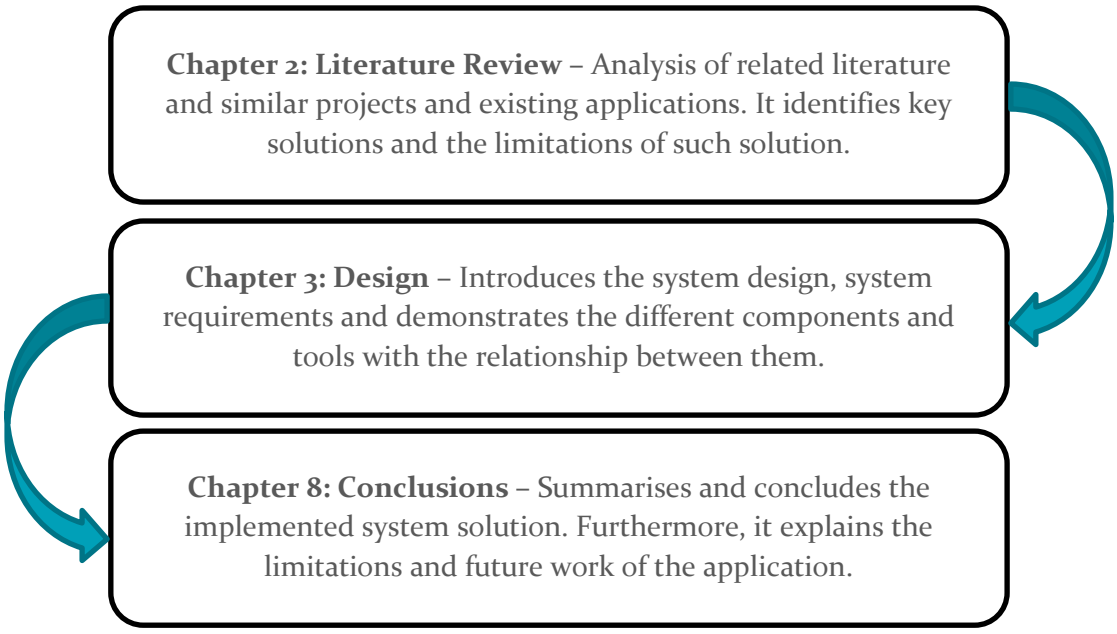
- Background Research – Relevant academic literature must be read and examined to get a good understanding of the various approaches that have been implemented in similar projects. This will establish the necessary tools and procedures required to develop a solution to the problem.
- Design – This approach will rely on findings from the background research approach. The software development methodology that will be undertaken for this project is Agile. The front-end interface will be conducted by drawing out

low-fidelity sketches. A selection of ER Diagrams and User Stories will be created to demonstrate the functionality of the system.

- Implementation – An initial software solution will be implemented, and Spring will be used to create the services and connections to the database to achieve the goal of the project. React will also be utilized to create the Graphical User Interface for users to interact with the application.
- Testing – The web application will be tested following a test plan using appropriate testing techniques and measurements to ensure the functionality of the application has been met to high standards.
- Evaluation – This final approach will determine the outcome of the project has on meeting its aim. This is achieved by evaluating the testing results.

1.4 Report Outline

The structure of this report on the application mentioned consists of 3 Chapters as shown in the flowchart below:



2 Literature Review

2.1 Introduction

This Chapter describes the foundations for this project and specifies the project's aim. It identifies the fundamental research investigation and the most appropriate method of an approach based on the related subject.

2.2 Case Studies

With Online Applications being the most dominant form of applying to vacancies, there are several well-known websites that job seekers visit to apply and manage their applications. Websites such as LinkedIn, Indeed and CV Library all do the same thing.

However, they don't share data between them making it, so you have to visit each website in order to track the progress of the applied vacancies. These websites also limit you to what you can do after applying, for example you aren't able to create notes, pin important information and manage contacts, they are only capable of telling you whether the employer has reviewed the application or not.

2.3 Limitations

The main concern of this application is that it may heavily relies on the integration of various third-party APIs. Therefore, it is important to acknowledge and address potential limitations that could impact the project's feasibility and overall performance when using APIs such as their rate limits and usage quotas, data security and privacy and more. I would need to think of another approach so that I am not heavily reliant on APIs so that I can better control my application and not have future issues such as Vendor Lock-in.

2.4 Summary

This chapter detailed comprehensive background research of existing applications for application tracking, and limitations which will contribute knowledge and information required to carry out the tasks in the next chapters.

3 Design

3.1 Introduction

This chapter introduces the system design of the project. It outlines the system requirements and platforms for the interface design of the project.

3.2 System Requirements

The proposed project's aim is to design and develop a web application that can help job seekers manage/track their job application. It must be reliable and secure to keep in line with ethical and privacy concerns. The project aspires to empower job seekers with a powerful tool that equips them with the means to take control of their job search process. By providing a comprehensive suite of features, the application tracker aims to increase user efficiency and effectiveness in securing job opportunities.

1. The project aims to create a centralized hub for job seekers to manage all aspects of their job applications. This includes the ability to input and track application details, upload and manage resumes, and monitor the progress of each application. The project seeks to streamline the job application process, reducing the time and effort required to manage multiple applications, interviews, and follow-ups. This efficiency enhancement is expected to result in a more organized and productive job search experience.
2. The project intends to provide users with a feature to schedule and manage interviews. This includes setting reminders, tracking interview dates, and storing related information.

3. The application tracker will offer functionality to set follow-up reminders for each application, helping users stay engaged and proactive in their job search efforts.
4. Automated email notifications will keep users informed about application status changes, upcoming interviews, and follow-up reminders. This feature aims to enhance user engagement and provide timely updates. The integration of email notifications and reminders aims to improve communication between the application tracker and users. This ambition aligns with the need for timely updates and notifications in the dynamic context of job applications and interviews.

3.2 System Requirements

This chapter detailed the system requirements to better understand the system design.

4 Conclusion

4.1 Introduction

This final chapter summarizes and reflects upon the project in its most updated state. Goes into explanation of limitations of the proposed solution and future development that could emerge from this project.

4.1 Summary of Report

The aim of the project is to develop a web application using Java Spring Boot and MySQL database to take in users job applications and help them manage aspects of it. The project was broken down into objectives and had chapters addressing these objectives. The framework of the chapters is presented in the table below.

Chapter 1 – Introduced the topic of the report
Chapter 2 – Produced an extensive analysis of the research literature on the topic at hand and presented existing tools and techniques, their benefits, and limitations.
Chapter 3 – Elaborated on the system requirements.

The development of a Full Stack Job Application Tracker offers a promising solution to address the challenges faced by job seekers during their application process. The integration of features such as resume upload, interview scheduling, and email notifications will provide a comprehensive tool for users to manage their job applications efficiently leading to enhanced organization, increased productivity, and improved chances of success in securing job opportunities. However, the feasibility of the project hinges on several factors, including technical complexity, resource availability, data security, and potential integration challenges with external APIs. A further analysis of these aspects will be essential to determine the project's viability and changes that need to be made to ensure successful implementation.

References

Clark, D. (2022). *Job vacancies UK 2021*. [online] Statista. Available at: https://www.statista.com/statistics/283771/monthly-job-vacancies-in-the-united-kingdom-uk/.