School of Computing

Year 4 Project Proposal Form

SECTION A

Project Title: Job Analytics

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Stream: CASE 4

Project Supervisor Name: Suzanne Little

[Note: It is the student's responsibility to ensure that the Supervisor accepts your project and this is only recognised once the Supervisor assigns herself/himself via the project dashboard. Project proposals without an assigned Supervisor will not be accepted for presentation to the Approval Panel.]

SECTION B

PROPOSAL DESCRIPTON:

Job Analytics is a web application for employers and applicants to post and find jobs. Employers can post jobs on the app and applicants can apply for open positions. When an employer gets a CV from an applicant, the application will scan an applicant's CV and return how qualified that person is for the specific role and will also predict how well that person will perform in the role. When an employee registers an account with the application, their CV will be scanned and jobs are returned that match their skills and experience. The idea behind this is to make applying and recruiting for an open vacancy easier for both parties by letting the application do all the work for them. All the application needs is a CV.

BACKGROUND:

This idea was developed during my INTRA placement. I was working in a team that specialized in predictive analytics and this peaked my interest in this topic along with machine learning. Learning these topics made me start to think about my 4th year project. I wanted to make an application that would be useful to people and make a task or function easier to carry out and it's result more accurate. My mother works in HR in a courier company and this made me start thinking about making software that would make her job easier. This is where the idea for a tool that would analyse curriculum vitaes came from.

ACHIEVEMENTS:

Functions of application:

- **Advertise a job:** Employers will be able to advertise jobs and set specific requirements for the role. A short form with brief questions will be automatically generated based on the constraints set by the employer that applicants will have to answer when they apply for the vacancy.

- **Apply for open vacancies:** Applicants will be able to apply for open vacancies that are advertised on the application.

- **Scan curriculum vitaes:** Both employers and applicants will be able to use this function. Employers will be able to scan applicant's CVs to see if they fit the role in question. Applicants will be able to scan their CVs to see what available jobs their skills and experience match.

- **Predict an applicant's performance:** The application will be able to predict how an applicant will perform in a certain role based on their CV and questions they answer in the generated form. This will be done using a dataset and machine learning algorithms.

- **User creation:** Users will be able create accounts based on whether they are an employer or an applicant looking for a new job.

- **Return information from CV scans:** Employers will be able to see a percentage based on how qualified an applicant is for a role and how well they are expected to perform in that role. All applicants that apply for a role will be ranked based on the result returned from the scan.

Target Audience:

The target demographic ranges from people in their mid-20s to people in their early 50s. The user base will consist of employers looking to fill an open vacancy and applicants seeking a new job. The applicants will be people who are either already employed seeking a new job or recently unemployed and have previous work experience. The application aims to help people to find the preferred role that will aid their career. The application isn't aimed towards people looking for part time work.

Justification:

The idea behind this application is to make it easier for both employers and applicants to participate in the hiring process. Minimal work is needed by both parties. Employers won't have to read through a load of CVs and applicants will not have to go searching through job websites to find the perfect role and won't have to fill out long time-wasting forms. This will be useful for many medium to big sized companies who would receive hundreds of CVs for one open vacancy.

Programming languages: HTML, CSS, JavaScript, Python, JSON

Programming tools:

- **Elasticsearch:** This is a search engine that is capable of full text search. I will use this to aid in scanning the CVs for keywords and information.

- **Google Firebase:** Firebase is a mobile and web development platform which offers features such as a real-time database and web hosting. I will use this for my database and for hosting.

- **Django:** This is a high-level python web framework I will use to write the machine learning algorithms for the application as well as implementing backend services.

- **React Js:** A front-end framework in JavaScript. I will use this to manage the view of my application.

LEARNING CHALLENGES:

- **Machine Learning:** I have started learning machine learning algorithms during my INTRA but this was just in my spare and I have only scratched the surface. Learning more about the topic will be a challenge.

- **Elasticsearch:** I have not used this kind of technology before and implementing it into my application will be challenging. How I carry out the text search for analysing CVs could be difficult also. I could limit the vocabulary used to search the CV or I could have no constraints on the vocabulary used and try interpreting free text used by users.

- **Google Firebase:** This is relatively new software and implementing it could be a challenge.

- **CV Analysis:** How I approach analysing the CVs could be a challenge. I could compare the CV structure to a set of rules outline by some professional organization that specializes in recruitment. I

could also attempt to create a dataset full of information from varies CVs that have been regarded as good or bad examples of CVs.

HARDWARE/SOFTWARE PLATFORM:

Software platform: Web application