

**ARLA – Alumni Registration and Linking Application**

**B.Sc. (Hons) in Software Development**

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**Introduction**

The project that I have undertaken is called “Alumni Registration and Linking Application” also known as Arla. What is Arla? Arla is an application that was given to us by our supervisor Damien Costello and co supervisor John Healy. It is an application that was originally intended to be developed on behalf of the college itself. The original idea was that GMIT was to use it on their website. Arla is where users can sign up and login to the application using their google email address. They will then be able to register their details such as their name, the course that they studied in GMIT and the year in which they studied it, their interests and where they are now. The users of the application, once logged in, can then view the connections to a course on the graph page. On this page it will have every user that has linked to said course. Users will then be able to click on a person they wish to connect to. When doing this a popup will appear and a button which will bring them to a messenger page of the user they wish to contact. From there the users can now message each other.

The application is designed so that it is very user friendly to people of all ages and all experiences of using technology. For example, I wanted to make sure that someone who has never used a computer before in their life has as much ease of using the application as someone who uses it every day. The user will also have as much flexibility as they like when it comes to the information that people are able to access about them on the website. The user may decide they don’t want to have any connections and not upload any information to the application. Perhaps they just want to have a browse on the application without actually connecting to people.

This project was a fantastic opportunity and too good to pass up on. It is a good project to develop at level 8 as there is so many different ways the project can be implemented with, given enough time, many cool features can also be implemented. Another reason as to why it was a good project for a final year project is because of the complexity and workload of it. Though I have experience in developing applications in React, I have never used some of the technologies that I will discuss a little further on in the dissertation. These technologies were extremely complex and took a lot of research and reading of documentation to fully understand and implement.

The front end of the application was developed using React. The graphical part of the application was implemented using D3.js. There were some new and exciting libraries that I implemented into the application also. These were chatengine.io and react popup as well as some libraries that I intended to use but could not properly use for one reason or another. I will talk more about these in the technology review section of the document. The application is fully responsive on the front end that can only be accessed if the user has logged in. I also set up the project on Heroku so that it can be accessed by anyone, I have included the link to the application below along with the GitHub links to the work completed.

The backend had many issues in the development process which I will discuss more in the methodology section and outline the course of action that my supervisors advised me to take. The backend connected to the new technology Neo4J which is a graph-based database where all the information passed from the front end was to be stored. The graph on the React front end was essentially the Neo4J database superimposed using D3.

I set myself some goals at the beginning of the project before I began development, and I was eager to see as many as possible if not all of them implemented and completed by the end of the project life cycle. The goals I set were as follows:

My first goal of the project was to create a fully responsive web application that is hosted on a middleware site such as Heroku or AWS that allows for users to connect to each other and message each other via a messenger styled page on the application.

My second goal was to accommodate all people who wish to use their website, make it extremely simple, efficient and user friendly for both a user with no previous experience of using technology and someone who has high levels of experience in using technology.

My next goal in developing the project was to allow the user to enter as much or as little detail as they wish and to decide how much of this information would be visible to other users of the application. Along with this, I also wanted to make sure that the user can adjust or remove any details they may have inadvertently added to their profile.

Another goal I set for the project was to create a way in which users can create their own groups and contact each other. Perhaps along with this create their own little mini graph and show all the people within the group. They could then have a group chat on the messenger page for example.

The next goal that I planned to achieve was to gain a greater understanding of the technologies that I was going to use in development and to learn some new and exciting technologies such as D3 and Neo4J in the process.

Along with learning new Technologies there were some new things that I have never experienced developing or using before and I was excited and intrigued to see can it be done for this project. These were: to create a google login application and understand the mechanics of what is behind this and understand how to implement this for future projects. Another of these is to have a dynamic home page for the user and understanding how to implement this. In other words, when the user logs in, I want it to show only their individual details on their home page, so that it would be different for every user of the application. The next goal was to understand how to draw graphs and essentially understand the basic concepts that were needed for this application using D3. I also want to improve my testing skills throughout the duration and at the completion of programming the application.

As well as software development goals, I had some goals that involved project management. I wanted to improve lots of my skills that I already have here and also learn some new skills along the way. I wanted to improve my ability to use the Jira application and learn how I can incorporate it into my project so that it improves my efficiency when planning and implementing during a project life cycle. Other applications that I wanted to incorporate fully and improve my usage of were OneNote for documentation and GitHub for the programming aspect of the project.

Finally, in terms of my goals, I really wanted to improve my soft skills. I wanted to improve my skills in teamwork and communication by having regular meetings with my supervisor and teammate and constantly keeping people up to date with the project as well as making sure we are on the right track.

Methodology:

The methodology chapter in this paper is where I will discuss the projects methodology and essentially how we went about carrying out and implementing the project. I will discuss the agile approach that we used, how it faired and what I think of the style we adopted. As well as this I will discuss the planning of the project. I will take a look at what technologies we used in the early days to set a plan out for the project, how this developed as time progressed and how we dealt with changes. I will also take a look at the technologies we used for documentation, planning and designing of the project. I will discuss the tools that were used to develop the project, for example, GitHub. I will talk about the research that was conducted in the planning stages of the project. I will also delve into the weekly meetings and communication throughout the project.

Technology Review:

The technology review section is where I will take a look at all the different technologies that I used in the development process of the project. Some of these technologies will include react, D3, chatengine.io and all the different libraries that I either implemented successfully or that I tried to implement but failed to do so. I will also discuss why I didn’t implement said technologies and what alternative I used instead. I will take an in depth look at each technology very closely.

System Design:

The system design section is the part in which I will give a detailed explanation of the overall system architecture. This is essentially the HOW of the project. It is where the knowledge gained from research is implemented and looking at each aspect of the application and give a detailed overview and in-depth analysis of different components of the system and how they work together.

System Evaluation:

The system evaluation section is where I will evaluate the system, what is good, what is bad, what needs more work and what could be done to make this even better. I will evaluate if I have met my goals that I have discussed above and if not, why.

I will then give a conclusion to the project and give my overall opinion of how the project went. I will take a look at what I can do to improve it as well as improve my performance on future projects. I will also talk about what I have learned during the project cycle. Below I have linked the front-end GitHub repository, the backend GitHub repository and the link to the Heroku hosted application.

[**https://github.com/CiaranRoche203/Arla-App-FrontEnd**](https://github.com/CiaranRoche203/Arla-App-FrontEnd)

[**https://github.com/CiaranRoche203/Arla-App-Backend**](https://github.com/CiaranRoche203/Arla-App-Backend)

[**https://arl-application.herokuapp.com/**](https://arl-application.herokuapp.com/)

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