

**ARLA – Alumni Registration and Linking Application**

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

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**Table of Contents**

1. Introduction
2. Methodology
3. Technology Review
4. System Design
5. System Evaluation
6. Conclusion
7. References
8. Appendices

**Introduction**

The project that was undertaken is called “Alumni Registration and Linking Application” also known as Arla. What is Arla? 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, it was intended 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.

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. These technologies used 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 were implemented into the application also. These were chatengine.io and react popup as well as some libraries that were intended for use but could not properly use for one reason or another. These technologies and libraries will be discussed some more 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. It is also set up on Heroku so that it can be accessed publicly. Below at the end of the introduction are links to the application hosted on Heroku along with the GitHub repositories where the work was stored.

The backend had many issues in the development process which will be discussed more in the methodology section and outline the course of action that my supervisors advised 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.

There were many goals set at the beginning of the project before development initially took place, and it was hoped that as many as possible if not all of them were implemented and completed by the end of the project life cycle. The goals that were set were as follows:

The 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.

The 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.

The 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, it was also a goal to make sure that the user can adjust or remove any details they may have inadvertently added to their profile.

Another goal that was 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 was planned was to gain a greater understanding of the technologies that were going to be used 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 have not been thought on the course before and it was exciting and intriguing 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. It was also preferable to improve any testing skills throughout the duration and at the completion of programming the application.

As well as software development goals, there were some goals that involved project management. The project cycle was ideal to improve any ability to use the Jira application and learn how it can be incorporated it into the project. This is so that it improves efficiency when planning and implementing a project during a project life cycle. Other applications that were ideal to incorporate fully and improve usage of were OneNote for documentation and GitHub for the programming aspect of the project.

Finally, in terms of goals that were set out for the project, it was ideal and preferable to improve soft skills. Improving any skills such as teamwork and communication by having regular meetings with the supervisor and teammate. This is ideal to constantly keep people up to date with the project as well as making sure it is on the right track.

Methodology:

The methodology chapter in this paper is where the projects methodology will be discussed and essentially how the project was carried out and implemented. The agile approach that was used will be discussed under topics such as, how it faired and an evaluation of the style that was adopted. As well as this the planning stages of the project will be discussed. An in-depth look will be taken at what technologies that were used in the early days to set a plan out for the project, how this developed as time progressed and how changes were dealt with. A thorough and in depth look at the technologies that were used for documentation, planning and designing of the project. The tools that were used to develop the project will be discussed and analysed, for example, GitHub. The research that was conducted in the planning stages of the project will be thoroughly explained, dissected and analysed. Also, a delve into the weekly meetings and communication throughout the project will take place.

Technology Review:

The technology review section is where an in-depth look will take place at all the different technologies that were used in the development process of the project. Some of these technologies will include react, D3, chatengine.io and all the different libraries that were either implemented successfully or implemented unsuccessfully for one reason or another. A brief look will be taken as to why said technologies were not implemented and what alternatives can be or were used instead. Each technology will be analysed to the fullest extent.

System Design:

The system design section is the part in which a detailed explanation of the overall system architecture will be given. This is essentially the HOW of the project. It is where the knowledge gained from research is implemented. Also, it will look 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 an evaluation of the system is conducted. For example, what is good, what is bad, what needs more work and what could be done to make this even better. An evaluation of goals will be made, where they met, if not why?

Finally, a conclusion to the project will be given and an overall opinion of how the project went. Analysis will take place to see what can be done to improve the project as well as performances of members. An evaluation will be made on what was learned during the project cycle. Below are links to 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/)

**Methodology**

Describe the way you went about the project.

Approach to the problem

**Technology Review**

**System Design**

**System Evaluation**

**Conclusion**

**References**

**Appendices**