KEEPTRACK

CE301 - Gift-List Organiser Website for Parties

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i.   Acknowledgements

Javier Andreu

Javier Andreu is the leading supervisor for the Project. Currently lecturing in Artificial Intelligence and Machine Learning at the University of Essex. With a PhD in Intelligent Systems. Javier used experience from previous projects to assist in the development of this project. Meetings occurred during the beginning of the project to improve on certain aspects of the site Commination was achieved on Jira as this allowed for information to be passed and tasks to be set.

Faiyaz Doctor

Faiyaz Doctor is the second supervisor for the Project. Currently lecturing in Application Programming and Internet of Things Technology at the University of Essex. Although meeting the once. Faiyaz was able to provide constructive feedback and valuable ideas that facilitated in the design and functionality of the website.

ii.   Abstract

Keep Track is a Gift-List Organiser Website that allows users to sign up and personalise their profile. Friends can be added ensuring that including them in a special occasion is one click away. Creating events is an effortless process using the Event builder. Add the essential information and the event has been generated. From then on you can adjust certain details and invite friends. You can leave comments on the event page ensuring that important information isn't unseen and avoiding protentional disappointments for the event.

Gifts are included through the event page and links are provided for the intended product. Guests are then required to browse the selection of presents and choose the one that best meets a suitable price. Grouping of guests can be achieved allowing for items that cost more to be spread out between the group. Since the items are being purchased online. Gifts could be delivered to the event location beforehand. Enabling guests that have purchased larger items less hassle with travel.

The website has been developed using Node.js server environment. Providing fast execution and simple Front and Backend integration. Node.js includes numerous library's that assist in certain areas of the website. A MySQL Database has been used to store user and event information. While also providing great security. Since JavaScript is used throughout the pages EJS has been used as a template generate Html and JavaScript. A Clean and professional design has been applied using a custom-built Cascading Style Sheet.

iii.   Table of Contents

1. List of Symbols

Term	Definition
HTML	Hypertext Markup Language is the standard programming language found throughout the internet to create websites.
CSS	Cascading Style Sheets provide the design aspect of websites. Using the HTML tags as a reference each individual element can be controlled and changed visually.
JS	JavaScript is a known as the third element in Web design and is an Object-oriented programming language. Can perform different tasks that can't be completed using HTML.
EJS	Embedded JavaScript Template processes the JavaScript information within the HTML. Generating it for the users use.
MySQL	Using a Relational Database Management System to store all the information and Gathering data using the Structured Query Language.
HCI	Human-Computer Interaction provides information on how users interact with computers using different elements.
Node.js	Node.js is an open source server environment that offers using JavaScript throughout the Backend to eliminate writing in different programming languages.
PHP	PHP is an open source programming language that is used throughout applications on the web. It is embedded within the HTML and processed at server-side.

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2.1. Purpose

There are numerous purposes to the report. Overall the main objective is to outline the successes of the website which will be provided in the technical documentation. Opinions on Node.js and how it has benefited the project as a whole. Including all the extra features that is included. Since Node.js is a huge element in the project it would be interesting to compare it with the closest programming language PHP. Last of all discussing the use of HCI in Web development as there are an abundant of articles to accumulate information from.

2.2. Scope

Throughout the report there are six sections that are built upon numerous sub sections. Descriptions of these have been included for each one to ensure that the person reading can further understand.

- Introduction – At the beginning of the report there will be a concise paragraph describing in the purpose of the project. A Scope of what is to be expected throughout the report and a list of goals that are to be achieved.

- Background – As the project has been developed using Node.js there will be information related to the subject. Comparisons between using Node.js and PHP and all Positives and negatives that occur between them. Explanation on how HCI relates to Web design and how it is important to provide certain features for users with disabilities.

- Provide all the previous expectations through the Aims and Objectives. An in-depth look into the achievements that have occurred throughout the project's timeline. Features that have been missed out due to time can

- Technical Documentation – All information regarding the website and the features that it includes will be shown here. Any technical achievements are to be outlined here illustrating the function of the code.

- Project Planning – Comparing Agile Methodology vs the Waterfall Methodology and describe the difference between the two. Talk about Jira and the experience of using it. Provide information about the use of Gitlab and how it interreacts with Jira. Conclude on the lessons that have been learnt while using the Jira.

- Conclusions – Concluding on the entireness of the project. Describing the difficulties that occurred throughout the development of the website and how this has increased the knowledge of the programming languages involved. Answering the topics that have appeared in the report through personal experiences while expanding on the future of the website and working in web design.

3. Background

Since the project has been developed using a Node.js environment it is essential that this section can demonstrate the advantages of using the same programming language for both the front and back end of the website. A Comparison will be made between Node.js and the most common back end language PHP. Clarification on how Node.js is run as an offline server and the different companies that offer a paid subscription. Finally, an explanation on how HCI is used throughout the web and how it can increase the users experience in terms of time spent visiting the website.

3.1. What is Node.js

Before Node.js there was a programming language called JavaScript. [1] Brendan Eich developed the language for Netscape. Previously named Mocha/Live Script was made available in 1995. Created as a server-side language this enabled lots of possibilities that beforehand couldn't be accomplished on websites. Comparable to the other programming language Java although containing different grammar. Both are a registered trademark of Oracle [2].

Node.js [3] is an asynchronous JavaScript runtime that can perform a lot of operations. Unlike other structures that follow the thread method, Node.js provides nodes that continue to be open until they are told to close. Allowing information to be processed between the front and back end. Node.js is also scalable and efficient which is perfect for websites that keep on increasing.

As stated in [4] When comparing Node.js and an Internet Information Services that the Node.js server can process requests at a greater rate. Node.js features an incredible collection of modules.

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Similar to libraries which can be found in other languages, modules are free and can be downloaded with ease.

3.2.   What is PHP

Rasmus Lerdorf created the programming language in 1994. Since then four additional versions have been released. Version 7 was released in 2014 [5] using the new Zend Engine 2.0 offering more features with future updates available from the download page on the website.

Comparable to the programming structure of Node.js which implements the use of templates to include the essential code. Following the same method PHP is embedded into the HTML to provide the information to be processed to the server [6].

Unlike JS that processes information client side. The code is processed on the server-side which is then generating the file [6].

3.3.   Comparing Node.js and PHP

Since the two both process information at the server-side a comparison can be made between the two. First of all, templating engines are available in both languages such as mustache. This project has used an express module and the EJS Templating engine which is comparable to JSP which has been taught in previous modules at the University. Templates enable code to be reduced and somewhat faster to write therefore is prevalent throughout professionals in web design.

JavaScript is known as the third most important programming language when regarding web design. Therefore, more developers have a greater knowledge of it. Whereas, PHP is most likely learnt at a later on in life and this could impact on the choice that people make when deciding between then two. Although it shouldn't hurt to learn both languages as both are commonly used throughout different applications.

Speed has a huge factor in todays market as the more request that can be processed the better. Being able to scale your project with efficiency and at a low cost is a win-win solution. According to [7] Node.js can perform certain tasks at double the speed in compassion which is surprising as there shouldn't be that much of a difference between the two most used server-side languages on the web.

Overall the differences are quite low and the decision between the two depends on the experience in both languages and if the features that are included benefit in the application that you are working on.

3.4.   Positives of Node.js

Throughout the research into Node.js it interesting to see all the different opinions that web developers have. Various articles describe that the change to Node.js could be happening sooner than expected. Since Node.js has a large number of modules and is now available on numerous hosting sites its clear to see why. Since being able to have an opinion on Node.js this list will include some personal preferences with the inclusion of [8].

- Unbelievably fast – Information is processed due to the nodes.
- JavaScript – Same language on both front and back end.
- Modules – A large amount of free to use modules.
- Flexible – Less rules and fewer guidelines.
- Tutorials – There are loads of free and easy to follow tutorials.

3.5.   Negatives of Node.js

Although the overall experience of using Node.js has been exceptional there have been problems that have occurred during the project's development. Using the examples that have been provided in [8]. A List of the all the negatives that could be found when using Node.js will be shown below with the addition of a description.

- To new – Bugs are a common occurrence especially with mixing modules.
- Complex – Creating applications can become quite complex at stages.
- Speed – According to [8] Most developers can code faster in PHP.
- Beginning – Getting everything to begin working takes some time and effort.
- Processing – Can't handle CPU Intensive processing too well.

3.6.   Positives of PHP

Since having a lack of programming experience with this language it is tough to comment on the positives that it has. Consequently, further research into the language has been made to ensure that a respectable assessment can be made between the two programming languages. Searching generated more results than before which could be with the age of the subject matter and more discussions have taken place. The list below contains positives from [9] and includes some convincing evidence.

- Development Speed – Framework can assist in the speed or development.
- No additional code – Code can be kept to a small and maintainable level.
- Database integration – Most databases can be accessed through the language.
- Protection – The Framework simplifies the enforcing security on websites.
- Cost – Most of the hosting websites provide access to the PHP Framework.

3.7.   Negatives of PHP

As above due to the fact of having a lack of experience with the language observations cannot be made concerning the negatives. It is interesting to see that most companies are refusing to convert to Node.js this could be a problem with the cost of having to transfer all the information across to the new server or difficulties with employees not wanting to move on to new methods. As above the negatives have been taken from the source [9]. It is also explained that although Frameworks can be advantageous it can affect the performance of the website in general.

- Performance – Using the Framework can increase coding time but reduce performance.
- Quality – Certain Frameworks can include more support than others.
- Possibilities – There is a lack of modulation within the language.
- Learning curve – Programmers need to learn a Framework instead of basic PHP.

3.8.   Packages within Node.js

Before beginning the project most of the research was on packages and the implementation of them. Certain packages are well-suited and therefore it is important to consider using the correct one for the type of application that is being developed. There are several tutorials that can be

accessed online that provide the information on how to begin using them. Node.js uses a Node Package Manager which has access to all the modules and can be downloaded through the command line.

Once a package has been downloaded it is stored in the package folder and stored in the cache. Add the package as a variable inside the file and it will become obtainable within the scope [10].

Information regarding the notable packages will be provided in the sections below.

3.9.   Command Line

Debugging is an important practice in web development. Since the website was developed using Atom.io which is a free to use text editor that includes lots of interesting and useful features [11]. This doesn't include a tool that can be used to debug the code before testing. Therefore, the use of the Command line provides the information of the errors that have occurred.

Working with databases can cause issues that are hard to notice at first glance. The location and line of code is provided within the error message enabling for quick fixes. It is also useful to console log messages to ensure that certain data is being passed to that point.

3.10.   Express.js

It was decided that the Framework of choice would be Express.js as there is a huge amount of support on through different methods. It is also considered the best for beginners and is able to educate on the correct practices.

As described in [13] Express provides an adaptable but simplistic approach which includes features to get you started. Express.js is simple to activate as there are guides that elaborate at each stage. Once the package has been installed it generates the files and folders.

As this is one of the most basic Frameworks it would be interesting to experiment with additional Frameworks to see all the further features that are available.

3.11.   Nodemon

When browsing the internet for the best packages that assist in the creation of applications on Node.js. Nodemon was mentioned in most of the articles as it enables the user to forget about refreshing the browser each time a change has been made.

[14] Nodemon is started before the programming begins and can be left in the background to continue processing the information that is recvied. Once an alteration has been made to one or more of the files within the scope of the project. Nodemon receives the notification and restarts the server. This allows for more time to be used on other areas of the website.

3.12.   Passport.js

Passport.js and Express.js are frequently used together in applications that require authentication. Since the project requires a user be able to create accounts and access certain areas. Passport stores the information of the account that is being used. This is then made available throughout the other pages to ensure that pages that require authentication are available to use.

There are other features that are offered such as using authentication from other websites such as Twitter, Facebook and Instagram although this isn't used on the website that has been created. It is convenient on larger websites that are attempting to gather more users. As this enables quick and easy method to log in [15].

3.13.   Middleware

Middleware as described in [16] explicates that each Middleware function must include the Request object, Response object and the next function. These functions can be used to process information from the client side to the server.

There is an authentication function that acts as Middleware and is included on all pages that require the user to be logged in. It is important to close the request to ensure that the next Middleware function can be accessed, and the information be processed. More research on Middleware needs to be accomplished as the potential is endless.

3.14.   Node.js Hosting

Since the beginning of the project it has been an idea to move the Website to a free online host. Although the website is not complete at this stage. It is an idea to gather information on the best hosting sites that accept the Node.js environment.

According to the article in [17] there are numerous sites that offer free hosting plans. Such as Heroku that provides a decent service and ensures that all packages can be updated. Although there are limitations to the amount of database space therefore when the project begins increasing in size moving to a paid service would be required.

3.15.   MySQL vs NoSQL

Since writing the initial report further research has been made into the benefits of both database models. As explained in [18] it was beneficial to keep with a language that is understandable and ensure that the project continues at the correct pace.

Although when developing the User system, it was revealed that Express.js and Passport.js are more efficient when used with a NoSQL database.

Therefore, an attempt at changing database models occurred. Unfortunately, the process would have taken to long therefore the idea was scraped. Although according to [19] the differences between the performances of the databases are small and MySQL indicating that it is somewhat more stable.

3.16.   What is HCI

[20] Human-computer interaction is the investigation into how humans interact with computers. There is a mass amount of research throughout the web with different approaches to the concept. The purpose is to see if the design of a device or piece of software has been developed with the user in mind.

As seen in [20] there are three main areas to think about.

- User – An individual or group of people providing different results.
- Computer – Classing all types of devices under the same name.
- Interaction – Ensuring there is a medium between both the User and Computer

Ensuring that the design is suitable for the audience that it is intended for. Requirements should be changed to correspond with the user. No computer should be before the user.

Goals of HCI [20]

- Recognising the factors that govern the technology.
- Be able to produce situatable systems.
- Provide a safe interaction while being efficient and effective.
- People before the system.

3.17.   HCI in Web Design

Since there are wide range of users that could be using the site it is important to cater to their needs as this will make them feel welcome on the website and could potentiality bring them back to the site.

As stated in [21] the developer shouldn't expect the user to change in order to use the website. In fact, the website should be able to suit the problem that they may have.

It is also important to remember that a well-maintained website will encourage the user to come back for a second visit. As concluded in [22] Some developers don't care about creating a good experience instead they only care about getting the information across.

Overall, I believe that it is vital that each section of the code and the design should be checked to see if it conforms to Web and HCI standards.

4. Aims and Objectives

4.1. Aims

The main aim of the project was to produce a website that had a great design and easy to navigate. I believe that this goal was accomplished.

The second aim was to have a function website with all features working. Unfortunately, this didn't happen as to much time was spent on the design.

4.2. Objectives

Heading back to the objectives that were promised in the initial report [18] it is does appear as simple number of tasks. Although these should have been made smaller and easier to complete.

- Develop Main Page
- Add Navigation
- Node.js Integration
- Registration Page
- Sign in Page
- User Area
- Testing Features
- Enhancements
- Communication System
- Grouping Method
- Payment Scheme Implemented
- Testing and Amendments

4.3. Completed

From the list above the completed tasks are the addition of the Main page with navigation. Node.js integration. A complete user system that has a registration and sign in page. The user area is working. Features such as the communication system and grouping method have not been completed.

5. Technical Documentation

5.1. Implementation

Since the project is run on Node.js a complete list of all the packages that have been used are shown below.

bcryptjs": "^2.4.3",

"body-parser": "^1.18.3",

"connect-flash": "^0.1.1",

"cookie-parser": "~1.4.3",

"debug": "~2.6.9",

 "dotenv": "^6.1.0",

 "ejs": "^1.0.0",

 "express": "~4.16.0",

 "express-mysql-session": "^2.0.1",

 "express-session": "^1.15.6",

 "express-validator": "^5.3.0",

 "fs": "0.0.1-security",

 "http-errors": "~1.6.2",

 "morgan": "~1.9.0",

 "multer": "^1.4.1",

 "mysql": "^2.16.0",

 "nodemon": "^1.18.6",

 "passport": "^0.4.0",

 "passport-local": "^1.0.0"

5.2.   Achievements

Since there is a lack of information regarding the database of choice and Express certain features had to be created from scratch. This was implemented through the Sign in page of the website which did take a lot of experimenting to get right.

As most websites use Bootstrap as the CSS of choice. I believe that developing the custom style sheet from the beginning of the project has been a huge achievement.

6.   Project Planning

6.1.   Methodology

Since the project would be controlled through the use of Jira it would be following the Agile methodology. As I took the module Extreme Programming this provided me with the knowledge to write tasks and begin following the correct procedures.

During the process of writing the Initial Report an approximate task table was created that contained the title and the start date of the task and as there are no other requirements needed to begin. Work could commence as soon as possible.

Comparing Agile to Waterfall can become quite complex as they are different. According to [24] there are not enough user comparisons between the two in regard to satisfaction although Agile does demonstrate a larger number of projects completed on time and on budget. As completion of work is achieved at the beginning stages of the project it becomes easier to complete the project as a whole.

As this is the first time using Agile on an individual project for the first time it does include its advantages over using Waterfall. Previous projects completed using the Waterfall method became time consuming as requirements had to be completed before commencing the programming, causing issues with motivation while contributing to alterations once the coding had begun.

Whereas Agile can guarantee that tasks have been completed at certain stages. Changes can be made as soon as its required. This ensures that progress continues as expected without delays. Compared to the Waterfall method where a demonstration is possible at the end of the project. Agile enables the option of being able to present the work that has been achieved so far. This ensures that the customers are pleased.

Another issue with the Waterfall method is that projects can be cancelled at any moment and with the requirements being completed to begin with the project could finish before even reaching the programming stage. With Agile there is more chance that the project would survive as alterations could be made during the next iteration if needed.

6.2.   Jira

Since this would be the first time using a piece of software like Jira. Tutorials where used to ensure that the software was being used to it maximum protentional. Once I was able to navigate Jira with ease it was time to begin adding in the tasks that had be arranged.

In the beginning tasks lacked certain information that would be assist in the completion. Sections such as the time or creation and completion were missing from the task. Although towards the end of the project this improved, and more details were included.

Improvement could be made on the positioning of tasks on the Kanban board as tasks would be left on the to do list while work had been commencing. During the second term this error did become less noticeable. It is clear to see how utilising the Kanban board to its full protentional can increase the work flow.

According to [25] Jira can aid in requirement changes as all aspects can be monitored Therefore increasing time completion time over the entire project. Jira has a wide range of features and tools available that provide graphs and reports which could indicate possible weaknesses in the project that could be beneficial in a big team.

Overall more practice with Jira needs to happen as there are certain times where information has been missed or progress hasn't been added creating a backlog of tasks. Since most software and web design firms use software like Jira it would benefit to continue working with it.

6.3.   Gitlab

Even though this would be the first time using Gitlab I already had an understanding on how to use the product. Since the website was being programmed using the Atom.io Gitlab would need to be installed on the editor to provide quick and simple pushes.

As there are no tutorials that explain the setup of Gitlab this became a challenge to get this installed. Once everything was working it was time to ensure that code could be sent to the server with a commit message. Checking the Gitlab server on the browser assured that the information had been sent.

At times Gitlab could have problems with fetching information from the server. This then would mean pushing the new code would not work. Therefore, it is important to check each time that the work has been processed to ensure that no code has been missed.

Since Gitlab is available to staff there needs to be certain information that isn't available such as the environment file that contains secure information relating to the server. Although this isn't a problem as the website isn't live. Also access to the database could cause issues due to user information.

Overall commits should have been made more often as most of the time the commits that were sent would include lots of folders and file and it would be hard to see what had been completed. Messages need fine tuning as some areas of the completed code were missed this would leave uncertainty on what has been achieved.

6.4.   Risk Management

Jira was used to manage the project. This assured that all tasks are stored in a secure location and can be accessed with ease. Tasks are presented on the Kanban board to envision the project. Compared to keeping this information on paper this reduces the risk involved in managing a project.

Gitlab ensures that there is a backup for the code. This decreases the risk of losing files. Although since the information is stored on a remote server. Problems could occur at the end of both Jira and Gitlab involving power surges and certain files could be deleted. This shouldn't be a problem as there should be backups in case of a failure.

Even though the code was backed up on Gitlab additional copies were stored elsewhere. OneDrive was used since the beginning of the project. This ensures that work could be completed on both the desktop and laptop without issues of using a hard drive.

When new features had been added to the website it was important to test the pages and ensure that the website is still functioning as it should. A risk could be implementing a new feature without testing and then not understanding how the error has occurred. Also, if no push to the Gitlab sever has occurred there is possibly no previous version.

Overall with the steps taken this removed all possibilities that anything risk related could be happen. Although more commits to Gitlab would be beneficial as a backup.

6.5.   What I have learnt

As an individual working on such an immense project it is important that a schedule has been set and followed as close as possible. Moving away from this schedule increases the work load and reduces the amount of time available to complete it. In my opinion this because a lack of motivation. Since there has to be a drive to get up and complete a large amount of work. If the motivation has gone work won't be completed on time.

Being to ambitious can cause problems in the project as some tasks might be impossible to complete in the time frame. This creates a back log of additional task while working on a task that might never be completed. Therefore, it is advisable to ensure that tasks are simple and once it has been finished then the additional features can be included.

Managing Jira was one of the biggest downfalls of the project. Not much time was spent checking the tasks for each week and this soon showed in the code. So, it is important to manage the tasks that have been set and check Jira on a regular basis to ensure that there is no wasted time involved working on completed code.

In my opinion time management is the biggest issue that occurred on this project. And needs to be improved on future projects and especially in the workplace as this could cause issues with other employees running behind on certain tasks.

7. Conclusions

7.1.   Overall

Overall the project has been a success. When comparing the main objectives that had been set before the start of the project the amount of work that has been completed is outstanding. As with most projects there are the positives and negatives that have been experienced while working on the website.

At the beginning of the project it was much easier to feel motivated to begin completing tasks as there was a lower amount of work required in other modules. Therefore, the completion of tasks would be occurring at a steady rate. Allowing for extra tasks to be added into the Jira board. Before Christmas most of the original tasks were finished.

During the second term there became less time in general as the work load increased. Due to modules involving more assignments and the remaining tasks required a lot of effort to finish.

Since the project has unfinished tasks this feels as a failure as there are features that were promised missing from the product. Although there is time to complete these before the PDO at the end of the month to ensure the full experience is available.

Being involved in such an enormous project as an individual provides some great experiences which can be used towards all new projects in the future. Lessons have been learnt and can be applied.

7.2.   Website

When developing the website, it what important to consider the types of users that would be using the site. When planning the overall look of the page it was essential that the correct colours and formatting be used to ensure that users with different capabilities could use the website from the outset.

Although the appearance of the website can come across as simple it is does follow a lot of the rules that have been explained throughout the report. Such as the choices of colours enable users that are colour blind to see the text on different coloured backgrounds.

As promised in the Initial Report the information that has been included has been left to a manageable amount. This ensures that the users retain the information and benefit more from the website. The chosen font provides a relaxed impression and has been left at a readable size for users with glasses.

Different devices have been considered when developing the style sheet. When viewing on a tablet or mobile phone the navigation changes appearance providing more screen to use. Desktop users can enjoy a more comfortable approach as the information and forms adjusts to the browser size.

Although the design choice has been a huge positive. Too much time has been spent attempting to achieve the perfect look. If the project could be restarted the major design aspect would have been left towards the end.

Certain functions have been missed out of the website at this stage such as being able to invite guests to the events and being able to add the presents to the page. This is unacceptable as it equates to a huge section of the websites premise.

7.3.   Report

When writing the report, the document that was accessible through Moodle was used to act as a guide. This provided the overall structure that can be seen throughout the report. Additional sub sections have been included where required.

During the background sections all the essential features of Node.js have been included providing the main information. A comparison between the two programming languages uses some interesting research into the positives and negatives and does conclude that Node.js can be the more efficient of the two. The different packages are also described.

When designing websites, it is important to think about each individual user. Therefore, research into what HCI is and how it is used in web design. Overall this is a huge element in the project as there is lots of areas of the website that consider the different factors.

Aims and objectives demonstrate the main objective that this project had. A list of all the completed features have been included to compare what was promised and what has been achieved.

Overall more time should have been spent on writing the report and as it has been left to the last moment numerous elements are missing. More information should have included in the technical documentation regarding the achievements of the website.

With that said the sections that have been completed are done to a decent standard and provide the reader with a certain amount of knowledge regarding the project.

7.4.   Future

Since the project has still not been completed. There are plans to continue working on the website. Building upon what has been achieved so far. This will increase the knowledge and skills that have been gained since working on the project. It is intended that the project could be used when attending job interviews related to web design.

Since this the first experience with Jira it is important to continue the practice of following an Agile methodology. Improvements could be made in generating tasks and providing the completion time with details on what has been achieved as this will be essential in most jobs.

Gitlab has provided some much-needed experience there has been times work has been completed but not been pushed to the server. Therefore, this will be maintained once University has finished to ensure that the skill isn't forgotten.

A problem that occurred throughout the project was time management. More effort needs to be put in to ensuring that tasks are completed and begin working on new tasks. Another area is motivation more time needs to be spent on motivating myself to continue the work that is already in progress.

As the project has come to an end it has become apparent that learning additional programming languages would benefit in the search for jobs. With the addition of new languages, it is also important to further research Node.js and ensure that the knowledge is kept up to date.

Overall the passion is in web design and it would be great to continue building websites in the future.

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