Major Project Report

Get Fit Together

Interactive Multimedia Design
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PSG 1
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2015

Acknowledgements

It gives Get Fit Together great pleasure in acknowledging the support and help from Jonathan Wallace, Peter Nicholl and Website NI.

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Get Fit Together would like to thank Peter Nicholl, course director of Interactive Multimedia Design. On a few occasions, Get Fit Together was uncertain about elements of the report. Peter kindly and promintely offered guidance and helpful information which helped lead Get Fit Together in the correct direction.

Get Fit Together consider it an honour to have worked with Website NI, a leading web development company in Northern Ireland. Get Fit Together outlined the risks that they felt could potenitally hold up the completion of the product. Website NI were very supportive and offered guidance on how to approach these risks, directing Get Fit Together to tutorials and other online resources that could assist.

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1. Introduction

1.1 The Challenge

Throughout this report, the idea behind "Get Fit Together" will come to life. The name signifies all human beings who want to improve or maintain their health, fitness, wellbeing and current lifestyles.

Personal informatics systems to support health and fitness are a growing area of interest. In today's society more and more people are using online services in order to keep fit and healthy. It has been discovered that self-monitoring is one of the most prevalent persuasive technology strategies.

Persuasive technology can have an influence on a person's activity in a range of ways, one being, the opportunity to set target goals which allows users to monitor their own activity or serve as a motivational tool.

Social persuasion is another factor, which promotes the usage of online health and fitness services. Nowadays, people are engaging in social media to share their progress and encourage others.

The challenge for Get Fit Together was to design and build a fully functional web application that will benefit users who are seeking easier ways to keep fit and healthy.

To meet this challenge, users are able to sign up and become a member of Get Fit Together. Once signed up, users have freedom to navigate between multiple features within the product. Using Get Fit Together, a user is able to record their food intake, exercise completed and water consumed each day. A user is presented with a variety of food items and exercises to choose from to provide an easy and user-friendly process. Once a user has recorded their food intake or exercise performed the system automatically calculates the amount of calories burned or consumed and data appears in a table for users to view. Furthermore,

this data then filters into multiple interactive charts to enable users to view their performance and current progress statistics.

To encourage users to motivate themselves, Get Fit Together incorporated a create goals section. Users have the option to choose between three different goals to set for themselves and work towards.

The web application provides recommended exercises and healthy eating plans. Regarding the recommended exercises, a warm up and cool down exercise has been completed by a professional gym instructor and is made available for Get Fit Together users. Warming up and cooling down are the two most important exercises before and after performing any physical activity and Get Fit Together want to help prevent their users from picking up any injuries. Healthy Eating is a huge part of keeping fit and healthy and in order to promote this the web application allows users to select between four different articles, having the option to read the full article or downloading it to their device.

Get Fit Together has been linked to Facebook and Twitter to give users the opportunity to share their progress and as a result hoping friends encourage users to keep working hard.

Get Fit Together have developed the web application to be responsive to ensure that it is accessible for all users whether they are logging in using desktops, laptops, tablets or mobile phones.

Lastly, in order to encourage users to exercise together, it is possible to search for members by geolocation. To do this, a user is required to enter a certain postcode and if there are any results, a table will appear showing the users name, email address and postcode. As a result of this, users can contact other members via email address.

1.2 Aims and Objectives

1.2.1 Aims

Get Fit Together set aims and objectives at the start of the project, to state what they were trying to aim for and how it could be achieved.

Get Fit Together's aims were to attract users from all over the world and be beneficial for those who sign up, thus receiving great reviews.

Get Fit Together hoped to achieve 20 sign ups in the first month. As the product will only be released into the market, 20 sign ups is an achievable amount, as it will require time in order to be discovered and recognised.

A final aim was to obtain at least ten companies to advertise on the website, charging a small fee in order to produce revenue.

1.2.2 Objectives

Get Fit Together's objectives were to implement Search Engine Optimisation (SEO) stage by stage into the site during the build to enable the website to be found all over the world.

Pay Per Click and Facebook Advertising has been set up to try and direct traffic to the site therefore increasing the chance of reaching target sign ups.

Another objective was to find and create appropriate spaces on the website and advertise while the build was in progress.

1.3 Work Undertaken

The first step undertaken by Get Fit Together was to complete a concept definition statement. Within this statement, a suitable idea for the product was described including concept description, anticipated end result and resources required. The reason this statement was written was to give Get Fit Together an

insight on what the project would provide for the user and the resources that would be needed to accomplish the end result.

To get the project underway, Get Fit Together created a project plan that outlined specific tasks that had to be completed in order to make a successful product. Get Fit Together began with phase one, which was research. Research is a very important task and needs to be carried out carefully and effectively. During the research phase Get Fit Together began by defining and contextualising the concept, outlining the aims and objectives, considering the scope of the project such as time, cost and resources that are required, deciding on a target market, creating a detailed project schedule and also selecting an appropriate methodology to help manage the project. Refer to appendix 9.1 for more information on the scope of the project, target market and project planning.

Once Get Fit Together fully understood how their idea could develop, they created a user survey, which was published online to gather public ideas and opinions. Get Fit Together also went one step further and asked expert opinion for advice. After receiving guidance and suggestions on how to improve the experience for users from Catherine McGeown, a curves representative, Get Fit Together created a requirements specification, which outlined functional and non-functional requirements that are required to make the project become a reality.

From this, Get Fit Together was able to create a system design analysis, which outlined how the product could be architected considering platform architecture, data structures, design patters, and input and output processes. A technology analysis was then drawn up to describe the languages, database, frameworks, API's, libraries and resources that will be used to support delivery of the product.

Get Fit Together spent considerable time designing the product, starting off with branding. Brands can be very powerful influencing tools. Get Fit Together wanted to take advantage of this and began to consider different approaches,

mock up various logos, discover and consider potential users thoughts before refining and deciding on a final brand. As well as this, wireframes, paper prototyping and style tiles were created to help decide which pages would be included and examine the style and layout of each page. While carrying out paper prototyping Get Fit Together got thinking about design theory, human computer interface principles and accessibility requirements for the product. After researching user experience design techniques and best practices, the next step undertaken was to create Photoshop mockups to show a series of visuals that walk through various user interactions within the web app.

When Get Fit Together had a satisfying understanding of all aspects of the system the next task was to identify any risks that may have affected the completion time of the project. Get Fit Together outlined potential risks and considered the likelihood of occurrence to enable them to make a reasonable decision on which tasks had to completed first. This allowed Get Fit Together to see that the risks that had high impact to the projects success and had a likelihood of occurrence needed signification mitigation against it.

Get Fit Together created a prototype in order to explore a key technical risk in the project. For this, Get Fit Together developed the login/register screen and incorporated this into the bootstrap framework in order to experiment. Once those tasks had been accomplished Get Fit Together was able to progress further and make changes to the layout of necessary pages using HTML5 coding. Get Fit Together then used the appropriate technologies to help build the main functionality of the product. Get Fit Together also created additional prototypes to explore the API's that were going to be incorporated. After this, remaining content such as text and imagery was added. Get Fit Together then used CSS to design each page to resemble the user experience mockups. Social media accounts were also set up and linked to the web application.

In the integration stage, Get Fit Together added Google Charts, Facebook and Twitter API's into the web application.

In the testing phase, Get Fit Together used many types of software testing such

as black box, ad-hoc, non-functional, user acceptance, beta and cross browser testing. This allowed Get Fit Together to test the application to ensure it met the requirements gathered, was suitable for usage by gyms and was accessible for all users on different browsers and operating systems.

In the final phase, Get Fit Together added final touches to the website, tidied up content and fixed small bug issues. Once Get Fit Together was satisfied with the functionality of the system, the web application was deployed to the block 16 server, which meant it could be accessed online.

1.4 Overview of Report

Throughout the report it will be possible to see how Get Fit Together expanded from an initial idea to a fully functional web application, which has been developed to help users manage their health and fitness.

There are nine sections within the report, which provide a clear description of the work undertaken during each stage of the methodology used, such as concept definition and testing, design, implementation, testing, evaluation, conclusion, references and appendices.

Concept definition and testing covers how the idea generated, requirements specification, paper prototyping, feasibility testing and methodology selection. The design chapter evaluates and justifies the user experience evolution, system design, logic design and data design. Implementation describes technology and tool selection and use, notable challenges and achievements. Testing includes test approach selection, testing process and results and user survey responses. The evaluation chapter covers an evaluation of test/survey results, project outcomes, the methodology used and evaluation of the plan. The final section closes with a reflection on what happened, discussing my role throughout the project and also suggesting potential future work.

2. Concept Definition and Testing

2.1 Idea Generation

There are many scenarios, which lead to the thought process that produced Get Fit Together. The main one being, today with an astounding number of reports about increasing obesity rates, diseases and conditions related to being overweight and unfit, it is impossible to ignore the importance of fitness and well being in our lives. Health professionals attribute cancer, diabetes, high blood pressure and mental issues such as depression to deficiencies in fitness and wellbeing. Recent studies (FitnessHealth101, 2015) have identified as many as 75% of adults are overweight or obese. The BBC (2014) has reported that the number of people diagnosed with diabetes in the UK has increased to more than 3.2 million, which is an average of 6.0%. Table 1.1 (Diabetes UK, 2014) outlines the diabetes prevalence for 2014.

Country	Prevalence	Number of people
England	6.0 per cent	2,703,044
Northern Ireland	5.3 per cent	79,072
Scotland	5.6 per cent	252,599
Wales	6.7 per cent	173,299

Table 1.1 - Diabetes Prevalence for 2014

After studying these statistics Get Fit Together considered how they could develop a product which portrays the importance of maintaining good health and wellbeing to help prevent rather than cure. Get Fit Together realised this is extremely important as the NHS Institute for Innovation and Improvement (2013) state that one of the aims identified of engaging people more closely in their personal health and well being is to increase the number of quality of life years they experience; preventing illness and prolonging life.

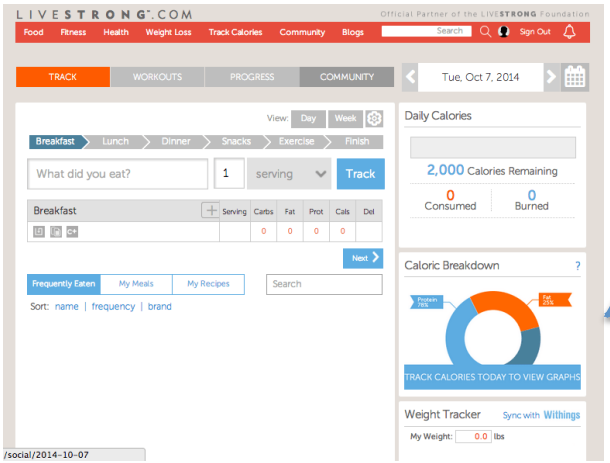
The NHS states that technologies alone cannot substitute for a strong culture of and commitment to involvement in practice of preventative health and wellness. However, Get Fit Together was aware that they could improve such practices and offer support for individuals who are making their own health, wellbeing or lifestyle choices. Once Get Fit Together has been in the market for a month, they have decided to offer encouragement and advice to users using technological means, such as informational email messaging services. For example, if a user has set a personal goal, Get Fit Together will send an email encouraging the user to work hard to meet it.

Get Fit Together was aware that technology can provide tools to help promote health literacy and to reach groups which may not otherwise have been easily targeted. From this, Get Fit Together began to consider what tools and features they could use and as a result decided to add a variety of healthy eating plans which are suitable for all age groups to follow. This way Get Fit Together are helping to prevent illness by encouraging users to maintain a balanced and healthy diet on a daily basis. In turn, if a user is following a healthy diet, exercise will become easier for them, increasing the chances of maintaining their exercise regimes.

2.1.1 Inspiration

Get Fit Together spent a considerable amount of time researching similar concepts that are already available in order to gain inspiration and then began to consider how they could be set aside from the competition. Two main websites that Get Fit Together gained inspiration from are LiveStrong and MapMyRun.

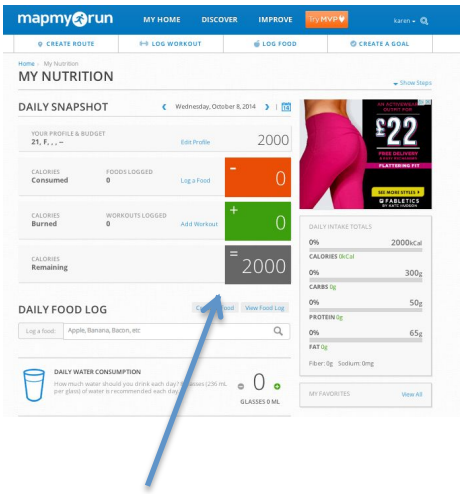
LiveStrong – From a first glance of figure 2.1, the effective use of graphical representation catches the attention of the user. As a result of this, Get Fit Together discovered that incorporating interactive graphs would be effective as they are informative and easy to understand.



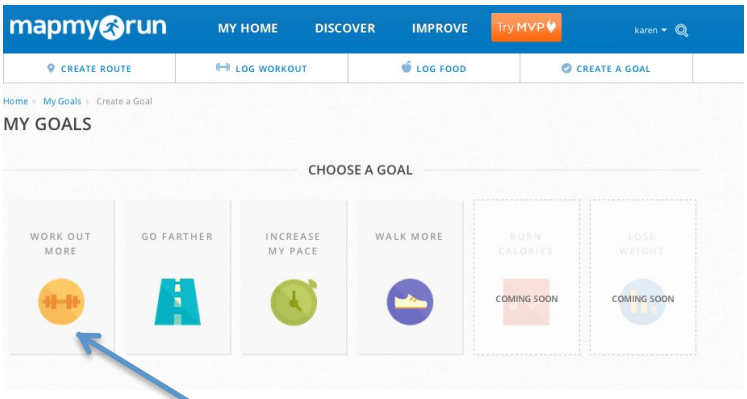
Displaying an interactive chart visually enhances the website, catches the users attention and also provides detailed information regarding the calorie breakdown.

Figure 2.1 – LiveStrong

MapMyRun - Is another similar concept, which allows users to log food, water consumed and exercise performed. As seen in figure 2.2, MapMyRun also provides users with the opportunity to create goals. Get Fit Together wanted to incorporate these features into the web application but believed they could make each section more user friendly and visually appealing.



Users can keep track of the calories they have burned, consumed and remaining.



Users are provided with a variety of different goals, which they can choose from to set for themselves. This helps keep users motivated to reach these goals over a period of time.

Figure 2.2 - MapMyRun

Apple Health - Apple have introduced a new app called HealthKit, which allows users to input their body measurements, fitness, nutrition and sleep to enable users to monitor and review their statistics based on their own personal requirements. This is an impressively constructed app, which offers extra features compared to other concepts. However, Get Fit Together have decided after considerable thought that they would not like to incorporate the app as there has been unpredicted problems with Apple such as unusable iPhones after software updates. Get Fit Together is not going to take the risk on this as it may discourage users and it also has only been developed for iOS, which eliminates other phone users.

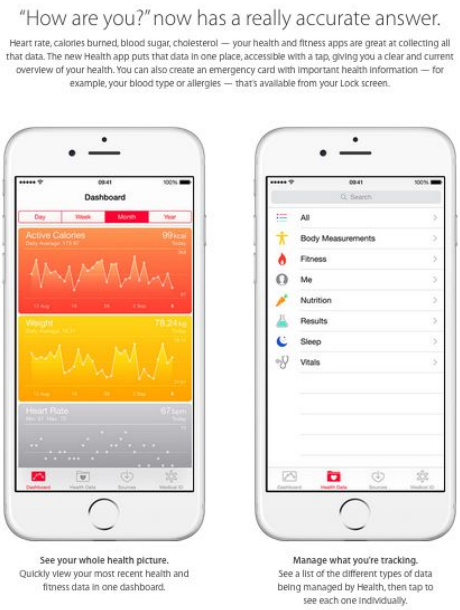


Figure 2.3 – Apple Health

Supporting theory (NHS Choices, 2013) suggests that to stay healthy or to improve health, adults need to do two types of physical activity each week, which is aerobic and muscle-strengthening activity. How much exercise a person needs depends on their age. As a result of this, Get Fit Together has been inspired to showcase different types of exercises on the web application. Get Fit Together have also used good design strategies to help encourage users to exercise, such as the use of effective banner images with overlaying inspirational quotes.

2.1.2 Legal, Social, Ethical, Professional Issues

Get Fit Together was aware that when developing a system that involves the use of human interaction, there are various issues concerning ethics, legality, sociability, and professionalism that need to be taken into consideration. Get Fit Together began by investigating how the system could be designed and developed with these issues in mind.

Social and ethical issues state how a web page should be developed to suit all abilities. Diversity is a major factor that Get Fit Together needs to carefully consider. There are many forms of diversity among potential users such as physical or mental disability, visual impairment and cultural differences. Get Fit Together has been guided by this and made sure that they did not display any features that may have caused offence to others. Get Fit Together also researched thoroughly design principles and best practices to ensure that the product is suitable for users who are colour blind.

Regarding legal issues, Get Fit Together have displayed a copyright notice on the bottom of every page to inform users that they must not copy or reproduce any content from the web application.

In order for Get Fit Together to address professional issues, the system has been developed to ensure users data is stored confidently and details will not be distributed to third parties. On top of this Get Fit Together have made sure that users only have access to their own data and that it is not accessible by other members.

2.2 Methodology Selection

There are many types of methodologies that can be used to help manage a project, which are Waterfall, Prototyping, Rapid Application Development and Agile.

As shown in table 2.2 Get Fit Together created comparison table to outline the pros and cons of each methodology in order discover which one is the most suitable for the project.

Methodology	**Pros**	**Cons**
Waterfall	▪ This model is simple and easy to understand and use. ▪ Phases are processed and completed one at a time which means phases do not overlap.	▪ Once an application is in the testing stage, it is very difficult to go back and change something in the concept stage. ▪ High amounts of risk and uncertainty. ▪ Not an effective model for

		long and ongoing projects.
Modified Waterfall	• Stages have some overlap, meaning that tasks can happen concurrently. • More flexibility to correct mistakes and make small changes.	• Since the phases overlap it is harder to close out a phase, which means the project, could run the risk of not staying on schedule.
Prototyping	▪ Users are actively involved in the development. ▪ Users get a better understanding of the system being developed. ▪ Errors can be detected much earlier.	▪ Leads to implementing and then repairing way of building systems. ▪ Complexity of the system may increase as scope of the system may expand beyond original plans.
Rapid Application Development	▪ Reduced development time. ▪ Quick initial reviews occur. ▪ Encourages customer feedback.	▪ Depends on strong team and individual performances for identifying business requirements. ▪ Requires highly skilled developers/ designers.
Agile	▪ Working software is delivered frequently (weeks rather than months). ▪ Continuous attention to technical excellence and good design. ▪ Even late changes in requirements are welcomed.	▪ In case of some software deliverables, especially the large ones, it is difficult to assess the effort required at the beginning of the software development life cycle.

Table 2.2 – Methodology Review

After deliberation, Get Fit Together chose the modified waterfall as the methodology to help manage the project. After putting the project in context, Get Fit Together decided that the modified waterfall was the most suitable methodology as it allows for stages to have some overlap which means it will be possible to have tasks running concurrently. There is more flexibility to fix mistakes and small changes with this method. The overlap also allows for some back tracking, meaning changes can be made to requirements based on what is learned during the development stage.

Figure 2.4 shows how the modified waterfall methodology will be used to help manage the projects stages.

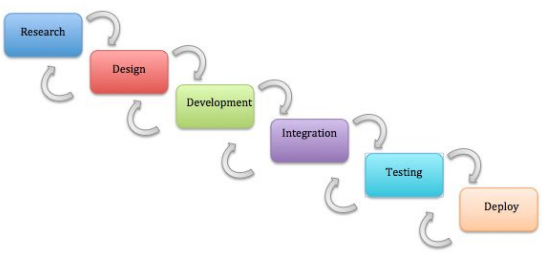


Figure 2.4 – Modified Waterfall Methodology Stages

2.3 Requirements Specification

2.3.1 The Stakeholders

The Client and Customer

The client and customer of this project was the sponsor from Get Fit Together. The sponsor was responsible for:

- Securing resources for the project
- Supporting the project's goals and objectives
- Making decisions for the project
- Participating in the project initiation
- Participating in project planning
- Assisting with any major issues or problems
- Removing obstacles
- Being active in planning the scope and approving scope changes
- Signing off major deliverables
- Signing off on approvals to proceed to each succeeding project phase

Other Stakeholders

There were other stakeholders including the client and the customer whoms input was needed to build the product. One main stakeholder that Get Fit Together worked with was a fitness instructor from a gym called Curves. The project has recommended exercises and healthy eating guides provided, and Curves agreed to help give information and guidance on this. The stakeholder had a powerful influence on this section as they have expert knowledge in this area and have provided Get Fit Together with useful and correct information to benefit users.

Personas

Get Fit Together created a persona as it is a particularly effective technique to specify requirements for a product. From carrying out this task, Get Fit Together was able to think about characteristics that could influence the way a

Figure 2.5 - Persona

Name: Donna McCann
Age: 39
Gender: Female
Address: 49 Church St
Middletown
Co. Armagh

Interests: Running, Swimming, Reading, Music, Eating and Computers
Attitude to technology: Love it - Can find anything online
Do you exercise?: Yes
If so, how often?: Weekly
How do you exercise?: Walking and Running
Where abouts?: Armagh City
Are you a member of a gym?: No
Would you consider joining one?: Too Expensive
Do you browse the web much?: Every Day

persona could act towards the product. In this persona, it was possible to see from figure 2.5 that Donna likes exercising and computers, which in turn means that the product could definitely be suited and used by Donna.
Refer to appendix 9.2.2 for further information regarding the stakeholders

2.3.2 Constraints

Solution Constraints

Constraints are factors that apply to the entire product and should be mandated before the project gets underway. This specifies constraints and the way that the problem should be solved. The mandated technology for Get Fit Together was a responsive web application that can be accessed via desktop, tablet or mobile mobile and is easily accessible at all times by all users. Get Fit Together have considered a few constraints that are relevant to the project.

Description: The product should allow users to share their personal goals on social media
Rationale: The user doesn't want to make it public that they are using Get Fit Together
Fit Criterion: The product should not insist that users have to share any information on social media. Users will be provided with a link to Facebook and Twitter and they are able to make this decision themselves. If a user does not wish to share they can navigate to any page of the web application without complication.

Description: The product should offer various healhy eating articles for users who want to read and follow them
Rationale: The user doesn't have access to the internet during the day
Fit Criterion: The product should offer a download article feature to enable users to download the article to their device before going outside the boundaries of wifi or data signal.

Refer to appendix 9.2.3 for more information on the constraints
Refer to appendix 9.2.4 and 9.2.5 for work partioning and facts & assumptions

2.3.4 End User Involvement – Curves Representative

Since it has been established that the keys users of the product would be local gyms, Get Fit Together sought an end user who would help scope the product in great detail, suggest requirements and also test it throughout the implentation stages. Fortunately, Catherine McGeown, a Curves representative was pleased to be asked and agreed to help Get Fit Together ensure that the product was created effectively for usage by gyms. Catherine suggested features that could be included to ensure the product provided the correct service to both gyms and users.

2.3.5 Online Survey

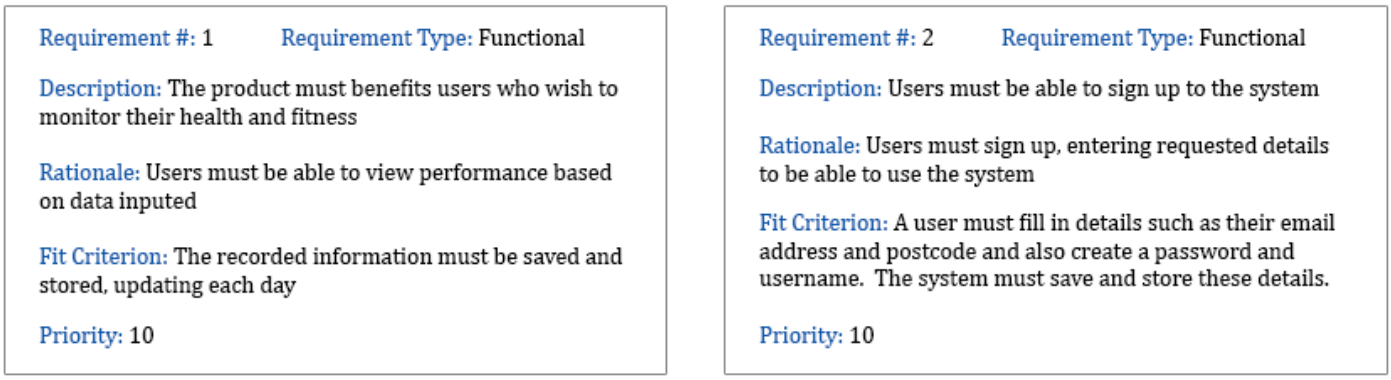
Get Fit Together created and posted a survey online in order to gather extra information from members of the public to help establish their requirements. From this, Get Fit Together was able to incorporate their own ideas alongside the end users and public opinion to create a requirements specification, which outlined what the product should do. Refer to appendix 9.8 to view the user survey.

Bear in mind, that all of the requirements are dependant on a user signing up to the system. This means that none of the following requirements are possible to achieve if a user does not sign up and become a member.

2.3.6 Functional Requirements

Get Fit Together used a volere technique to structure the requirements, as seen in figure 2.6. This technique was used as it allowed firstly Get Fit Together to give each requirement an id and define the requirement type such as functional or non-functional. The volere snow card then provides space to describe the requirement which is basically stating what the product should do, outline the rationale and fit criterion which is defining how the requirement can be achieved. Finally a priority can be given to each requirement to show how important each one is. If a requirement is dependent on another this can also be outlined using this technique.

Figure 2.6- Functional Requirements



Refer to section 9.2.6 for further functional requirements

2.3.7 Review of Functional Requirements With End User

Once Get Fit Together created the functional requirements specification, another meeting was arranged with the end user for review and to discuss any further needs. Refer to appendix 9.2.7 for more information.

2.3.8 Non-Functional Requirements

Once Get Fit Together had established suitable functional requirements, they progressed further to discover non-functional requirements required for the product.

Look and Feel Requirements

Appearance Requirements

Get Fit Together began by outlining look and feel requirements which related to the encouragement of the product. The purpose of this task was to help Get Fit Together ensure that the appearance of the product conforms with the companies expectations. Listed below are the look and feel requirements Get Fit Together created for the product.

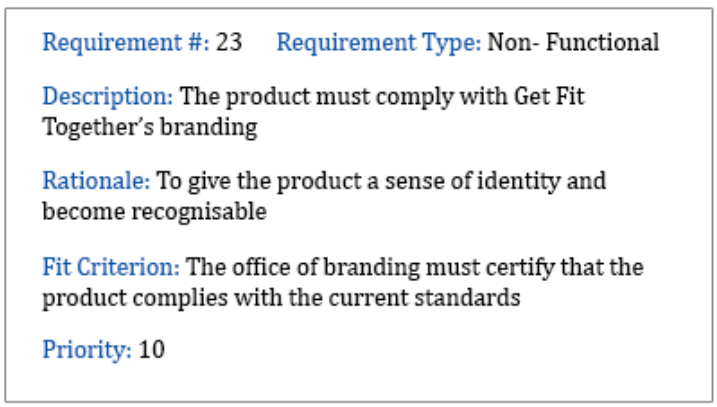


Figure 2.7 – Non-Functional Requirement

Style Requirements

Get Fit Together wanted to discover style requirements to determine precisely how the product must appear to its intended customer.

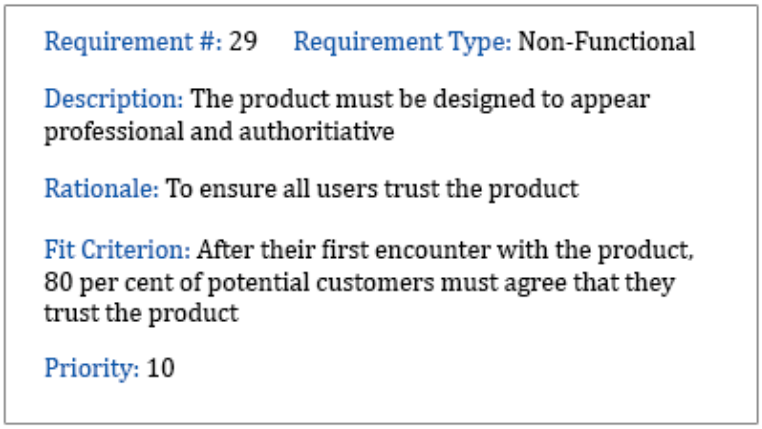


Figure 2.8 Non-Functional Requirement

Refer to 9.2.8 for further non-functional requirements

2.3.9 Additional Requirements

When development had just begun, the end user suggested additional requirements that she would like incorporated which were both a variety on non-functional and functional. These additional requirements outline extra aspects relating to the system, for example Facebook and Twitter accounts would be set up for the product and it would be a responsive application.

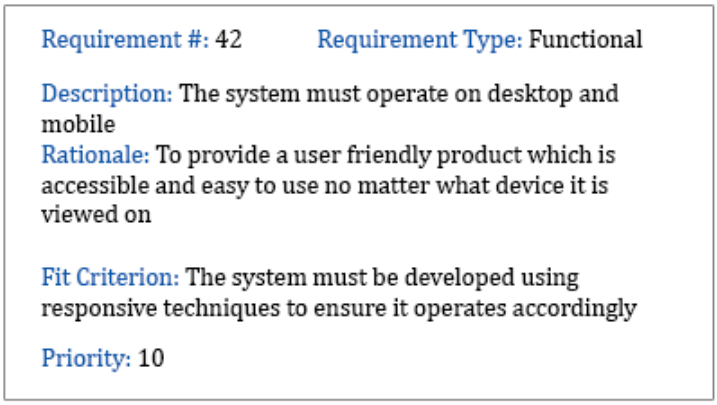


Figure 2.9 Additional Requirement

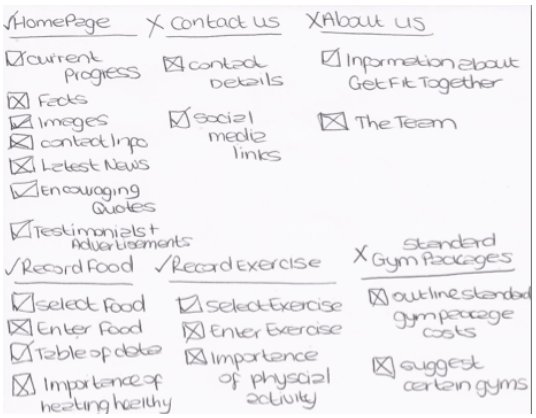
Refer to 9.2.9 for further additional requirements

2.4 Paper Prototyping

2.4.1 Brainstorming

Paper Prototyping was an effective task to undertake as it allowed Get Fit Together to mockup and refine an interface before implementation began. Before doing this, Get Fit Together decided to brainstorm on paper as shown in fure figure 2.10, in order to decide what pages and associated content would be included on the web application.

Figure 2.10 – Paper Prototyping



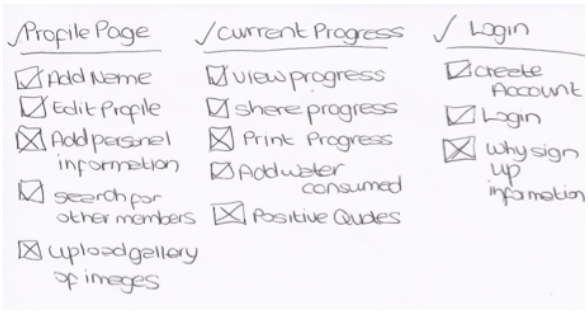
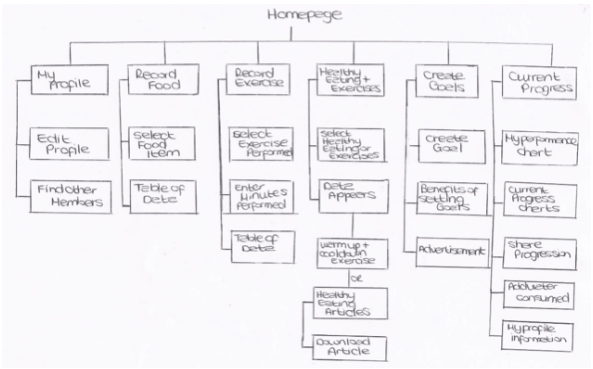


Figure 2.11 – Paper Prototype Site Map

2.4.2 Site Map

After the brainstorming process, Get Fit Together was aware of what pages and content they would like to display on the web application to benefit users. This lead them to create a detailed sitemap showing the main navigation structure and features within each page. The sitemap is shown in figure 2.11.

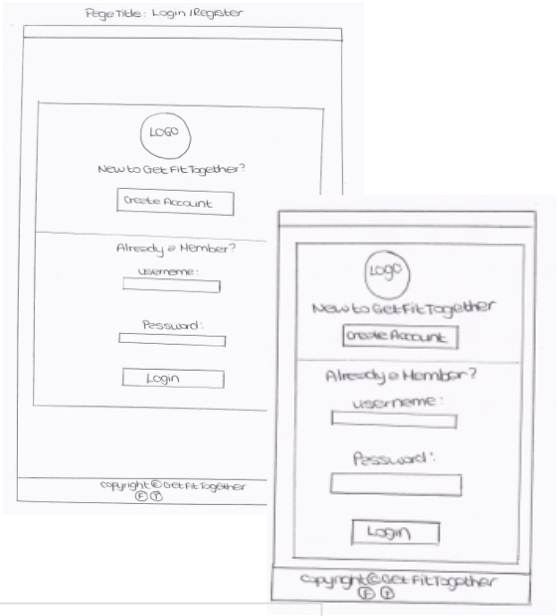


2.4.3 Individual Pages

Get Fit Together progressed further to explore each individual page of the web application using paper prototyping as shown in figure 2.12. From completing this process Get Fit Together was able to explore how the web application would appear on desktop and mobile.

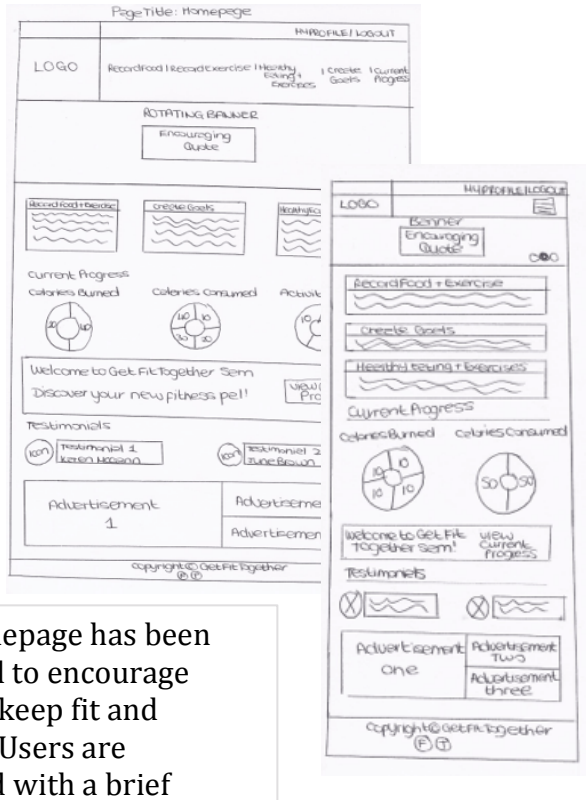
Figure 2.12 – Paper Prototype, Individual Pages

Register/Login



From this sketch it is quite obvious that a user can create an account or else enter their details to login

Homepage



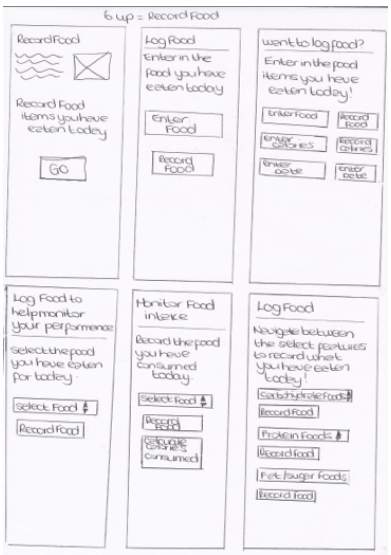
The homepage has been designed to encourage users to keep fit and healthy. Users are provided with a brief overview of their progress

Refer to appendix 9.3 for further paper prototyping sketches

2.4.4 6 Up

As shown in figure 2.13, Get Fit Together created a 6 Up and have selected record food as the main focus. A 6 Up basically allowed Get Fit Together to present this section in six different ways, in order to discover the most effective and user friendly structure.

Figure 2.13 – 6 Up Sketch



Began with an extremely simple layout requiring users to type up a list of items that they had eaten

Advancing from the previous version users are now able to select their food items and record food

In version three, users are given the ability to enter food items, date and estimate the calories consumed

Finally progressing to a user-friendly experience where users can use the categories to select items they have eaten and view calories consumed based on this data

2.4.5 Higher Fidelity

Get Fit Together decided to go another step further and create a higher fidelity wireframe for the current progress page as seen in figure 2.14. Get Fit Together believed that this will be one of the most visited pages and wanted to ensure the design and structure is as effective as possible.

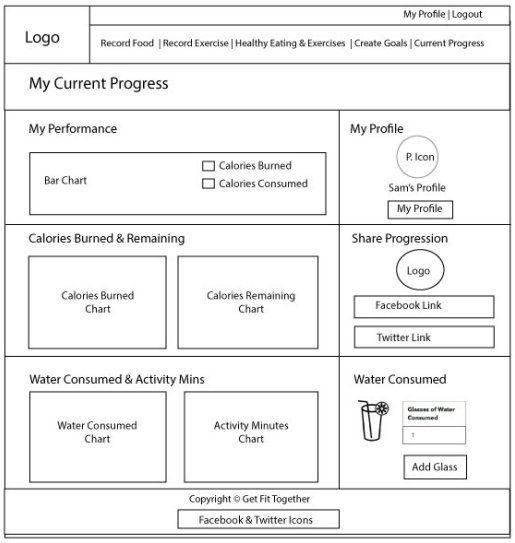


Figure 2.14- Higher Fidelity Wireframe

2.5 Feasibility Testing

Regarding feasibility testing, Get Fit Together created a functional prototype to explore a key technical risk in the project before actual development began. For the prototype Get Fit Together decided to explore the functionality of the login and register section and also experiment with the bootstrap framework. The login and register section was chosen for the prototype mainly because the product would not be able to function without it. In order to access the product, a user must either sign up or enter their login details therefore it was sensible to approach this section at a very early stage. Get Fit Together had no previous experience with bootstrap therefore it was suitable to determine at any early stage whether it would be feasible to use.

As a result of experimenting with the functionality of the login/register section and testing small pieces of code, Get Fit Together found that they were able to use suitable technologies such as PHP and PDO (PHP Data Objects) for database queries. In turn, Get Fit Together was able to save and store users details in a database. PDO was appropriate to use as it offers advanced security, improved performance and enhanced realibility. From this task, Get Fit Together have successfully developed a login/register page which allows users to register by inputting their email address and postcode and also creating themselves a

username and password. Get Fit Together was also able to display an error message to the user if these details had not been filled in correctly. In contrast to the register section, Get Fit Together developed the page in a way which only requires users to input their username and password. In turn, this means that it can be integrated and used to allow users access to the system.

Get Fit Together was extremely satisfied with the outcome of experimenting with the bootstrap framework. Get Fit Together found it fairly straightforward to understand and as a result decided that it would be used as the main bones for the product. It was feasible to incorporate bootstrap as it provides personalised customisation, which meant Get Fit Together, was able to select a suitable template and modify it accordingly to suit the product. Bootstrap templates are responsive which meant the risk of this task holding the project back was mediated.

2.5.1 Risk Analysis

Get Fit Together was aware of the potential risks that could have held up the completion time of the project such as general risks which included time, costs and resources. In order to test the feasibility of the product, Get Fit Together carried out a risk analysis outlining potential risks in order to plan how to mediate, should they have occured. Possible risks that Get Fit Together had considered are outlined below.

Risk One: Using API's
Evaluate Risk: Get Fit Together did not have a lot of experience working with API's and may have found them difficult to implement.
Plan to Mediate: Get Fit Together experimented with different API's in order to gain more experience of the process which in turn ensured that it was a straightforward task when actually implementing them into the product.
Likelihood of Occurrence: 7

Having established potential risks and planning to mediate, Get Fit Together was aware that securing external resources and using API's had a high impact to the

project's success and had a high likelihood of occurrence which means they had to be significantly prioritised.

Refer to appendix 9.4.1 for further potential risks

3. Design

3.1 Style Tiles

Having explored using paper prototyping, Get Fit Together then progressed further to create style tiles in Photoshop. From doing this, Get Fit Together was able to consider different fonts, colours, textures and typography that could have been applied to the web application. As shown in figure 3.1, Get Fit Together explored with mainly blue and green, as these colours are usually associated with health and wellbeing.

Figure 3.1 – Initial Style Tile

Reflecting upon the first style tile, Get Fit Together decided that this could be improved, as it seemed a little dull. Get Fit Together experimented further and created a second version shown in figure 3.2 which also incorporated the colours blue and green, although to make the website more visually appealing, a light red was introduced which achieved this effectively.

Figure 3.2 – Refined Style Tile

Get Fit Together was able to visualise two completely different style tiles, which showed alternative approaches. Get Fit Together placed the project in context and as a result decided that the second style tile was more effective and suitable. Get Fit Together was aware that applying dark blue to a design is a great way to provoke a sense of security. Get Fit Together incorporated blue, as they were aware it evokes stability and is a great choice for corporate design. The colour red was selected for the buttons, as it is best used when trying to evoke movement. Cool colours, green and blue were selected for the design as they evoke professionalism and stability which Get Fit Together want to achieve. Inspiration was taken from the second style and incorporated into the user experience designs.

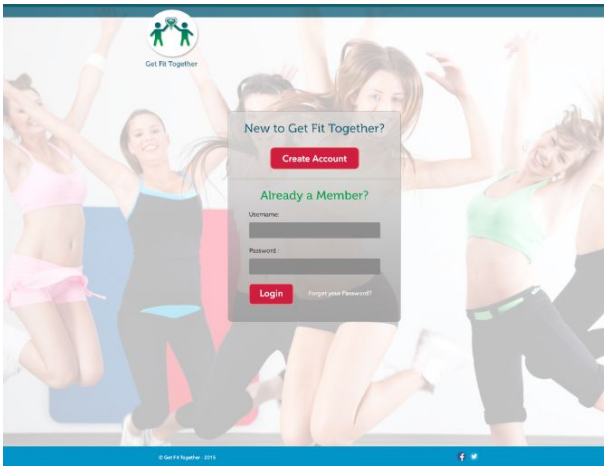
3.2 UX Design Evolution

3.2.1 User Interaction Journey

After researching user experience design techniques and best practices, Get Fit Together decided to combine that knowledge and understanding into Photoshop mockups to show a series of visuals that walk through various user interactions within the web app. Paper prototyping lead Get Fit Together to consider the structure of the web app, which meant they were able to progress further and visualise the style and layout on screen. Get Fit Together created initial and refined user experience designs, which show the progression from one stage another as a result of discovering and making appropriate and effective changes.

Login

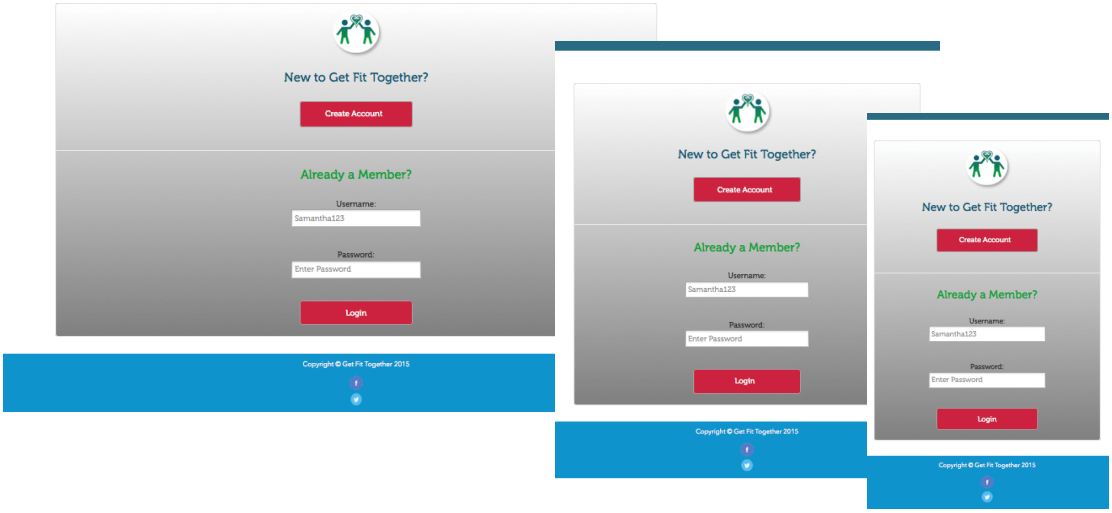
Figure 3.3– Initial Login Design



Get Fit Together applied the initial user experience design they had created to the login and register screen for the functional prototype. From this, they were able to decide if the design was suitable or consider what changes could be made to make it more effective. After observing

figure 3.3 on screen, Get Fit Together felt that the page appeared very busy and in order to overcome this decided to remove the background image and also make some small changes, which has in turn lead to the following refined designs.

Figure 3.4 – Refined Login Design



The login screen is the first page that a user will view therefore it was extremely important to obtain a good first impression. Get Fit Together has refined their design to create a simple and clean layout, which clearly directs users to the primary points of interest on screen. The design is straightforward and users are immediately aware that they have the option to create an account or enter their details to login. Regarding the actual login section, Get Fit Together applied placeholders to demonstrate the purpose of the input fields, showing an example to users.

Register

Figure 3.5 – Register Design

Once a user selects the 'create account' button they are directed to the register screen. At this point, users are presented with a fresh and straightforward page were they can see clearly where to enter their details in order to sign up.

One of Jackob Nielsen's usability heuristics (1995) is to enable user control and freedom as users often choose system functions by mistake and it is necessary to have an option to leave the unwanted state. To put this into practice, Get Fit Together added a button, which provides users with the option of returning to the main menu. The colour for the secondary buttons was chosen as green to keep in tone with the style.

Login/Register Error

Figure 3.6 – Login/ Register Error Design

If the user doesn't enter the correct information and goes ahead to select either the 'register' or 'login' button, they are confronted with an error message. Nielsen states that it is good practice to help users recognise, diagnose and recover from errors. He also states that error messages should be expressed in plain language, which lead Get Fit Together to present a simple statement informing users they have not entered the correct information to register or login. Furthermore, Get Fit Together have provided a button which allows users to recover from the error which directs them back to the register screen where they in turn can alter the mistake.

Homepage

Get Fit Together was aware that various changes could be made in order to make the design more effective and to increase user interaction. It is possible to see the initial and refined homepage designs in figure 3.7 and 3.8.

Figure 3.7 -
Initial Homepage Design

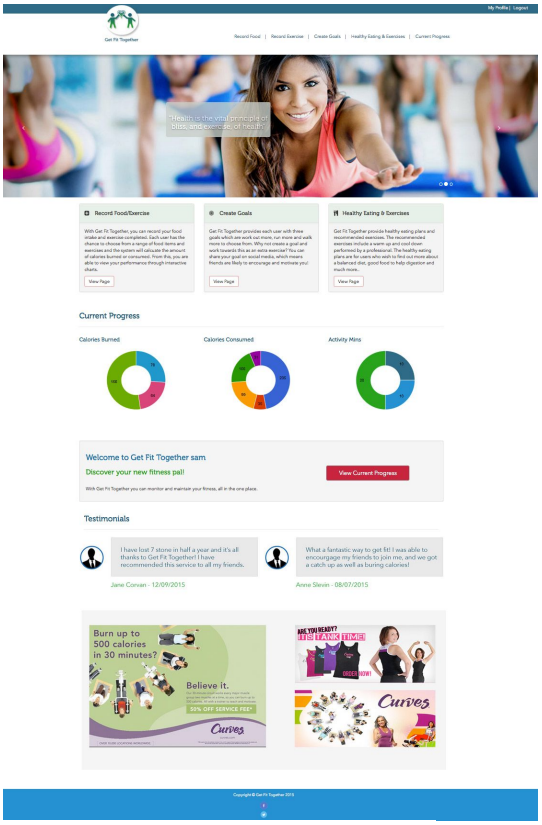


Figure 3.8 -
Refined Homepage Design

It had been decided that the homepage would be used to encourage users to keep fit and healthy and promote Get Fit Together. One way to encourage users to keep fit and healthy was through the effective use of rotating banner images, which show families, men and women participating in physical activity. Each banner image also has an inspirational overlaying quote presented. The overlay feature in the refined design has been positioned to the center of the image, making it more prominent. This change affects the entire feel of the image as the overlay is perfectly positioned on top of the woman's face on mobile view, which can be visualised in figure 3.9

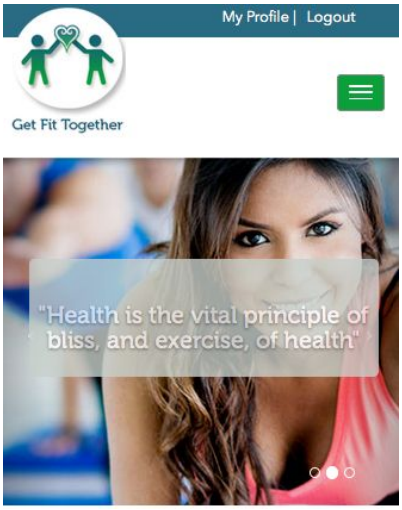


Figure 3.9 - Refined Homepage design

Steve Krug states in his usability lessons that user's don't read pages, they scan them (Tim Woods, 2015). With this in mind, Get Fit Together decided to add feature boxes to inform users what the product provides in a visually appealing way just using a few lines of text.

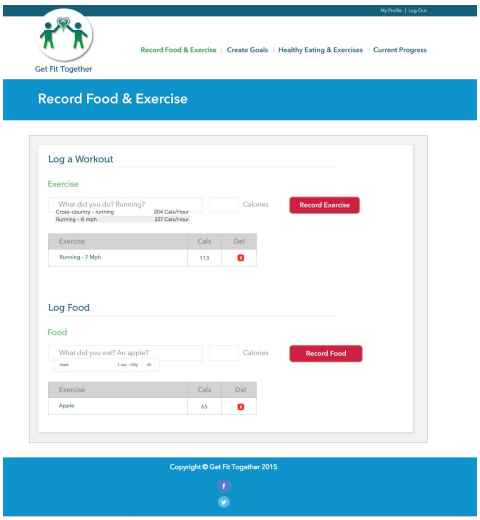
In order to increase user interaction, the current progress charts were changed. In the initial design the charts provided users with an idea of their progress from a glance. However, in the refined design users are able to hover over a slice of the chart and depending on which one chosen detailed information about their food intake, exercise performed or activity minutes will appear. Further details of this can be seen in the current progress section.

At the refining stage, Get Fit Together decided to remove the option to find nearest gym and send message blasts as they are not needed at this time and have been suggested for future work.

Steve Krug's first law of Usability for the Web is don't make me think. The homepage achieves this successfully as all elements are self-evident, obvious and self-explanatory. The design was considered in great detail to ensure users know exactly what each section is without expending any effort thinking about it.

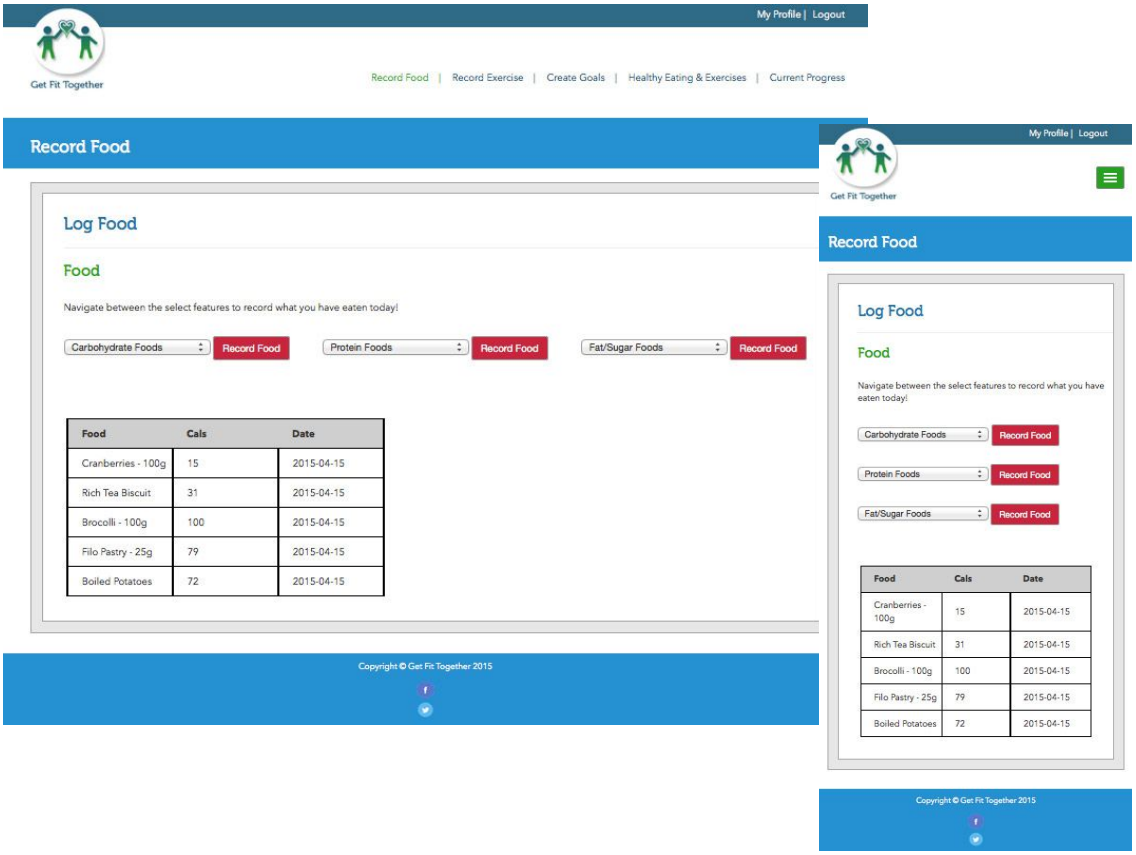
Record Food

Figure 3.10 - Initial Record Food Design



In the initial design that Get Fit Together created, record food and exercise was given a joint page. After deliberation, Get Fit Together decided that it would be suitable to separate these. The reason being, a user may just want to record food or exercise and this makes it more straightforward for them. Furthermore, users may record more than twenty food items per day, which meant the page became extremely long, especially on mobile devices. This may have irritated users, having to continuously scroll to reach their point of interest. The refined design for the record food page can be seen in figure 3.11.

Figure 3.11 – Refined Record Food Design



Upon viewing the record food page users are clearly able to see that they have the ability to record their food intake. In order to make the logging food process as user friendly as possible, users are able to choose food items from three different categories, which are carbohydrates, protein and fat/sugar. Once a users record a particular food item, data automatically appears in a table below outlining the food, calories consumed and date. This process has changed significantly from the initial consideration, providing a better service to users. Get Fit Together felt that giving users options to choose from and calculating calories based on this is much more effective than asking them to input data and guessing calorie amounts. Get Fit Together also decided to remove the delete feature at this time. This page has been designed effectively, keeping the structure simple and clean by making use of white space.

Refer to appendix 9.5 for additional user experience designs

3.3 Branding

Strong branding is crucial for a product, in order for it to be recognised by the public. Marty Neumeier states in his book, *The Brand Gap*: "A brand is a person's gut feeling about a product, service, or organisation." (Jay Ehret, 2009)

Brands can be very powerful influencing tools therefore Get Fit Together wanted to ensure they created a brand that was unique and sets the product apart from the competition.

In order to do this, Get Fit Together researched and examined a wide range of potential icons and as a result, inspiration was gained from the following.

In particular, one specific icon immediately stood out to Get Fit Together as it portrays two people connected by the heart. This icon struck Get Fit Together, as they were aware that the product has the potential to become a person's fitness pal to help them maintain or improve their health.

Get Fit Together wanted to collect opinions and suggestions from potential users regarding the style of a logo. In order to do this, Get Fit Together began by brainstorming ideas based on possible typography and icons. These ideas included inspiration from the above logo and also other health and wellbeing related icons. Get Fit Together created various surveys showing the typography and icon ideas and asked twenty potential users to complete them, stating their opinions and suggestions. This enabled Get Fit Together to move forward, taking in-house ideas and potential users suggestions onboard. Refer to appendix 9.6.1 for branding survey responses.

Based on users responses and Get Fit Together's thoughts a decision had been made to incorporate elements from the above logo as it represents the product faultlessly. The product was designed for users who wish to use the system to keep fit and healthy. Users are also able to find other members and in turn have the ability to invite them to exercise together. The logo that has been created for Get Fit Together is presented in figure 3.12.

Figure 3.12 –
Get Fit Together Logo

Refer to appendix 9.6.2 to view the logo incorporated into social media accounts and healthy eating article downloads

3.4 Marketing Campaign Designs

As seen in figure 3.13, Get Fit Together have designed flyers and business cards, which will be distributed once the product has been released into the market, in order to promote the company name and image.

Figure 3.13 –
Marketing Campaign Designs

See appendix 9.6.3 for more marketing campaign designs

3.5 System Design

Get Fit Together wanted to create a system design in order to understand the structure of the system, identify elements that make up the system and model the relationships between elements. By doing this it helped Get Fit Together design a complete and robust system.

3.5.1 Client-Server Model

Before Get Fit Together began to create the client-server model, they felt it was important to define the difference between the client and server to help determine how these are connected.

Client-side refers to operations that are performed by the client in a client–server relationship in a computer network. Typically, a client is a computer application, such as a web browser, that runs on a user's local computer or workstation and connects to a server as necessary. (Wikipedia, 2015)

Server-side refers to operations that are performed by the server in a client–server relationship in computer networking. Typically, a server is a computer program, such as a webserver, that runs on a remote server, reachable from a user's local computer or workstation. (Wikipedia, 2015)

Get Fit Together realised that the client and server were dependent on each other, in order to display a web page to the user; therefore it was important to consider and choose the correct technologies in order to achieve this. To help do this, Get Fit Together considered an example scenerio of when a client-server model might be used within the product.

When a user accesses their personal goals with a web browser also known as the client, it initiates a request to Get Fit Together's web server. The users login credentials are stored in a database, and the web server accessess the database server as a client. An application server interprets the returned data by applying Get Fit Together's business logic and provides the output to the web server.

Lastly, the web server returns the result to the clients web browser for display to the user.

From considering the example scenerio, Get Fit Together was able to visualise what happens behind the scene and as a result enabled them to create a client-server model, which outlines appropriate client and server technologies that would be used to create the product, as seen in figure 3.14.

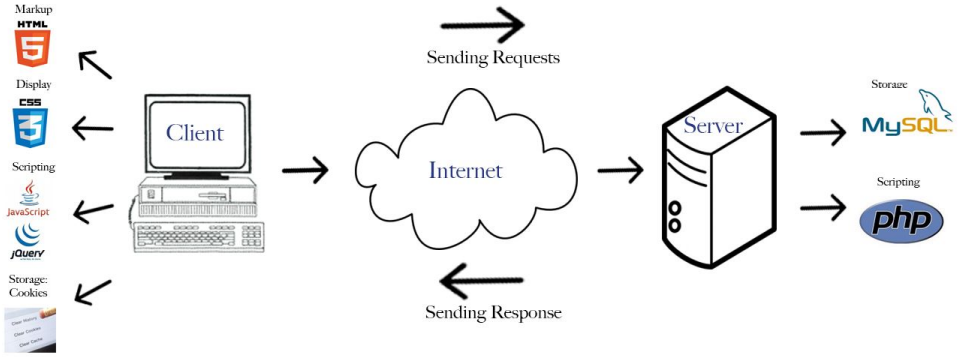


Figure 3.14 – Client-Server Model

3.5.2 Model-View-Controller

Get Fit Together decided to create a model-view-controller as it is used as a starting point for low-level software design and is perfectly suited to websites. Before doing this, it was important to look up the correct definition to find out how it works.

Model–view–controller known also as MVC is a software architectural pattern for implementing user interfaces. It divides a given software application into three interconnected parts, so as to separate internal representations of information from the ways that information is presented to or accepted from the user. (Wikipedia, 2015)

The model represents knowledge and should map directly to the owner's understanding. A view is a visual representation of its model, which highlights attributes. It questions or messages the model to get and update data. The

controller is a link between the user and the system. It manages delivery of views to the user. It never modifies structure of views and also protects views from how interactions are made. This explanation can be visualized in the following diagram.

Since Get Fit Together fully understood the concept behind a model-view-controller they decided to create a diagram which shows this in practice for the record food and exercise section. From figure 3.15 it is possible to see that the view displays the exerise and food page to the user, once a user then inputs data to their food intake or exercise performed, the view sends input to the controller. The controller then carries out two actions, it modifies the view to display updated data and it also sends data to the model to be modified.

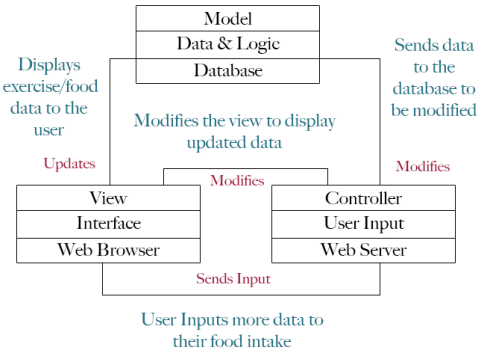


Figure 3.15 – Model View Controller

3.5.3 System Input-Process-Output

A computer system has four main components which are input devices, the processor, output devices and storage devices and they follow the stages of Input-Process-Output-Storage. The input stage involves entering information into a computer, the process stage includes doing something with the information such as calcuations or searches, the output stage involves displaying results and finally the storage stage simply store data when the computer is switched off. Figure 3.16 shows a sample of the input, output and processes that are carried out by the system.

Input	Process	Output
Login	Validation	Successful Login
Register	Create Credentials	Successfully Registered
Enter Location to Google Maps	Finds Location	Locates Nearest Gyms
Edit Profile	Saves New Information	Updated Profile
Send Message	Finds Message Recepient	Message Sent Successfully
Search Friends	Gathers List of Friends	Friends Found
Record Food Intake	Updates Data	Data Displayed In Charts
Record Exercise Performed	Updates Data	Data Displayed In Charts
Create Goal	Saves Goal	Goal Set and Saved
Logout	Records Logout	Secure Logout

↑ ↓

Storage

Figure 3.16 – System-Input-Output-Process Diagram

3.5.4 The Scope of the Product

Get Fit Together have created a use case diagram as seen in figure 3.17 that identifies the boundaries between the users and the product. It is possible to see the abilities of users, the goals of the project and the knowledge of both the work and technology that can make the best contribution to the work.

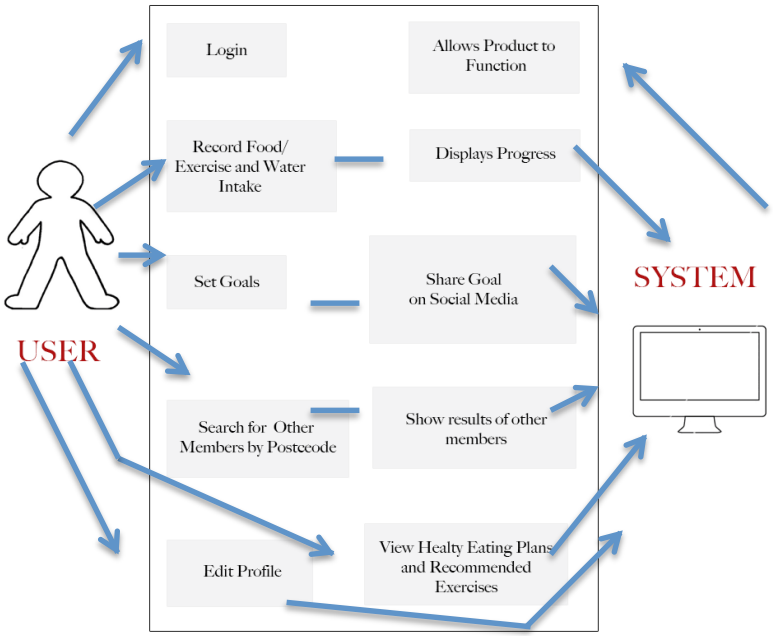
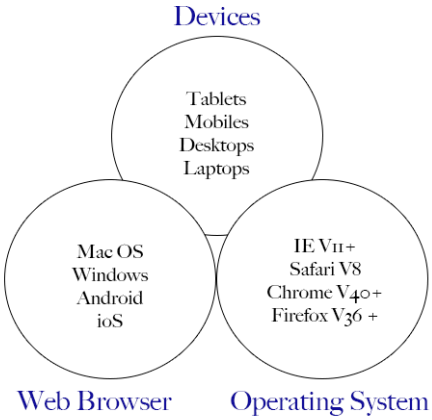


Figure 3.17 – Use Case Diagram

3.5.5 Platform Architecture

Figure 3.18 - Platform Architecture



Get Fit Together wanted to outline which type of devices, operating systems and web browsers that the web application supports, all of which are outlined in figure 3.18. Get Fit Together chose these platforms as a result of discovering from W3Schools (2015) that they are currently the most widely used so it is important that all users have a satisfying experience. Get Fit Together tested the system and components at each stage through development to ensure the web application was accessible using all platforms. This allowed Get Fit Together to make necessary changes at each stage, which in turn made the testing stage easier.

3.6 Data Design

Get Fit Together knew that getting data structures correct at any early stage was critical. Get Fit Together wanted to examine how the login process would work. To do this, an entity relationship model was created as it helps to identify database tables, fields and relationships that are required to give a user access to the web application.

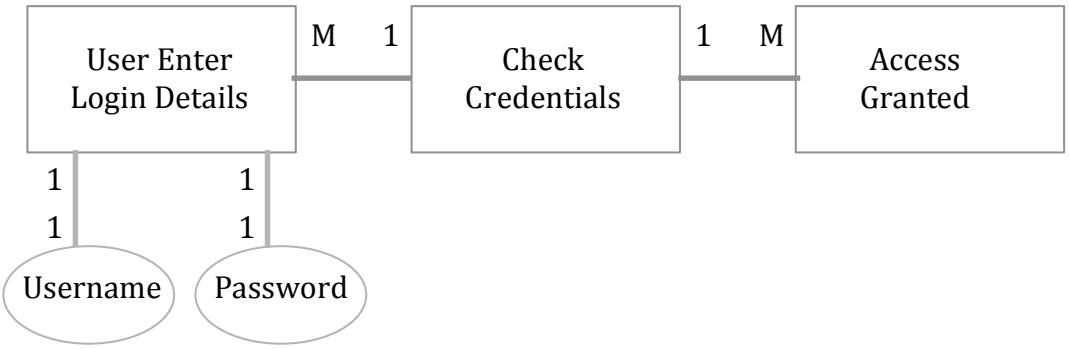


Figure 3.19 – Database Structure

To explain how the above data design works, firstly a user has their own personalised username and password to login; these details cannot be the same for other users. The user inputs their login details to the system, which could happen to be many users at the same time. The system checks the users credentials, which are unique to each individual user and then if the credentials are passed access is granted to one or many.

3.4 Logic Design

The process of logical design involves arranging data into a series of logical relationships called entities and attributes. Get Fit Together created a diagram, as seen in figure 3.20, which outlines the attributes of the register entity. In simpler terms, this means that in order to register a user must input a username, postcode, email address and password.

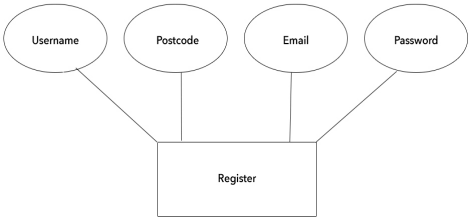


Figure 3.20
Logic Design Diagram

Get Fit Together followed both the data design and logic design diagrams in order to construct the login/register section of the web application. From the following code snippet it is possible to see the logic design in practice, checking to see if the user has entered a username, password, postcode and email address. If not, the system will display the appropriate message depending on the error.

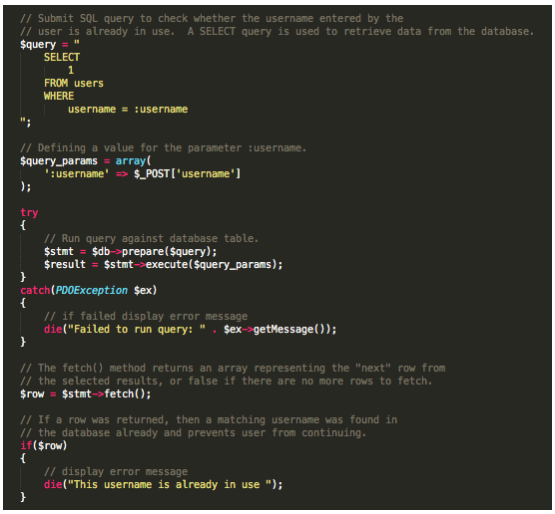
```php
// Check whether the registration form has been submitted
if(!empty($_POST))
{
    // Ensure that the user has entered a username
    if(empty($_POST['username']))
    {
        // if not display an error message
        die("Please enter a username.");
    }

    // Ensure that the user has entered a password
    if(empty($_POST['password']))
    {
        // if not display error message
        die("Please enter a password.");
    }

        // Ensure that the user has entered a password
    if(empty($_POST['postcode']))
    {
        // if not display error message
        die("Please enter a postcode.");
    }


    // Ensure user entered a valid E-Mail address
    if(!filter_var($_POST['email'], FILTER_VALIDATE_EMAIL))
    {
        // if not display error message
        die("Invalid E-Mail Address");
    }
```

As a result of creating the functional prototype, Get Fit Together decided that it would be logical to use PHP's library PDO and MySQL to construct the login and register section. From the code snippet it is possible to see the PDO code that has been used in order to check if the username that has been entered is already in use. Firstly, data is retrieved from the database, a query is ran to see if there is a duplicate username, if not, the users details are saved.If the database finds a match, an error message is displayed to the user.



```php
// Submit SQL query to check whether the username entered by the
// user is already in use.  A SELECT query is used to retrieve data from the database.
$query = "
    SELECT
        1
    FROM users
    WHERE
        username = :username
";

// Defining a value for the parameter :username.
$query_params = array(
    ':username' => $_POST['username']
);

try
{
    // Run query against database table.
    $stmt = $db->prepare($query);
    $result = $stmt->execute($query_params);
}
catch(PDOException $ex)
{
    // if failed display error message
    die("Failed to run query: " . $ex->getMessage());
}

// The fetch() method returns an array representing the "next" row from
// the selected results, or false if there are no more rows to fetch.
$row = $stmt->fetch();

// If a row was returned, then a matching username was found in
// the database already and prevents user from continuing.
if($row)
{
    // display error message
    die("This username is already in use ");
}
```

3.5 Design Patterns

Get Fit Together decided to incorporate design patterns into the web application as they facilitiate reuse which saves design and development time. By applying design patterns, it reduced potential for errors and promotes consistent design throughout the product.

- Page Grids – Grids were used to help Get Fit Together display images and content in a well formed manner. Displaying content is extremely important and needs to be clearly visible so that a user can find the information they are looking for without having to search for it. By using grids Get Fit Together was able to create primary points of interest such as on the homepage, having feature boxes and current progress directly

infront of the users eye to catch their attention. They were also able to have secondary points of interest, such as having advertising space at the bottom of the page. Secondary level points of interest are still important but are not displayed as prominently as primary points of interest.

- Navigation Menu – Get Fit Together made the decision to display a horizontal navigation menu at the top of each page where it is clearly visible to the user. If viewed on tablet or mobile the navigation bar stays in the same place but collapses into a rectangle shape. Once a user selects the collapsed naviagtion bar it will expand and display all page links.
- Article Lists – Article lists help display information in importance to the user and as a result have been applied to the healthy eating page. The title of the article appears first, followed by a short description about the article, a read more button and finally a link to download the article.
- Headers and Footers – Get Fit Together have made effective use of headers to display a link to the users profile and the option to logout. As for footers, they have been used to display a copyright symbol and links to the social media accounts. Get Fit Togther decided that these features should appear on every page therefore applying them to the headers and footers achieved this successfully.
- Page Design – Based on the user experience designs, Get Fit Together decided that content will be displayed on every page inside a white rectangle box with a grey outline, with the exception of the homepage. Get Fit Together felt that this structures the page effectively, making it look clean and tidy. Get Fit Together felt that by applying a rectangle box, the page seems less flat.

4. Implementation

4.1 Technology and Tool Selection and Use

Get Fit Together researched several technologies, discovering pros and cons of each one, which enabled them to decide which was best suited to support

delivery of the product. Furthermore, Get Fit Together have justified their decision based on languages, database, framework, libraries, API's and hosting.

Languages

The languages selected to use for the creation of the project were HTML, CSS, Javascript and PHP and it's library PDO. Firstly these languages had been used before therefore no time was wasted having to learn a new language. HTML has been used to define the structure and layout of the web pages. Get Fit Together believed HTML was an effective language to make use of as it is free and is supported on all browsers. This means that the product is easy to use, as users are not required to do any additional work such as download a certain browser or purchase any software. PHP has been incorporated into multiple sections of the web application.

Firstly PHP has been used to connect the system to a database which saves users login details, to enable them to login and out using the same credentials unlimited times.

```php
<?php

    // Connection information for MySQL database
    $username = "B00580950";
    $password = "Pb5x2xaL2";
    $host = "localhost";
    $dbname = "b00580950";

    // Tell MySQL server to communicate using UTF-8
    $options = array(PDO::MYSQL_ATTR_INIT_COMMAND => 'SET NAMES utf8');

    try
    {
        // This statement opens a connection to the database using the PDO library
        $db = new PDO("mysql:host={$host};dbname={$dbname};charset=utf8", $username,
                      $password, $options);
    }
    catch(PDOException $ex)
    {
        // If an error occurs while opening a connection to the database, it will
        // be stored here and an error message will be displayed.
        die("Failed to connect to the database: " . $ex->getMessage());
    }
```

Furthermore by using PHP, users are able to edit and update their profile at any time. The code snippet to the right shows the PHP code for updating an email address. Firstly, it checks to see if the user has entered a valid email address and if not displays an error message. If a user is changing their email address the next step is to ensure that the new value doesn't conflict with a value alright in use. If successful, the new value is posted to the database and if it failed an error message is shown to the user.

```php
// EMAIL ADDRESS SECTION

// Check the user has entered a valid E-Mail address
if(!filter_var($_POST['email'], FILTER_VALIDATE_EMAIL))
{
    // If not, display error message
    die("Invalid E-Mail Address");
}

// If the user is changing their E-Mail address, make sure that
// the new value does not conflict with a value that is already in use.
// If the user is not changing their E-Mail address this check is not needed.
if($_POST['email'] != $_SESSION['user']['email'])
{
    // Define SQL query
    $query = "
        SELECT
            1
        FROM users
        WHERE
            email = :email
    ";

    // Define query parameter values
    $query_params = array(
        ':email' => $_POST['email']

    );

    try
    {
        // Execute the query
        $stmt = $db->prepare($query);
        $result = $stmt->execute($query_params);
    }
    catch(PDOException $ex)
    {
        // If failed display error message
        die("Failed to run query: " . $ex->getMessage());
    }

    // Retrieve results, if there are any
    $row = $stmt->fetch();
    if($row)
    {
        // If failed display error message
        die("This E-Mail address is already in use");
    }
}
```

PHP was also used to allow users to search for other members by geolocation. A simple statement helps achieve this by using a select query to retrieve username,

email and postcode from the users table in the database who's postcode matches up with the value entered.

```
$stmt = $conn->prepare("SELECT username, email, postcode FROM users WHERE postcode = '$postcode'");
```

PHP has also been used to store a record of users personal goals. An explanation of the code for this can be found in the notable challenges and achievements section.

Another section PHP has been used for is the record food, exercise and water consumed features, where data is saved to a database to enable users to view their current progress at any time. This means that if a user records their food intake, exercise performed, or water consumed and then decides to log out, once they return their information is still available. Again, an explanation of the code for this can be found in the notable challenges and achievements section. PHP was suitable as it provides powerful library support and can be run on many platforms which is necessary for the product. PDO was appropriate to use as it offers advanced security, improved performance and enhanced reliability.

CSS has been applied to style and visually enhance the entire product. Get Fit Together find CSS easy to write and it was possible to apply consistent style throughtout all web pages by just using one stylesheet. Get Fit Together was extremly proud as during the implentation they learnt how to use reponsive design media queries. Lastly, JavaScript consists of many libraries and Get Fit Together made use of one in particular which was jQuery as it promotes the usage of interactive content.

Get Fit Together encountered some difficulties throughout the development stage regarding the usage of PHP. Get Fit Together tried to implement an upload image feature to allow users to set themselves profile pictures. However, this became a complication as Get Fit Together was able to get the image to display on screen but wasn't capable of saving the image to the database. Due to time constraints, Get Fit Together decided not to include the feature as it simply

wasn't user friendly. Once a user would log out the image would have been disgarded. In place of this, Get Fit Together decided to incorporate a placeholder icon. Get Fit Together have decided to keep the unfinished code and will work on implenting this in the future.

```
// ADDING AND UPDATING POSTCODE AND IMAGE

// Assigned postcode variable
$postcode = $_POST["postcode"];
$image = $_POST["image"];


// define SQL query for adding postcode and image
$query =  "INSERT INTO
        users(
        postcode,
        user_id,
        image
        )
VALUES (
        :postcode,
        :user_id,
        :image
 )";


 $query_params = array(
    ":user_id" => $user_id,
    ":postcode" => $postcode,
     ":image" => $image
);
```

Get Fit Together wanted to add client-side validation to the login/register section. In order to do this, Get Fit Together began investigating PHP login advanced. However, Get Fit Together came across a few difficulties. Since the login and register screen had been coded using PHP and PDO, Get Fit Together found it hard to combine it with the client-side validation code. As guided by their mentor, Get Fit Together decided it was a wise decision to keep the login/register screen functioning as it currently does using PDO. This type of functionality has also been suggested for future work.

Database

A database has been linked to the product as it makes it possible to view and store valuable information. Get Fit Together needed a database in order to save details disccussed above. As seen in figure 4.1, Get Fit Together created four tables in the database which holds each users details. Activity_2 holds users food intake and exercise performed data, users holds login details and water consumed and goals are self-explantory.

activity_2	Browse	Structure	Search	Insert	Empty	Drop	~5	InnoDB	utf8_general_ci	16 KiB
goals	Browse	Structure	Search	Insert	Empty	Drop	~8	InnoDB	utf8_general_ci	16 KiB
users	Browse	Structure	Search	Insert	Empty	Drop	~13	InnoDB	utf8_unicode_ci	48 KiB
water_consumed	Browse	Structure	Search	Insert	Empty	Drop	~9	InnoDB	utf8_general_ci	16 KiB

Figure 4.1 – Database Tables

It was discovered that MYSQL was the most suited database management system for the project for multiple reasons. Firstly, MySQL is free so it didnt add any cost

to the project. MySQL is capable of holding terabytes of information, which was essential for the project to ensure that there was not a restriction on how many users could sign up. MySQL provides complete around the clock support, so if an issue ever arises Get Fit Together can contact the customer service team and get the issue resolved to ensure customer satisfaction.

Frameworks

Get Fit Together decided to incorporate the Bootstrap framework into the web application. As a result of using a framework it got the project running quickly with minimum debugging. It was perfectly suited for the project as it saved a lot of time and provided personalised customisation. This meant that Get Fit Together, was able to customise the product such as applying branding which gave the product a sense of identity. Every bootstrap site is responsive which meant that extra coding had already been done which saved Get Fit Together time and effort. Get Fit Together experimented with this framework when carrying out the functional prototype which meant they were aware of the functionality that it provides from an early stage.

Libraries

There was many types of JavaScript framework libraries to choose from to help promote additional user interaction. For this product, JQuery was selected simply because it provides a range of plugins that are perfectly suited to the product. jQuery was applied to the recommended exercises and healthy eating page. As a result of incorporating jQuery, users are able to select either healthy eating or recommended exercises and depending on their choice information will appear on the page, changing as the user requests. jQuery was also applied to the current progress page to allow users to move each current statistic box to any position on the screen which enables users to pritioise data. jQuery cookie bar has been added to the login page to alert users that the web application uses cookies to track usage and preference. Users are provided with the option of clicking the 'I understand' button which in turn enables the message to disappear off the screen. JQuery is a familiar framework to Get Fit Together which ensured that they weren't met with any major difficulties.

```
// Healthy Eating and Exercises Select Box Feature

$(document).ready(function () {
    $('#id_radio1').click(function () {
        $('#healthy-eating').hide('fast');
        $('#recommended-exercises').show('fast');
    });
    $('#id_radio2').click(function () {
        $('#recommended-exercises').hide('fast');
        $('#healthy-eating').show('fast');
    });
});
```

```
<!-- Draggable Statistic Boxes -->
<script>
$(function() {
  $( "#draggable-big,#draggable-small" ).draggable();
});
</script>
```

Get Fit Together also began experimenting how it would be possible to minimise the current statistic boxes to promote user interaction even more, however due to time constrictions were not capable of putting this fully into practice. Get Fit Together were dissapointed by this, nevertheless as it stood, users were still provided with a way of pritorising data.

API's

There are various API's used within the product such as Google Charts API and Facebook and Twitter API. Get Fit Together had investigated different ways to allow users to share their progress on social media. It was discovered that Facebook and Twitter API's were the most suitable. The reason being, Facebook and Twitter sharing requires limited coding and offers the opportunity to attach a link to the web application. For example, once a user clicks on the "Share on Facebook" button a link to the web application has already been attached. Users are also given the chance to select were they want to share the post and write a short description. Meaning when a user posts their progress, other users have the option to click the website link which will direct them to the Get Fit Together web application. As for Twitter, when the share on twitter button is clicked, #get-fit-together and via @get-fit-together is displayed at the end of the tweet. This promotes the name of the website and provides a link to Get Fit Together's twitter account where users in turn could easily contact them.

Google Charts API have been incorporated in order to present users with charts showing live data. Google Charts has been used to extract data from the food intake, exercise perfomed and water consumed sections in order to convert results into multiple interactive charts. An explanation of the code for this can be found in the notable challenges and achievements section. Google Charts were

suitable for the project as they provide detailed and useful information and they also promote user interactivity. For example, if a user has logged four sepearte food items and then rolls over one slice of the pie chart, a small feature box appears outlining the food item and the amount of calories consumed.

Get Fit Together had wanted to make the charts more interactive by creating levels, however this unfortunately was not achieved. To elaborate, Get Fit Together wanted to create a top level for calories consumed to hold a slice for carbohyrdates, a slice for protein and a slice for fat/sugar. Once a user then selected a particular slice, another broken down chart would appear showing the exact food consumed under that category. For example, If carbohyrdates was selected then another chart would appear showing all the carbohydrate foods consumed.

Get Fit Together came across two problems when trying to achieve this. Firstly they were able to create the top level chart but were not able to combine all the values into three single slices for carbohydrates, protein and fat/sugar. As seen in figure 4.2, Get Fit Together was able to break the charts down into single categories however did not succeed on getting them to load when clicking a certain slice.

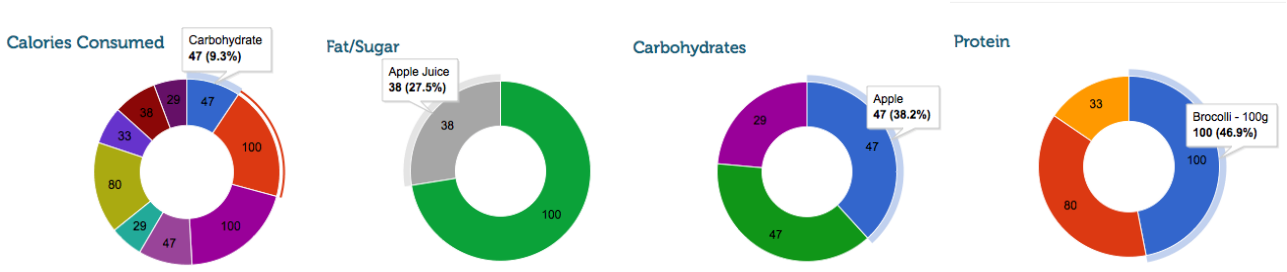


Figure 4.2 – Google Charts

Get Fit Together was disapointed that this did not work out as they had spent significant time and effort trying to implement it. However, Get Fit Together was able to add a slight amount of user interactivity. As it stands, once a user selects a particular slice of the chart a pop up box appears informing them of the exercise they completed or food item consumed.

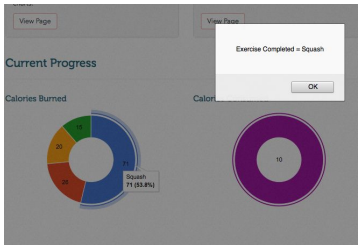


Figure 4.3–
Google Charts Pop Up

4.3 Notable Challenges and Achievements

During the third stage of the methodology plan, which was development, various challenges arose. Firstly, Get Fit Together had problems trying to implement the system to load data depending on the user who is logged in. In order to solve this issue the code snippet to the right shows the function, which Get Fit Together created in order to get the users id from the database. On top of this, Get Fit Together was then required to call this function on each page necessary in order to load and save the current users information to the database.

```php
<?php

    /* Functions for project */

    // Get User Id
    function getuser_id($username, $db){

        try
        {
            $results = $db->query("
                SELECT id
                FROM users
                WHERE username = '$username'");
        }
        catch (Exception $e)
        {
            echo "Data could not be retrieved from the database.";
            exit;
        }

        $row = $results->fetch();
        $user_id = $row["id"];

        return $user_id;

    }
```

```php
<?php

        $username = htmlentities($_SESSION['user']['username'], ENT_QUOTES, 'UTF-8');
        $user_id  = getuser_id($username, $db);
```

Record food and exercise were the two main pages, which caused significant challenges. Get Fit Together ran into difficulty when trying to get values from a drop down save directly to the database. The record food section provides users with three different categories of food types, which meant this became a major concern. The problem persisted for quite some time before trial and error helped overcome the issue. Firstly, Get Fit Together created a table in the database that is used to hold all food and exercise related data. In order to get a value from a drop down to save to a database HTML and PHP coding was required. Get Fit Together learnt that in order to save values to a database it had to be defined if the activity type was either exercise or food. Taking food as an example, it is possible to see in the code snippets below that the variables for activity type, food type, activity minutes and activity name were assigned in order to allow the values to be added to the database.

```php
// database query set for user entering their activity
$query = "INSERT INTO
        activity_2(
        user_id,
        activity_type,
        food_type,
        activity_mins,
        activity_name,
        calories_burned,
        calories_consumed
        )
VALUES (
        :user_id,
        :activity_type,
        :food_type,
        :activity_mins,
        :activity_name,
        :calories_burned,
        :calories_consumed

)";

// defining parameters
$query_params = array(
    ":user_id" => $user_id,
    ":activity_type" => $activity_type,
    ":food_type" => $food_type,
    ":activity_mins" => $activity_mins,
    ":activity_name" => $activity_name,
    ":calories_burned" => $calories_burned,
    ":calories_consumed" => $calories_consumed,
```

```php
<?php

        // activity type = food
        $activity_type = "food";


        // If user submits data, do something
        if(!empty($_POST)) {


        // Assigned variables for activity_2
        $activity_type  = $_POST["activity_type"];
        $food_type  = $_POST["food_type"];
        $activity_mins  = $_POST["activity_mins"];
        $activity_name  = $_POST["activity_name"];
```

Following on from this, in order to then link each food item to a particular category, the food type had to be defined and in this case, it was protein. Activity minutes were set to 0 as the user is currently recording food.

```
<input type="hidden" name="activity_type" value="food">
<input type="hidden" name="food_type" value="Protein">
<input type="hidden" name="activity_mins" value="0">
```

Enabling the system to calculate calories based on a certain food item was the next challenge that Get Fit Together was faced with. Get Fit Together had no previous experience with this type of functionality therefore extensive research and experimentation had to be carried out. As a result of this, Get Fit Together was able to create an if statement which tells the system, the activity name and how many calories are associated with each food item. It is possible to see that calories burned were set to 0 as the user is currently consuming rather than burning. The drop down items were linked with the PHP code in order for the data to be saved to the database correctly.

```
if($activity_name == "liqorice-25g" ){
    $cals_consumed = 70;
    $food_type = "Fat/Sugar";
}


if($activity_name == "boiled-sweets-25g" ){
    $cals_consumed = 82;
    $food_type = "Fat/Sugar";
}

if($activity_name == "toffee-25g" ){
    $cals_consumed = 107;
    $food_type = "Fat/Sugar";
}

if($activity_name == "crisps-25g" ){
    $cals_consumed = 100 ;
    $food_type = "Fat/Sugar";
}

if($activity_name == "crisps-50g" ){
    $cals_consumed = 150;
    $food_type = "Fat/Sugar";
}

if($activity_name == "crisps-100g" ){
    $cals_consumed = 275;
    $food_type = "Fat/Sugar";
}

// set calories burned to 0 when adding calories consumed to database
$calories_burned = 0;
```

```
<option value="liqorice-25g">Liqorice - 25g</option>
<option value="boiled-sweets-25g">Boiled Sweets - 25g</option>
<option value="toffee-25g">Toffee - 25g</option>
<option value="crisps-25g">Crisps - 25g</option>
<option value="crisps-50g">Crisps - 50g</option>
<option value="crisps-100g">Crisps - 100g</option>
```

For the exercise section, users are required to select an exercise and enter the duration performed. The coding style for this was similar to the food but in order to calculate the calories burned an equation had to be added. The following equation tells the system that the calories burned per minute multiplied by the activity minutes provides the overall figure for calories burned. Calories consumed were set to 0 as the user is currently logging exercise.

```
// calories burned calculation = cals per minue * minutes of exercise
$calories_burned = $cals_min * $activity_mins;

// set calories consumed to 0 when adding calories burned to database
$calories_consumed = 0;
```

Displaying data in a table was the next issue that had to be overcome. Get Fit Together had to use a SELECT query in order to load the activity name, calories consumed and activity date based on the food items which have been recorded. The system is also told to display the current days data for the current user. This enables data to be restored back to 0 at the start of each day.

```
$stmt = $conn->prepare("SELECT activity_name, calories_consumed, DATE(NOW())
                        FROM activity_2
                        WHERE user_id ='$user_id'
                        AND activity_type = '$activity_type'
                        AND activity_type = 'food'
                        AND DATE(activity_date) = DATE(NOW())");
```

Providing a user with the ability to set themselves target goals appeared to be a challenge for Get Fit Together at first. Get Fit Together was unsure of how they could implement this section as they wanted to provide users with the opportunity to set more than one goal at a time. In order to do this, Get Fit Together applied the knowledge they gained from the record food and exercise tasks and began by creating a new table in the database. Get Fit Together was then able to assign a variable to goal type which meant a user could set one or more goal types and it will be saved under their id in the database. In order to distinguish which goal type a user has selected a value was given to each one. It is possible to see in this example that the value assigned to the goal type is Work Out More.

```
// If user submits data, do something
if(!empty($_POST)) {

  // Connect config code to the database and start the session
  require_once("inc/config.php");

  // Assigned variables
  $goal_type      = $_POST["goal_type"];
  $username       = htmlentities($_SESSION['user']['username'], ENT_QUOTES, 'UTF-8');
  $user_id        = getuser_id($username, $db);


  // database query set for user entering their activity
  $query =  "INSERT INTO
          goals(
          user_id,
          goal_type
          )
  VALUES (
          :user_id,
          :goal_type
  )";

  // echo $query;

  $query_params = array(
      ":user_id" => $user_id,
      ":goal_type" => $goal_type
  );

  try
  {
      // Execute the query against the database
      $stmt = $db->prepare($query);
      $result = $stmt->execute($query_params);
  }
  catch(PDOException $ex)
  {
  // If failed display error message
    die("Failed to run query: " . $ex->getMessage());
    echo("failed to set goal");
  }

  // Redirect the user to the homepage.
  header("Location: set-goals-success.php");
  }
```

```
    <div class="panel-body">
        <h4>Work Out More</h4>

<!-- Work Out More Button -->
<form method="post" action='<?php echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>'>
    <input type="hidden" name="goal_type" value="Work Out More">
```

Finally, the last major challenge was incorporating Google Charts API into the web application. Get Fit Together was required to have multiple interactive charts that displayed live data taken from the database. Get Fit Together was able to manually input data into the chart but had difficulty getting it to connect

to the database until experimentation finally prevailed. In order to make this happen, Get Fit Together had to incorporate another SELECT query along with the Google Chart API. In this example, the SELECT query was used in order to select the activity name and calories burned from the current days data for the user currently logged in. The SELECT query had to be altered for different charts as different data was being gathered from the database. Labels were also given for the chart, using string for the slice title and number to calculate the percentage. The next step was to tell the system to slice the pie chart by activity name and the values for each slice are to show amount of calories burned.

```
try {
    // Establish the database connection
    $conn = new PDO("mysql:host=$host;dbname=$dbname", $username, $password);
    $conn->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);

    // select calories burned and activity name from activity_2 table from todays data */
    $result = $conn->query("SELECT calories_burned, activity_name
                            FROM activity_2
                            WHERE user_id ='$user_id'
                            AND DATE(activity_date) = DATE(NOW())");


    $rows = array();
    $table = array();
    $table['cols'] = array(


      // labels for chart
      // string is used for slice title
      //number is used for calcuating percentage
      array('label' => 'Activity Name', 'type' => 'string'),
      array('label' => 'Calories Burned', 'type' => 'number')

);

      // Extract the information from $result //
      foreach($result as $r) {

        $temp = array();

        // slices the pie chart
        $temp[] = array('v' => (string) $r['activity_name']);

        // Values of each slice
        $temp[] = array('v' => (int) $r['calories_burned']);
        $rows[] = array('c' => $temp);
      }

$table['rows'] = $rows;

// convert data into JSON format
$jsonTable = json_encode($table);

//echo $jsonTable;
} catch(PDOException $e) {

    echo 'ERROR: ' . $e->getMessage();
}

?>
```

```
<div id="calories-burned-chart">
<script type="text/javascript">

        // Load the Visualization API and the piechart package.
        google.load('visualization', '1', {'packages':['corechart']});

        // Set a callback to run when the Google Visualization API is loaded.
        google.setOnLoadCallback(drawChart);

        function drawChart() {

          // Creates data table using JSON data loaded from server
          var data = new google.visualization.DataTable(<?=$jsonTable?>);

          // Defined Styling Options
          var options = {
          pieHole: 0.5,
          pieSliceTextStyle: {
            color: 'black',
          },
          legend: 'none',
          pieSliceText: 'value',
          backgroundColor:'transparent'

        };

          // Instantiate and draw chart while passing in some options
          var chart = new google.visualization.PieChart(document.getElementById('donut_single_1'));
          chart.draw(data, options);
        }

    </script>

    <!-- Div to hold the pie chart-->
    <h4 class="chart-header-calories-burned">Calories Burned</h4>
    <div id="donut_single_1" style="width: 600px; height: 300px;margin:-43px 0px 0px -122px;"></div>


</div><!--/#calories-burned-chart-->
</div><!--/.col-md-4 col-sm-6 -->
```

The ability to log food and exercise and also the Google Charts API were defined as risks that had the potential to affect the project's success and hold the completion date of the project back. Get Fit Together was absolutely delighted when they succeeded in implementing these sections. The project was extremely technically challenging for Get Fit Together and they were exceedingly proud when their plan to mediate each risk worked successfully, elimanting the potential of affecting the project's success.

5. Testing

5.1 Testing Approach Selection

Software testing is a very important technique for accessing the quality of a software product. Get Fit Together carried out various types of software testing such as black box, ad-hoc, non-functional, user acceptance, beta and cross browser testing.

5.1.1 Black Box Testing

Black box testing only focuses on the functionality of the application and not the underneath logic. Get Fit Together used black box testing to ensure that the application was functioning as per the defined functional requirements. Get Fit Together gathered a test group of five potential users and asked them to test the functionality of the system. Each tester was provided with a description of the test and the expected outcome. From this the testers were aware of what to expect the black box to send out and tested to see if this happened.

5.1.2 Non-Functional Testing

Get Fit Together carried out non-functional testing in order to determine whether the system met various non-functional requirements that were gathered, such as accessibility, usability, performance and security testing.

5.1.3 Ad-Hoc Testing

Get Fit Together decided to carry out ad-hoc testing which is an informal testing procedure that doesn't require any planning or documentation. Ad-hoc testing was used in order to discover any defects that may not have been found through the functional and non-functional tests. Get Fit Together decided to test the various record food drop down menus in extensive detail to ensure they were functioning as expected.

5.1.4 Beta Testing

Get Fit Together used beta testing in order to discover if any major defects or issues occurred when potential users were using the system.

5.1.5 Browser Compatibility Testing

Get Fit Together carried out browser compatibility testing to ensure that the system works as expected on different operating systems and browsers.

5.1.6 User Acceptance Testing

In software development, user acceptance testing is the final stage of a project. The end user participated in the acceptance test in order to test the software with their business and to determine whether it had met the business requirements, which were provided.

To summarise, Get Fit Together tested the web application using the following steps:

- Tested against functional requirements
- Tested against non-functional requirements
- Tested other defects that might have not been found in the above two stages
- Tested to discover any major issues that may have occurred during usage
- Tested the system on various browsers and operating systems
- Tested the system against user survey responses
- Finally, tested whether the system was suitable for usage by gyms

5.2 Testing Process and Results

5.2.1 Black Box Testing Process and Results

Get Fit Together used black box testing in order to test the system against the functional requirements. In order to do this, Get Fit Together created functional test cases, a seen in table 5.1, which outlines the description of the test, expected result and final result. Five potential users tested the system and the results were recorded. Get Fit Together was happy to report that all functional requirements had been met.

Test ID	Require-ment ID	Description	Expected Result	Pass/ Fail
2	2	Users must be able to sign	Once a user creates an account the	Pass

		up to the system	system saves and stores the inputted credentials	x5
3	3	The system must provide an error message if details for signing up are not correct	If a user has entered incorrect details, the system throws up an error message informing users of the mistake	Pass x5
4	4	Users must be able to login	Once a user has added their correct details, the system allows the user access	Pass x5
5	5	The system must provide an error message if details for logging in are not correct	If a user has entered incorrect details, the system throws up an error message informing users of the mistake	Pass x5
6	6	Users must be able to log out	When a user has selected to log out, the system remembers to ask for details on next visit to sign in	Pass x5
7	7	Users must be able to create their own profile	Once a user has filled in the information they wish to display, the system stores this data	Pass x5
8	8	Users must be able to edit their profile	Once a user changes their profile, the system alters the previous information entered and saves the updated data	Pass x5
9	9	Users must be able to search for other members	Once a user searches for another member by postcode the system checks if there are any results and if there are, the users name, email address and postcode are displayed	Pass x5
10	10	Users must be able to view healthy eating plans and recommended exercises	Once a user chooses which section they want to view information on, the system captures the inputted data and displays the correct information to the user	Pass x5

Table 5.1 – Functional Test Cases

Refer to appendix 9.7.1 for additional functional test cases

5.2.2 Non-Functional Testing Process and Results

Get Fit Together interviewed five potential users across the spectrum of ages and abilities in order to test whether the system met the non-functional requirements considering look and feel, usability and humanity, performance, security and compliance.

Require-ment ID	Type of Requirement	Expectancy	Pass/Fail
23	Look and Feel - Appearance	The product complies with Get Fit Together's branding	Pass x5
24	Look and Feel - Appearance	The product has been designed to attract both men and women	Pass x5

25	Look and Feel - Appearance	The product has been designed to interest different age groups	Pass x5
26	Look and Feel - Appearance	Images displayed on the product are both of men and women	Pass x5
27	Look and Feel - Appearance	The product has been designed to ensure it is simple to use	Pass x5
28	Look and Feel - Appearance	Users progress is displayed using interactive charts	Pass x5
29	Look and Feel - Style	The product has been designed to appear professional and authoritative	Pass x5
30	Usability and Humanity – Ease of Use	The product is easy for 14 year olds to use	Pass x5
31	Usability and Humanity – Ease of Use	The product has been design to help the user avoid making mistakes	Pass x5

Table 5.2 – Non-Functional Tests

Refer to appendix 9.7.2 for further non-functional tests

5.2.3 Additional Requirements Testing Process and Results

Get Fit Together also tested against the additional requirements, which the end user had suggested at a later stage in the projects life cycle.

Require-ment ID	Type of Requirement	Expectancy	Pass/Fail
42	Functional	The product works accordinally on a range of devices	Pass
43	Non-Functional	Facebook and Twitter accounts have been set up for the product	Pass
44	Functional	The product is easily found on search engines	Not testable yet
45	Functional	The product has gained over 20 signs up in the first month	Not testable yet

5.2.4 Ad-Hoc Testing Process and Results

Get Fit Together tested the various food drop down menus to ensure they were functioning as expected. Get Fit Together anticipated that there may have been defects in the food categories as there are over 100 food items provided.

Get Fit Together wanted to test that each food item no matter what category they were placed in, appeared in the table correctly. Get Fit Together also wanted to

check that each food item was displayed the correct value of calories consumed. In order to do this, Get Fit Together thoroughly examined each food category, selecting every single food item and checking it against the code structure. Get Fit Together was happy with the outcome as they came across a few errors and were able to rectify each one before the system was provided to the end user for testing. For example, once Get Fit Together selected brown bread from the carbohydrate menu, calories in the table were shown as 0, which can be seen in the image below.

Food	Cals	Date
Brown Bread - 100g	0	2015-04-27

From this, Get Fit Together was able to check the code and they noticed that the activity name didn't link up exactly, there was a space missing. Once this had been corrected, the calories consumed value appeared correctly.

```
if($activity_name == "Brown Bread -100g" ){
    $cals_consumed = 218;
    $food_type = "Carbohydrate";
}
```

Food	Cals	Date
Brown Bread - 100g	0	2015-04-27
Brown Bread - 100g	218	2015-04-27

```
<!-- Breads -->
<option value="Brown Bread - 100g">Brown Bread - 100g</option>
```

5.2.5 Beta Testing Process and Results

Get Fit Together provided five potential users with access to the software online for a limited period of time. Get Fit Together observed each user using the system in order to discover if any major defects or issues occurred. Get Fit Together observed two users viewing the system on a smartphone and the three users using a laptop. From carrying out the beta test, all five potential users were able to use the system without complication and it was recorded that no defects or issues occurred. The testers also provided feedback, which was all positive and promising.

User Number	Feedback
User One	The system is great, very easy to use and navigate around
User Two	Get Fit Together is a fantastic web application that is easily used to monitor health and fitness. The ability to create personal goals in one step is brilliant!
User Three	Recording food and exercise was simple and self-explanatory
User Four	Using the pie charts to find detailed information on current progress is straightforward
User Five	The web application is bright, modern and easy to follow which makes the user experience enjoyable

Table 5.4 – Beta Testing Feedback

5.2.6 Browser Compatibility Testing Process and Results

Get Fit Together tested the functionality of the web application on various operating systems and browsers to ensure it was accessible for all users regardless of which one they are using. Browser compatibility testing was successful for four operating systems and browsers all of which can be seen in table 5.5.

Operating System	Result	Browser	Result
Internet Explorer	Pass	Mac 0S	Pass
Safari	Pass	Windows	Pass
Chrome	Pass	Android	Pass
Firefox	Pass	IOS	Pass

Table 5.5 – Browser Compatibility Testing

5.2.4 User Acceptance Testing Process and Results

In order to carry out user acceptance testing, Get Fit Together asked the end user to test the software with their business in order to discover if it was created effectively for usage by gyms. The end user tested the application and stated that it had successfully met the business requirements that were provided and approved that the system was ready for release to real-word conditions.

5.4 User Survey Responses

Get Fit Together also tested around a user survey, which had been created to gather public opinions. The survey received 50 responses in total. Responses and results can be seen in the table 5.6.

Survey Question Number	Question	Answers	Does the product comply?
1	What age bracket are you in?	10 to 30 = 8 30 to 50 = 18 50-70 = 14	The system has been designed and made usable for 10 to 70 year olds
5	If answer is no, why not? Previous questions asks users if they view health and wellbeing related websites online	Not Interested = 4 They are too complication to use = 3 Don't have time to make use of it = 2 The website always send junk email to my inbox = 1	The system is easy and simple to use and does not send junk email to members

7	If the answer is yes, what do you use it for the most? Previous question asks are you a regular users of any health related website or app? EG. Fitbit, MapMyRun, Livestrong	To record food and exercise = 6 To view healthy eating plans = 3 To create personal goals = 6 To book a personal training session = 1 To view latest health and wellbeing news = 2 To watch exercises being carried out by professionals = 4 To monitor health and fitness = 10 To share progress with others = 1 To lose weight = 1 To get fit and healthy = 3	The system has been created and allows users to record food and exercise, view healthy eating plans, create personal goals, view exercises, monitor health and fitness, share progress with others and to get fit and healthy.
8	What browser do you use to view the internet?	Opera = 4 Safari = 5 Firefox = 19 Chrome = 15 Internet Explorer = 7	The web application is accessible using all five browsers. In particular, the system was tested extensively using Firefox and Chrome as they received a noticeable amount of votes compared to the other browsers
9	Which of the following devices do you most often use to connect to the internet?	Computer tablet = 8 Desktop computer = 7 Laptop computer = 17 Smartphone = 18	The web application is accessible using all devices mentioned. The system was tested extensively using laptops and smartphones as a result of discovering these were the two most often used.

Table 5.6 – User Survey Responses

Refer to appendix 9.8 to view user additional survey results

6. Evaluation

6.1 Evaluation of Test/Survey Results

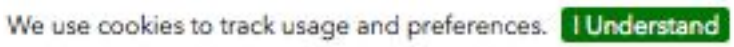
Testing was an integral part of the software development lifecycle, and took longer than intended. Get Fit Together wanted to carry out testing on a daily basis in order to test system components at each stage in the development process. Get Fit Together decided to test at each stage in order to catch and correct any defects immediately. The process did take longer than intended however if small defects persisted there would have been a chance that more complex errors would have occurred.

Carrying out testing was successful as it allowed Get Fit Together to identify and also rectify any defects within the system. Any errors that were discovered during the testing stage were documented and also assigned priority based on the likelihood of affecting the projects success. While participating in testing, Get Fit Together was faced with functional and non-functional faults.

The test group discovered that the system did not inform users that cookies are used to track usage and preferences.

22	22	The system must inform users that they use cookies	The system provides a clear message informing users that the system uses cookies to track usage and preferences	Fail x5

Get Fit Together immediately corrected this by adding a clear message to the top of the login page. As a result, users are informed that cookies are used, even before they have decided to register or login. This means, if users do not wish to have cookies track their usage and preferences they are aware immediately, before they enter any of their information.

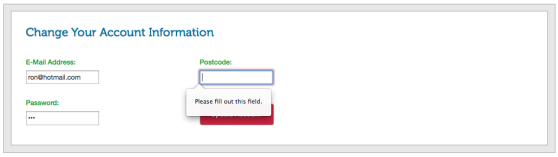


Furthermore, two non-functional requirements relating to security failed the testing process.

38	Security - Access	Users are only able to view their own information. If users do not want to be found via the search for other members feature they are provided with the option to remove their postcode	Fail x5
39	Security - Privacy	The product displays a message to make users aware of the information practices	Fail x5

The purpose of requirement 38 was to allow users to remove their postcode from the database if they didn't want to be found using the search for other member's feature. While carrying out the test, each test user came across a small

issue. When the testers proceeded to update their account without entering a postcode, an error message appeared to state that the field must be completed as seen in the following image.



After discovering this, Get Fit Together began trying to fix the bug. However, Get Fit Together was not able to make the system function as desired and the problem still persists. The problem is small, if a user does not enter their postcode when updating their account previous data is deleted. Due to time restrictions, Get Fit Together was not capable of getting the system to remember previous postcodes inputted and not to update if details hadn't been altered. As this was the case, Get Fit Together decided to keep the postcode field as required therefore postcodes for users who do want to be found are always available and for those who don't have the option to enter an incorrect postcode.

It had been recorded that requirement 39 did not pass the test. In order to fullfil this requirement Get Fit Together was required to make users aware of the information practices before collecting data from them.

Get Fit Together immediately corrected the problem and added a message stating that any information provided would be kept private and secure.

Get Fit Together came across two particular requirements, which were not yet testable. Get Fit Together decided that both requirements will be tested in June 2015 in order to see if they have been met. If not, a decision can be made at this stage on what will happen next.

44	Functional	The product is easily found on search engines	Not testable yet
45	Functional	The product has gained over 20 signs	Not

		up in the first month	testable yet

One particular advantage of completing the testing stage was that Get Fit Together discovered another two requirements that could be added. These requirements were put to the end user and both were approved.

Requirement ID: #47
Requirement Type: Functional
Description: The current progress statistic areas should be moveable
Rationale: To enable users to move content on the current progress page
Fit Criterion: The system should be coded to ensure that users can move the current statistic boxes to any position on the screen. This allows users to pritioise the data.
Priority: 10

Requirement ID: #48
Requirement Type: Functional
Description: Google Analytics should be implemented
Rationale: To enable Get Fit Together to review stats on the product such as, page views and location of visitors as examples
Fit Criterion: Get Fit Together should set up a Google Analytics account and use it to review stats and print reports on a monthly basis which can then be used to review if any changes need to be made to benefit the product.
Priority: 10

Get Fit Together thought that enabling a user to move a current progress statistic area is providing extra user interaction within the web application. They also suggested that Google Analytics could be implemented in order to track visiting stats. Both requirements were put into practice and applied to the web application. The end user was extremely happy with the moveable areas and praised Get Fit Together for this.

Get Fit Together created a user survey and particularly wanted to discover if people use a health related website or app and if so what they use it most for.

This was a very useful task as Get Fit Together was able to see that users voted for features, which had been suggested by the end user. On top of this, results showed that only one person uses a health related app or website to book a personal training session. Two people view latest health and wellbeing news and another person uses a system to loose weight. Since these requirements only received a tiny number of votes, Get Fit Together and the end user decided that they wouldn't be necessary and as a result were not included.

By examining the testing and survey responses Get Fit Together was able to discover if the system had been created as expected. Both were very important tasks and helped Get Fit Together move forward to make necessary changes to provide a better service to users and gyms.

6.2 Evaluation of Project Outcomes

Get Fit Together was fairly satisfied with the final project outcome. Get Fit Together believe that the web application will benefit users who want to keep fit and healthy. Get Fit Together was extremely happy that the project met most of it's requirements and also that they were able to amend certain ones that didn't pass the first initial stage.

The project functions how it is supposed to but there is also room for improvements. Get Fit Together was happy with the design of the web application but felt that there could be more functionality involved. Get Fit Together felt that if they there was room for extra user interactivity throughout the web application.

Reflecting at the end of the project, Get Fit Together felt that the profile page could have been better. Get Fit Together felt that had they added a friends and messaging system it would have better promoted users to Get Fit Together by

giving them the option to send friends direct messages. Further details can be found in 9.9.2. Regarding the food and exercise dropdowns, Get Fit Together believed that had they pulled data from an exercise or food database users would have been provided with more options to choose from.

Get Fit Together felt that they used suitable technologies in order to implement the system and had a good experience of using each and every one, learning as working. However, Get Fit Together are disappointed that they did not get the Google Charts working as desired. Get Fit Together realised that had they used am charts this could have been achievable.

On a positive note, Get Fit Together and the end user both agreed before deployment that the application had been created to meet its objectives.

6.3 Evaluation of Methodology

Get Fit Together used the modified waterfall to help manage the project. Get Fit Together felt they had a good experience using this methodology as it allowed for stages to have some overlap meaning tasks could run concurrently. The overlap allowed for some back tracking which Get Fit Together needed since they introduced extra requirements, which were discovered at the testing stage. This meant that Get Fit Together had to go from the testing stage back to development in order to put the founded requirements into practice.
However, since the methodology doesn't provide specific timescales, Get Fit Together found that it was easy to spend more time in one stage. This project was very technically challenged for Get Fit Together and as a result they have felt that too much time was spent in the development stage and not enough in the testing stage. Get Fit Together believed that more types of testing could have been carried out had they managed their timescales better.

6.4 Evaluation of the Plan

At the beginning of the project, Get Fit Together created a project plan to outline the main tasks that had to be completed, the duration, schedule and managing each task required. Get Fit Together followed this plan as best as they could

however at times they found the project off schedule especially during phase three, development. Phase three didn't run as smoothly as Get Fit Together would have liked due to challenges faced. Development had been scheduled to run from December to March however the project was still in production until the middle of April. As a result of this, it meant that the integration and testing stages were also off schedule. On the other hand, the design stage did not fully take up the allocated time, which meant there was room for some adjustments.

The project was completed on time however Get Fit Together felt that they could have better managed their time, leaving extra room as a safe zone in case problems occurred. This would have meant that the other stages wouldn't have been affected.

7. Conclusion

7.1 Summary

As it was possible to see throughout this report, Get Fit Together began as a simple idea which expanded into a fully functional website that has been created to help people easily monitor their health and fitness. Get Fit Together used the modified waterfall method to manage the stages of the project which was research, design, development, integration, testing and deploy. Get Fit Together took their idea and began researching how they could develop a product that would be set apart from the competition. From this they then worked with an end user to establish functional requirements. In the design stage, Get Fit Together created paper prototyping sketches and user experience designs to visualise and make necessary changes to the layout and style of the web application. They also created a system design, which was followed throughout the development stage in order to implement the system. Get Fit Together then took on board user and system designs and developed the system using a range of suitable technologies. Different types of testing then took place to ensure that the product was created to meet the requirements and were suitable for usage in

gyms. Get Fit Together and the end user were both satisfied with the end product.

7.2 Reflection

Reflecting on the process, Get Fit Together felt that the challenge of developing the system within a small timeframe was tough. Get Fit Together had a lot of ideas but were not able to put them into practice. Get Fit Together felt that the requirements, which the end user provided, were appropriate and suitable. Requirements were also added along the way to make the web application more effective. The research and design stages went very smoothly but as development started problems occurred. Get Fit Together overcame these problems by finding alternative solutions. All in all, the process was challenging but Get Fit Together are happy with the end result.

Reflecting on my role, I feel I worked extremely well in order to develop the final product. I carried out various roles within the project such as the creator, the developer and the designer, which lead to endless work. I feel I have learnt significant coding skills from the process, as the functionality was completely new to me. I feel that the project has enabled me to learn more about report writing, applying testing techniques and working towards deadlines. The project has helped me to gain valuable skills, which will be required within any workplace.

7.2 Future Work

7.2.1 Personalised Fitness Gear

Going forward Get Fit Together plan to introduce ways into the product to produce revenue. Get Fit Together have suggested this could be done by selling personalised fitness gear. At this stage, they have conducted research to find the cheapest yet best quality clothes designers, which could possibly be used as a supplier in the future.

Figure 7.1 shows a mock of how t-shirts and bags would appear with the Get Fit Together logo clearly visible.

Figure 7.1 – Personalised Fitness Gear

Refer to 9.9.1 for more personalised fitness gear examples

7.2.2 Personalised Water Bottles

Another possibility that Get Fit Together could incoporate in the future is to sell personalised water bottles on the website. All gym users are required to bring along with them a bottle of water each time they visit. By having the option to buy water bottles online, many users may place an order as it is convenient. Not only would the company produce revenue but the company name would be visible in the eye of the public at various times and locations.

If the Get Fit Together logo was printed onto the front of a bottle it would appear as presented in figure 7.2.

Figure 7.2 – Personalised Water Bottle

Refer to 9.9 for additional future work

8. References

BBC News. (2014). *Cases of diabetes increase to more than 3.2m.* Available: http://www.bbc.co.uk/news/health-26116470. Last accessed 4th April 2015.

Diabetes UK. (2014). *Diabetes prevalence 2013 (February 2014).* Available: http://www.diabetes.org.uk/About_us/What-we-say/Statistics/Diabetes-prevalence-2013/. Last accessed 8th April 2015.

FitnessHealth101. (2015). *Total Health, Fitness, and Well-Being.* Available: http://www.fitnesshealth101.com/fitness/general/key-components/well-being. Last accessed 24th April 2015.

Jakob Nielsen. (1995). *10 Usability Heuristics for User Interface Design.* Available: http://www.nngroup.com/articles/ten-usability-heuristics/. Last accessed 15th April 2015.

Jay Ehret. (2009). *The Basics of Marketing: What is a Brand?.* Available: http://themarketingspot.com/2009/01/basics-of-marketing-brand.html. Last accessed 30th January 2015.

NHS Institute for Innovation and Improvement. (2013). *Prevention is better than cure.* Available: http://www.institute.nhs.uk/building_capability/technology_and_product_innovation/prevention_is_better_than_cure.html. Last accessed 10th April 2015.

NHS Choices. (2013). *Physical activity guidelines for adults.* Available: http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx. Last accessed 10th April 2015.

Tim Woods. (2015). *Don't Make Me Think by Steve Krug.* Available: http://woodsnotes.com/2015/01/26/dont-make-me-think-by-steve-krug/. Last accessed 23rd April 2015.

Wikipedia. (2015). *Client-side.* Available: http://en.wikipedia.org/wiki/Client-side. Last accessed 23rd April 2015.

Wikipedia. (2015). *Server-side.* Available: http://en.wikipedia.org/wiki/Server-side. Last accessed 23rd April 2015.

Wikipedia. (2015). *Model–view–controller.* Available: http://en.wikipedia.org/wiki/Model–view–controller. Last accessed 23rd April 2015.

W3Schools. (2015). *Browser Statistics.* Available: http://www.w3schools.com/browsers/browsers_stats.asp. Last accessed 30th February 2015.

8.2 Tutorials Used and 3rd Party Code Acknowledgement

Get Fit Together followed the tutorial below and applied the sample code, discovering and making necessary changes in order to develop the login/register section for the web application.

Devshed. (2012). *How to program a basic but secure login system using PHP and MySQL.* Available: http://forums.devshed.com/php-faqs-stickies-167/program-basic-secure-login-system-using-php-mysql-891201.html. Last accessed 10th March 2015.

Get Fit Together studied and followed the Google Charts API tutorial and used parts of the provided code in order to create interactive pie charts.

Google Developers. (2015). *Visualization: Pie Chart.* Available: https://google-developers.appspot.com/chart/interactive/docs/gallery/piechart#donut. Last accessed 5th April 2015.

Get Fit Together applied the example code, which was provided, on Stack Overflow to help filter live data into the interactive pie charts. Get Fit Together was required to understand the code and make necessary changes to suit their needs.

Stack Overflow. (2013). *PHP MySQL Google Chart JSON - Complete Example.* Available: http://stackoverflow.com/questions/12994282/php-mysql-google-chart-json-complete-example. Last accessed 15th April 2015.

Get Fit Together used the example code provided from W3 Schools, in order to retrieve food, exercise and other members information from the database and display in an HTML table on the respective pages. Get Fit Together needed to make alterations to the code to enable it to match up with the systems requirements.

W3Schools. (2015). *PHP Select Data From MySQL.* Available: http://www.w3schools.com/PHP/php_mysql_select.asp. Last accessed 12 April 2015.

8.3 Food and Exercise Calorie Charts

Get Fit Together used the following charts in order to calculate the exact values for calories consumed and calories burned.

NutriStrategy. (2015). *Calories Burned During Exercise, Activities, Sports and Work.* Available: http://www.nutristrategy.com/caloriesburned.htm. Last accessed 3rd March 2015.

The Food Chart. *Food Calorie Charts.* Available: http://thefoodchart.com/calorie-charts.php. Last accessed 3rd March 2015.

8.3 Healthy Eating Articles

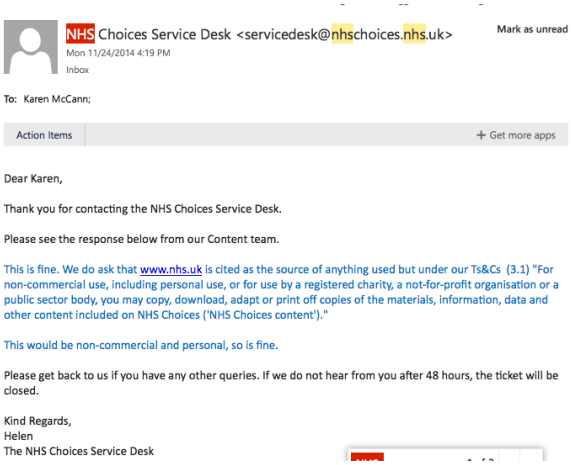
Get Fit Together made use of the healthy eating articles, which the NHS provides. Get Fit Together requested permission to do this, which was successfully granted, based on the grounds that the NHS is cited. Get Fit Together have sourced each article and also provided a link to the NHS website.

-----Original Message-----
From: Karen McCann [mailto:mccann-k11@email.ulster.ac.uk]
Sent: 18 November 2014 09:20
To: NHS Choices Service Desk
Subject: Feedback - Content -

Message:
Hi, I am currently developing a final year major project at university regarding health and well-being. I am emailing to ask permission to use your healthy eating and recommended exercise content which is on the website?

Thanks in advance,

Karen



NHS Choices Service Desk <servicedesk@nhschoices.nhs.uk>
Mon 11/24/2014 4:19 PM
Inbox

Mark as unread

To: Karen McCann;

Action Items + Get more apps

Dear Karen,

Thank you for contacting the NHS Choices Service Desk.

Please see the response below from our Content team.

This is fine. We do ask that www.nhs.uk is cited as the source of anything used but under our Ts&Cs (3.1) "For non-commercial use, including personal use, or for use by a registered charity, a not-for-profit organisation or a public sector body, you may copy, download, adapt or print off copies of the materials, information, data and other content included on NHS Choices ('NHS Choices content')."

This would be non-commercial and personal, so is fine.

Please get back to us if you have any other queries. If we do not hear from you after 48 hours, the ticket will be closed.

Kind Regards,
Helen
The NHS Choices Service Desk

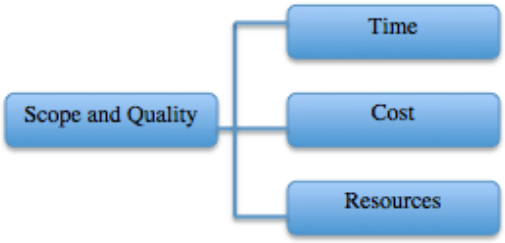
9. Appendices

9.1 Research Phase

During the research phase Get Fit Together outlined the scope of the project discussing time, cost and resources that were required in order to develop the product. Get Fit Together also decided on a target market and created a detailed project schedule which outlined the main tasks that had to be completed and time availability distributed to each task.

9.1.1 Scope of the Project

Get Fit Together realised that the overall scope and quality of the project was dependent on time, cost and resources that were available.



Time – Get Fit Together was able to control the time assigned to tasks, which was be measured by prioritised stages. This contributed to meeting aims and also planned to the restrictions that may have occurred. The website has been completed over nine months, from September 2014 to May 2015

Cost – Get Fit Together was aware that there are costs associated with the project. Firstly, a cost was required to purchase a domain name and web hosting in order to get the project available online. There also was a fee to set up Pay Per Click and Facebook advertising. Get Fit Together was required to buy a tablet in order to test responsive design capabilities.

Resources –

- A representative from Curves provided advice based on suitable exercises and recommended eating plans.
- Jonathan Wallace (University of Ulster) offered continued advice and support throughout the entire project.
- Example web resources were used such as Google Charts API.

- A variety of healthy eating articles were taken from NHS. Permission to do this was requested, and successfully secured.

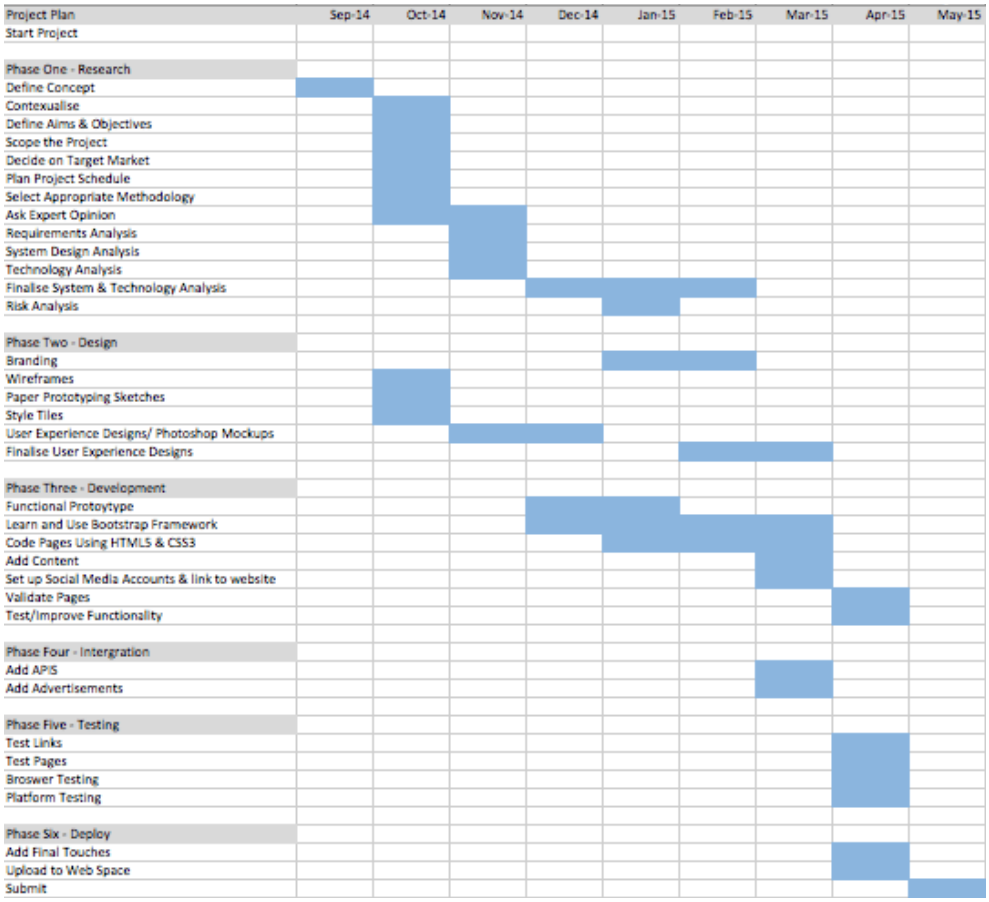
Quality – The project has been created to a high standard using HTML5 and CSS3.

9.1.2 Target Market

Get Fit Together consulted a local leisure center and asked for attendance statistics. From this it was fair to say that there is nearly an equal amount of females and males who are interested in their health and fitness. As an example, there were 40 men and 48 women varying in age groups who attended Monaghan Coral Leisure on Wednesday 3rd October 2014. From collecting this data, Get Fit Together decided to target male and females from ages 14-70.

9.1.3 Planning – Tasks, Duration and Schedule

The key to a successful project is in the planning. Get Fit Together outlined the main tasks that had to be completed, the duration, schedule and managing each task required. This can be seen in the Gantt chart presented below.



9.2 Requirments Specification

9.2.1 Goals of the Project

It was essential to the rest of the development effort that all goals were firmly established. The goals for the project were to:

1. Encourage all members to work hard and reach their personal goals.
2. Provide useful and helpful information regarding healthy eating.
3. Provide a user with an insight into their performance.

All of the above goals contributed in different ways to help meet the challenge that Get Fit Together was faced with. Get Fit Together set goals that were measurable to enable them to test whether they had succeeded with the project. All of the above goals are service goals which means they are measured by quantifying what it does for the customer. The goals are a huge advantage to the project as they are aimed at satisifying members, by providing useful information and encouraging members to reach their targets. In simplier terms, it means that if a member reaches their target, with the help of Get Fit Together's persuasion, it is possible that they will use the system again and also inform others of the service. From this, Get Fit Together will measure the increase in sign ups and customer reviews from surveys.

9.2.2 The Stakeholders

The Hands-On Users of the Product

To get up and running the potential hands-on users for the project were local gyms. Gyms could incorporate the product into their programmes as an additional method to help members keep fit and healthy. Gym instructors could ask users to record their food consumed and exercise performed using the product to enable them to monitor performances. They could potentially ask members to do the warm up and cool down exercises provided before and after every gym class.

There were some possible user characteristics which may have had an effect on the eventual design of the product such as location, age group, gender and

disabilities. Location needed to be considered, deciding whether internet signal or wifi was needed to access the product. Get Fit Together were targeting a specific age group so it was important to provide a system that is user friendly and accessible by all ages, including the older generation such as 65 year olds for example. Gender was another factor that needed to be carefully considered as it was essential that the product was designed for both men and female. This potentially meant there needed to be various eating plans provided to suit both genders. Disabilites such as colour blindness needed to be studied as it would affect the colour scheme of the website.

Priorities Assigned to Users

Get Fit Together had to assign piorties to their users. There are three types of users which are key users, secondary users and unimportant users. Firstly, the key users are local gyms. These users would be criticial to the continued success of the product as without them using or promoting the product to their members it would be pointless. Secondary users would include doctors as they could use the product but their thoughts have no effect on its long term success. Doctors could ask patients who are battling with a health or weight problem which is causing illness to record their daily food intake and exercise performed for a specific period of time to enable them to review at a later stage. Unimportant users include young people as they are infrequent and unskilled users. Get Fit Together could now tell the amount of consideration to give to each category, the main one being local gyms.

User Participation

For key users, the participation required would be to ask members to regualry record their food intake and exercise performed. Local gyms could also ask members to set themselves targets and work towards these. The participation required for secondary users would be to use the system once every week to record their food intake and exercise performed or find information on healthy eating.

9.2.3 Constraints

Anticipated Workplace Environment

This describes the workplace in which the users are to use the product. Get Fit Together decided to identify any characteristics of the workplace to ensure that the product was designed to reduce any problems.

- The product will be suited for usage outside, so it is important that it was designed to be easily visible in sunlight. This was achieved by applying bright colours.
- The user can hold the product so it was important to ensure it fitted to the required screen size.

The workplace will be in different locations based on the person using the product. It could be used in a gym, at home, at work or outside to name a few examples.

Budget Constraints

Unfortunately, there was a very small budget for the project. This could be seen as a disadvantage as there are resources that could have benefited the quality of the product if had they been available. However, there are various online resources that were available for use such as tutorials, frameworks and tools that helped with the development of the product. Books were also a good resource, which could be downloaded online or borrowed from a library. Testing of the product was done using desktops and mobile phones that Get Fit Together own such as mac, androids and windows phones.

9.2.4 Work Partitioning

Work partioning outlines events to which the project will respond to and in which affects the project. The response to each event is called a business use case, also known as BUC and it represents a discrete price of work that contributes to the total functionality of the project. Get Fit Together have listed two examples below.

Event Name: User adds exercise performed and food intake
Input and Output: User information added (input) chart showing performance (output)
BUC: User interacts with the product and records exercise performed, food and water intake. Product calcuates the calories consumed and remaining for that day, which then displays performance using interactive charts.

Event Name: User searches to find other member
Input and Output: User enters a specific postcode (input) table shows results (output)
BUC: User interacts with the product and enters a postcode. Product looks for results and if there is a match, displays users name, email and postcode.

9.2.5 Relevant Facts and Assumptions

Relevent Facts

Relevant facts alert developers to conditions and factors that have an attitude on the requirements. In simplier terms, facts provide the reader with more background and understanding of the product. Get Fit Together considered these facts to be important in helping the users understand the benefit of the product.

Keep in mind, Get Fit Together's motivation was to portray the importance of maintaining good health and well-being and to help prevent rather than cure. This lead the products facts to be aimed at reasons for exercising and healthy eating to live well and prevent illness.

- Exercise can reduce your risk of major illnesses, such as heart disease, stroke, diabetes and cancer by up to 50% and lower your risk of early death by up to 30%.
- Healthy eating reduces your risk of gaining type 2 diabetes.

Assumptions

Assumptions can be about anything that has an effect on the project and are made by the developers. Assumptions also cover what the product will not do.

Get Fit Together have recorded assumptions for the product which are outlined below.

- Get Fit Together will be ready for use May 2015
- Data will be restored back to 0 at the start of each day
- Testimonials will change on a monthly basis
- Healthy eating plans will be updated on a regular basis, perhaps monthly
- Users will not be able to use the product without logging in

9.2.6 Functional Requirements

Requirement ID: #3
Requirement Type: Functional
Description: The system must provide an error message if details for signing up are not correct
Rationale: To ensure that users are aware if there has been a problem with the information they have entered.
Fit Criterion: Once a user enters incorrect details, the system must throw up an error message informing users of the mistake.
Priority: 10
Dependencies: #2

Requirement ID: #4
Requirement Type: Functional
Description: Users must be able to login
Rationale: Users must enter details which they used to create profile to access the system at a later stage
Fit Criterion: Once a user has added the correct details, the system must allow the user access.
Priority: 10
Dependencies: #2

Requirement ID: #5
Requirement Type: Functional

Description: The system must provide an error message if details for logging in are not correct

Rationale: To ensure that users are aware if there has been a problem with the information they have entered.

Fit Criterion: Once a user enters incorrect details, the system must throw up an error message informing users of the mistake.

Priority: 10

Dependencies: #4

Requirement ID: #6

Requirement Type: Functional

Description: Users must be able to log out

Rationale: Users must choose to log out which will restrict them access to their data

Fit Criterion: Once a user has selected to log out, the system must remember to ask for details on next visit to sign in

Priority: 10

Dependencies: #4

Requirement ID: #7

Requirement Type: Functional

Description: Users must be able to create their own profile

Rationale: Users will have the option to add details such as email address and postcode to their profile

Fit Criterion: Once a user has filled in the information they wish to display, the system must store this data.

Priority: 10

Requirement ID: #8

Requirement Type: Functional

Description: Users must be able to edit their profile

Rationale: Users will be able to edit their profile to allow them to update information

Fit Criterion: Once a user changes their profile, the system must alter the previous information entered and save the updated data.
Priority: 8
Dependencies: #7

Requirement ID: #9
Requirement Type: Functional
Description: Users must be able to search for other members
Rationale: Users can input a postcode to find members which live in that area.
Fit Criterion: Once a user searches for another member by postcode the system must check if there are any results and if so will display the users name, email address and postcode.
Priority: 10

Requirement ID: #10
Requirement Type: Functional
Description: Users must be able to view healthy eating plans and recommended exercises
Rationale: To enable users to select specific plans to follow or recommended exercises to complete
Fit Criterion: A user must choose which section they want information on. The system must capture the inputed data and display the correct information to the user
Priority: 10

Requirement ID: #11
Requirement Type: Functional
Description: Users must be able to record their food intake
Rationale: To enable users to view the amount of calories they have consumed
Fit Criterion: A user must select the food items which they have eaten. The system must then calcuate how many calories have been consumed and display results in a table.
Priority: 10

Requirement ID: #12
Requirement Type: Functional
Description: Users must be able to record their water intake
Rationale: To enable users to view the amount of glasses of water they have consumed
Fit Criterion: A user must use the system to record a glass of water each time they have consumed one. The system must udpate the water intake data each time a user records a glass.
Priority: 10

Requirement ID: #13
Requirement Type: Functional
Description: Users must be able to record exercise performed
Rationale: Users must enter the exercise that they have completed in order to view their performance against calories consumed
Fit Criterion: Users must input the exercise which they have performed and the duration in minutes. The system must calcuate the calories burned and also the remaining calories based on this.
Priority: 10

Requirement ID: #14
Requirement Type: Functional
Description: The system must store users current progress
Rationale: To enable users to check and monitor how they are performing
Fit Criterion: Once a user records information, the system must save and store the data to allow users to view their current progress at any time.
Priority: 10
Dependencies: #11, #12, #13

Requirement ID: #15
Requirement Type: Functional
Description: The system must restore users data back to 0 each day

Rationale: To enable users to montior their progress every single day

Fit Criterion: The system must restore data back to 0 every day so that users can add fresh data to their food and water intake and exercise performed.

Priority: 10

Requirement ID: #16

Requirement Type: Functional

Description: The system must display current progress statistics using interactive charts

Rationale: To visually enhance the website and make it easy for users to view information about their progress

Fit Criterion: The user must enter their food intake, exercise performed or water intake and the system must display the data using interactive charts.

Priority: 10

Dependencies: #11, #12, #13

Requirement ID: #17

Requirement Type: Functional

Description: Users must be able to create personal goals

Rationale: To enable users to set themselves a goal and work towards meeting it

Fit Criterion: Users must be able to choose between three different goals and set one or many to work towards. The system must capture and save this information.

Priority: 8

Requirement ID: #18

Requirement Type: Functional

Description: Users must be able to share progression on social media

Rationale: To give a user a sense of pride and also to encourage others

Fit Criterion: The user must select the Facebook or Twitter link which the system should provide and in turn the user should be able to login and share progress to their profile

Priority: 10

Requirement ID: #19
Requirement Type: Functional
Description: The system must display testimonials
Rationale: To display positive feedback from users. Testimionals are considered a good marketing tool and by displaying positive attitudes it could encourage others to join.
Fit Criterion: The system should ask members for feedback on the product and then decide which testimonials would be the most effective to display.
Priority: 10

Requirement ID: #20
Requirement Type: Functional
Description: The system must display advertisements from companies
Rationale: To allow companies to advertise their services
Fit Criterion: The system must provide advertising space for companies to display their adverts. Get Fit Together will charge a small fee. This way Get Fit Together are producing revenue and can invest it into something on down the line when hopefully the product is well established.
Priority: 1

Requirement ID: #21
Requirement Type: Functional
Description: The system must have a rotating banner which displays enticing images and encouraging health quotes
Rationale: To encourage users to keep fit and healthy
Fit Criterion: The system must provide a rotating banner which automatically rotates or can be navigated by the user. The banner must have an overlay area which can be used to display encouraging quotes.
Priority: 10

Requirement ID: #22
Requirement Type: Functional
Description: The system must inform users that it uses cookies

Rationale: To ensure that users are aware that cookies are required when viewing the website

Fit Criterion: The system must provide a message informing users that it uses cookies to track usage and preferences. The system also must have a button to allow users to accept this.

Priority: 1

9.2.7 Review of Functional Requirements With End User

Catherine stated that she was completely satisified with the initial requirements stating that they were suitable and desired. She also suggested that she would like the system to be capable of two more functions.

Requirement #: 23 Requirement Type: Functional

Description: Users must be able to use the system to clock in each time they visit the gym to enable Curves to monitor effort on a monthly basis

Rationale: Users will be able to check when they visited the gym

Fit Criterion: The recorded information must be saved and stored for a month

Priority: 5

Get Fit Together would have liked to been able to apply all recommendations provided by an end user. However, Get Fit Together researched this functional requirement and realised that it would be very complicated to implement at that stage. The suggested requirement is extremely technical and Get Fit Together does not have the expertise or knowledge to fulfill it. Get Fit Together informed the end user of the decision and suggested that it could be implemented at a later date perhaps Phase 2 of Get Fit Together.

Requirement #: 24 Requirement Type: Functional

Description: Users must be able to report the amount of exercise they plan to do each week

Rationale: Users will be able to monitor if they are completing their target exercise amount each week

Fit Criterion: The recorded information must be saved and stored for a week

Priority: 5

Get Fit Together felt this was a great idea as it would enable users to check if they are reaching their target exercise amount each week, allowing them to decide whether they need to be more realistic or are just not doing enough. Get Fit Together discussed this requirement with the end user and began to research how it could be implemented. After deliberation it was decided among Get Fit Together and the end user that this wasn't a major priority and could be added at a later stage. As it stands, the product will offers users the chance to create personal goals and gyms could potentially encourage users to complete them within a week on top of their weekly gym workouts.

9.2.8 Non-Functional Requirements

9.2.8.1 Look and Feel Requirements

Appearance Requirements

Requirement ID: #24
Requirement Type: Non-Functional
Description: The product must be designed to attract both men and women
Rationale: To attract the attention of both men and women to use the product regulary
Fit Criterion: Sampling of both men and women, should without instruction or information, should start using the product within ten minutes of their first encounter of it
Priority: 10

Requirement ID: #25
Requirement Type: Non-Functional
Description: The product must be designed to interest different age groups
Rationale: To ensure that the product is deemed suitable and accessible for the target market of 14-70 year olds
Fit Criterion: Sampling of different age groups, should without instruction or information, start using the product within 4-5 minutes of their first encounter of it
Priority: 10

Requirement ID: #26
Requirement Type: Non-Functional
Description: Images displayed on the product must be of both male and females
Rationale: To ensure that users realise the product is suited for both genders
Fit Criterion: Sampling of different genders, 70 per cent of potential customers should agree that the product is suited for male and females
Priority: 10

Requirement ID: #27
Requirement Type: Non-Functional
Description: The product must be designed to ensure it is simple to use
Rationale: To ensure that all age groups can use the product without complication
Fit Criterion: After their first encounter with the product, 80 per cent of potential customers should agree that the product is easy to use
Priority: 10

Requirement ID: #28
Requirement Type: Non-Functional
Description: User progress must be displayed using interactive charts and graphics
Rationale: To ensure that users can glance and view information without having to search for it
Fit Criterion: After their first encounter with the product, 90 per cent of potential customers should agree that the data is easily discovered and easy to remember from presenting in graphs instead of text.
Priority: 10

9.2.8.2 Usability and Humanity Requirements

Ease of Use Requirements

Usability and humanity requirements are related to what make the product usable and user friendly to its hand on users. Ease of use requirements considers

how easy the product is to operate. The product's usability is derived from the abilities of the expected users of the product and the complexity of its functionality. Get Fit Together began to discover usability requirements for the product as it can be used as a guide for the products designers towards building a product that meets the expectations of its eventual users.

Requirement ID: #30
Requirement Type: Non-Functional
Description: The product must be easy for 14 year olds to use
Rationale: To ensure that even young children are able and interested in using the product
Fit Criterion: Eighty percept of a test panel of 14 year olds should be able to successfully enter their food intake and exercise performed within 15 minutes
Priority: 10

Requirement ID: #31
Requirement Type: Non-Functional
Description: The product must help the user avoid making mistakes
Rationale: To ensure that the user is able to use the product without complication, which in turn will hopefully encourage them to use it regulary
Fit Criterion: One month's use of the product should result in a total error rate of less than 20 percent
Priority: 10

Requirement ID: #32
Requirement Type: Non-Functional
Description: The product must not require users to remember a lot information in order to use it
Rationale: To ensure that the user can use the product easily without having to remember instructions
Fit Criterion: A survey should show that users agree that the product can be used without having to remember steps as they are clearly outlined on each section.

Priority: 10

Requirement ID: #33
Requirement Type: Non-Functional
Description: The product should make users want to use it
Rationale: To ensure that users are provided with a useful, inspiring and informative product that makes them want to use it again
Fit Criterion: Google Analytics must show that 60 per cent of users are returning users
Priority: 10

Learning Requirements

These requirements specifiy how easy it should be to learn how to use the product. Get Fit Together wanted to quantify the amount of time that is allowable before a user can successfully use the product. This requirement is useful as it guides to understand how users will learn the product.

Requirement ID: #34
Requirement Type: Non-Functional
Description: The product must be able to be used by members of the public who will receive no training before using it
Rationale: To ensure that all members of the public can use the product easily and understand how to use and navigate around themselves without any training or guidance
Fit Criterion: 70 per cent of a test panel should successfully create a goal within 10 minutes
Priority: 10

Accessibility Requirements
These requirements are created to determine how easy it should be for users with common disabilities to access the product.

Requirement ID: #35

Requirement Type: Non-Functional

Description: The product must be usable for users who are colour blind

Rationale: To ensure that all users are treated with respect and can use the product no matter what condition they may have

Fit Criterion: A survey should show that 95 per cent of colour blind users can use the product

Priority: 10

9.2.8.3 Performance Requirements

Speed and Latency Requirements

These requirements allowed Get Fit Together to specify the amount of time available to complete specified tasks.

Requirement ID: #36

Requirement Type: Non-Functional

Description: The response should be fast enough to avoid interrupting the user's flow of thought

Rationale: To ensure that all users are not distracted and loose path of where they were going. To ensure they are not confused and exit the product.

Fit Criterion: The product should respond in less than 1 second for 90 per cent of the interrogations. No response should take longer than 2.5 seconds.

Priority: 10

Reliability and Availability Requirements

This section quantifies the necessary reliability of the product. The reliability is usually expressed as the allowable time between failures, or the total allowable failure rate. This gives Get Fit Together an opportunity to set the client's and users' expectations about the amount of time that the product will be available for use.

Requirement ID: #37

Requirement Type: Non-Functional

Description: The product must be available for use 24 hours per day, 365 days per year.
Rationale: To enable users to use the product at any time throught the year
Fit Criterion: Google Analytics should be used to test what time of the year the product is mostly used
Priority: 10

9.2.8.4 Security Requirements

Access Requirements

Aceess requirements outlines who is able to access the product information, under what circumstances that access is granted and to which parts of the product access is allowed.

Requirement ID: #38
Requirement Type: Non-Functional
Description: Users must only be able to view their own information
Rationale: To secure users privacy
Fit Criterion: Users must login to view their own information. This is secured and not made public. If users do not wish to be found via the search for other members feature, they have the option to remove their postcode.
Priority: 10

Privacy Requirements

These requirements are to ensure that the product complies with the law and to protect the individual privacy of all users.

Requirement ID: #39
Requirement Type: Non-Functional
Description: The product should make users aware of its information practices before collecting data from them
Rationale: To ensure it complies with the law
Fit Criterion: The product should only ask for information from a user that complies with the law.

Priority: 10

Cultural Requirements

Get Fit Together considered cultural requirements that are specific to the sociological factor that may affect the acceptability of the product.

Requirement ID: #40
Requirement Type: Non-Functional
Description: The product must not be offensive to religious or ethnic groups
Rationale: To ensure all users from all types of religious or ethnic groups are respected and feel welcome to use the product
Fit Criterion: A survey should show that 100 per cent of users say that the product does not offend any religious or ethnic groups
Priority: 10

9.2.8.5 Compliance Requirements

Legal Compliance Requirements

Get Fit Together wanted to address these requirements to ensure the product is complying with the law to avoid later delays, lawsuits and legal fees.

Requirement ID: #41
Requirement Type: Non-Functional
Description: Personal information required must comply with the Data Protection Act
Rationale: To ensure all information complies with the data protection act to avoid lawsuits and legal fees.
Fit Criterion: Two selected representatives should cross check the product and agree that it complies with the data protection act.
Priority: 10

9.2.9 Additional Requirements

Requirement ID: #43
Requirement Type: Non-Functional

Description: Facebook and Twitter accounts must be set up for the product

Rationale: To share users progression or potential stories such as a users achievement in working out more over two weeks. Social media is also a strong marketing tool to promote the product.

Fit Criterion: Get Fit Together should create and manage social media accounts which will be linked to the website and used to encourage users to sign up. This should be monitored to discover if it was worth while, by recording numbers of sign ups over a period of time.

Priority: 10

Requirement ID: #44

Requirement Type: Functional

Description: The product must be easily found on search engines

Rationale: To enable users to find the website without having to search too hard

Fit Criterion: The system should be developed with SEO in mind and should use pay per click advertising to boost traffic to the website.

Priority: 10

Requirement ID: #45

Requirement Type: Functional

Description: The product should gain 20 sign ups or more in the first month

Rationale: To establish the product and get it out into the industry

Fit Criterion: The product should be promoted as best as possible through social media, word of mouth and emarketing to encourage users to sign up.

Priority: 10

Requirement ID: #46

Requirement Type: Functional

Description: The system must have a database

Rationale: To store users login information

Fit Criterion: The database must be set up and connected to the product. The first five users to sign up should have succesfully saved their details on the

database and will be able to sign out and login back in using their details immediately.

Priority: 10

9.2.10 Project Issues

Project Issues must be faced if the requirements are to be met and the product to become a reality. Get Fit Together wanted to discover these requirements as it is aimed to bring uncertainty out in the open and provide objective input to risk anaylsis.

Open Issues

Open Issues are issues that have been raised but do not have a conclusion.

Issue Number: #1

Summary of Issue: Whether there will be enough healthy eating plans and recommended exercises provided to satisfy the user

Action: Aim to have at least five recommended exercises and five diet plans

Resolution: Get Fit Together felt this is achieveable and began collecting this information at any early stage.

Off-the-Shelf Solutions

Products That Could Be Copied

The NHS provides content on their website regarding healthy eating which are copied and displayed on the product. This would cut the analysis effort by a huge amount.

New Problems

The intention is to discover early any potential conflicts that might otherwise not be realised until the implementation stage. Get Fit Together brought to the attention, that any updates or maintenance that may need to be made to the product will affect users as it may have to be shut down for a period of time. With this in mind, Get Fit Together has decided if this is the case, maintenance will be carried out overnight to avoid irritating users.

9.2.11 Supplementary Requirements

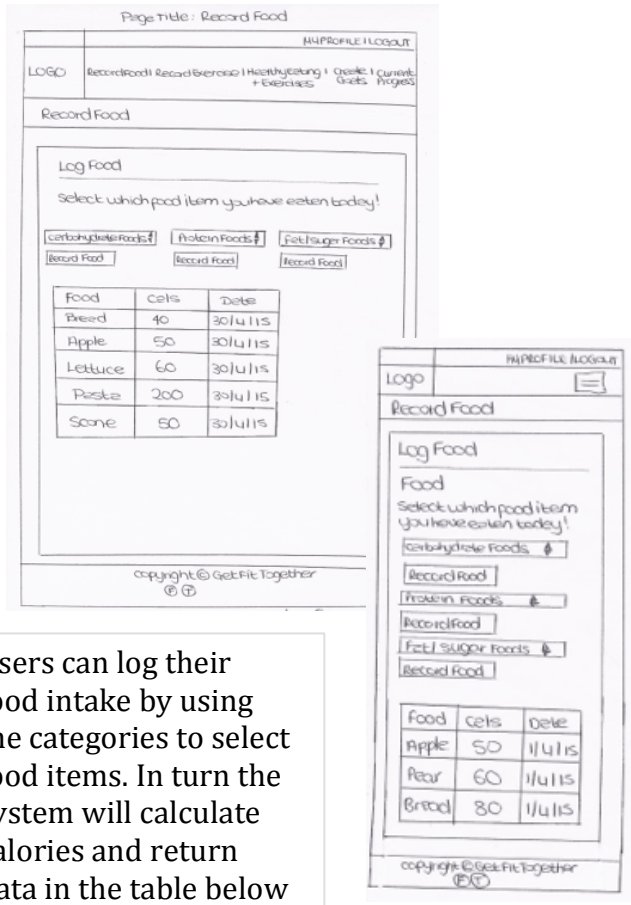
Waiting Room

The waiting room holds requirements that will not, for one reason or another, be part of the initial release of the product. Get Fit Together have listed a few ideas that they considered to include in later versions and do not want to be lost.

To develop the product into an app which will be available on the app store. Commericalise the product in the future by having the option to buy fitness gear, water bottles and recipe books.

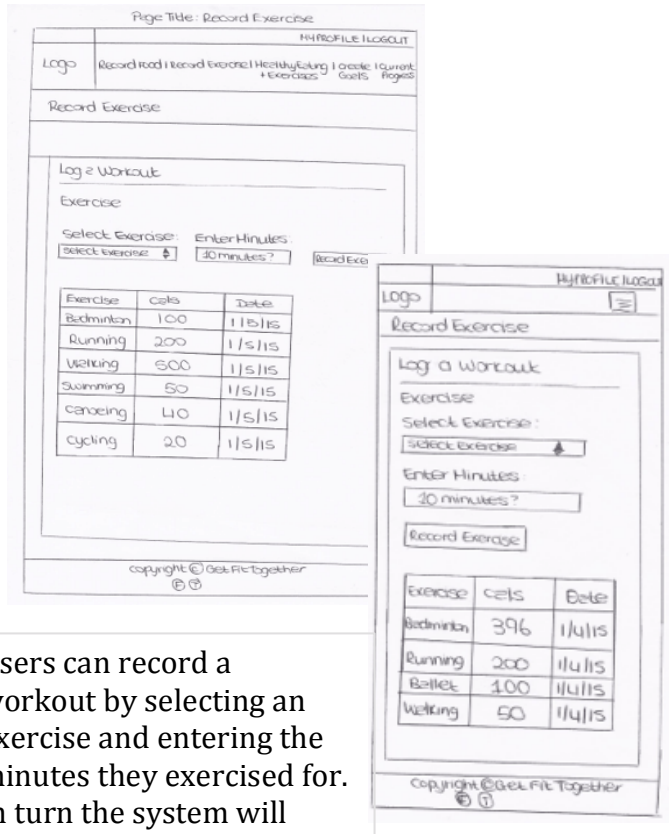
9.3 Paper Prototyping

Record Food



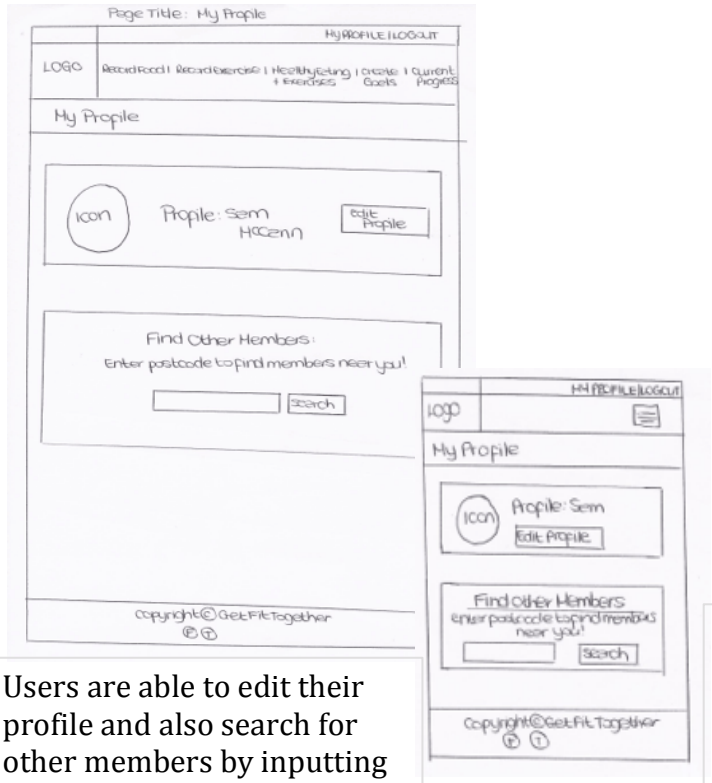
Users can log their food intake by using the categories to select food items. In turn the system will calculate calories and return data in the table below

Record Exercise



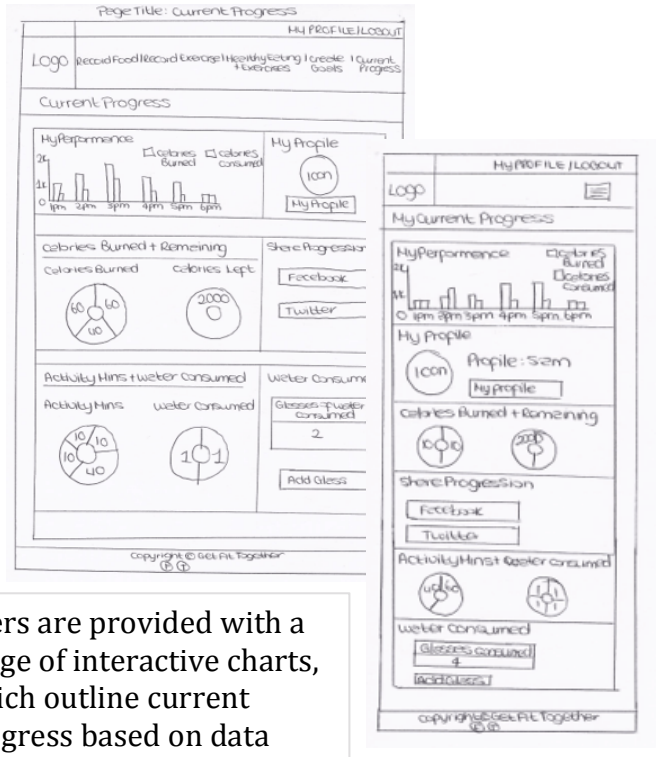
Users can record a workout by selecting an exercise and entering the minutes they exercised for. In turn the system will calculate calories and return data in the table below

My Profile



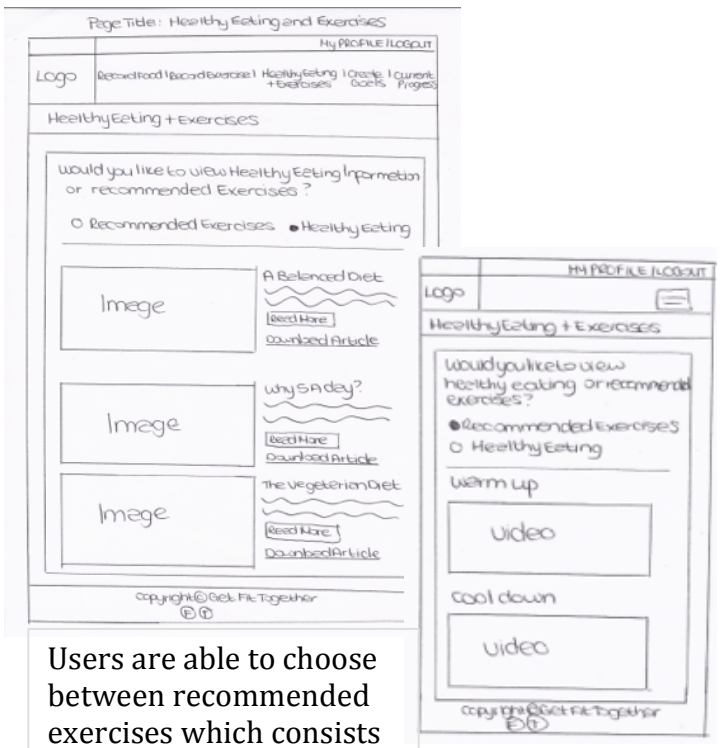
Users are able to edit their profile and also search for other members by inputting a postcode

Current Progress



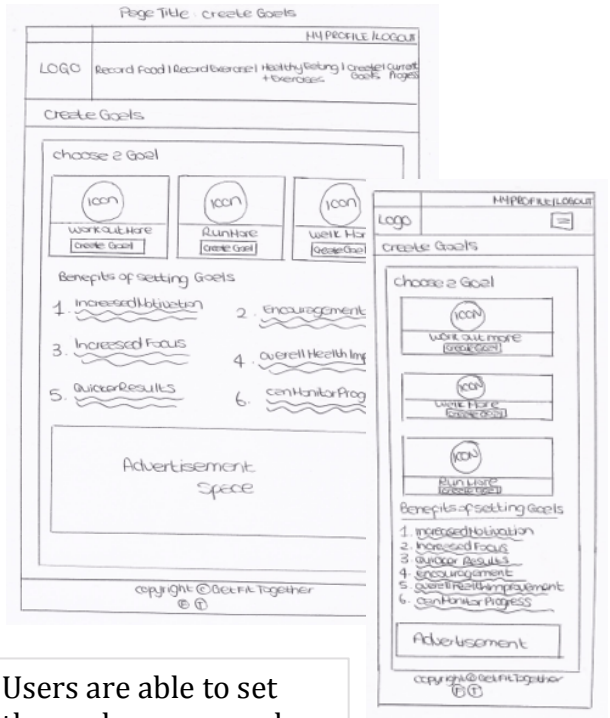
Users are provided with a range of interactive charts, which outline current progress based on data inputted. Users can record water consumed and also share their progression on social media

Healthy Eating & Exercises



Users are able to choose between recommended exercises which consists of a warm up and cool down exercise or healthy eating plans

Create Goals



Users are able to set themselves personal goals to work towards. Users are provided with three different goals to choose from

9.4 Feasbility Testing

9.4.1 Risk Analysis

Risk Two: Securing External Resources

Evaluate Risk: Get Fit Together requested to use MyFitnessPal's API which would would have enabled the system to pull data from MyFitnessPal's food and activity database for the record food and exercise page.

Plan to Mediate: Get Fit Together looked into ways to hard code the section as there was a huge likelihood that they would not secure the MyFitnessPal's API.

Likelihood of Occurrence: 10

Risk Three: Creating Goals

Evaluate Risk: Users must be able to set themselves personal goals. Get Fit Together were unsure of how this could have been achieved.

Plan to Mediate: Get Fit Together began to research in order to discover if there are any API's or extra resources that could have helped overcome this obstacle. Advice was also sought from lecturers at University of Ulster, who provided Get Fit Together with suitable ideas.

Likelihood of Occurrence: 5

Risk Four: Having Recommended Exercises Ready for Publishing

Evaluate Risk: Get Fit Together believed that there was a risk of not having the recommended exercises recorded, edited and ready on time for displaying on the product.

Plan to Mediate: Get Fit Together arranged a meeting with a representative from Curves, and in this time a gym instrutor was recorded performing a warm up and cool down exercise. This meeting was scheduled well in advance of the completion date and if there were any problems with the quality of the video it meant there was still plenty of time to revist and try again.

Likelihood of Occurrence: 3

Risk Five: Incorporating responsive design

Evaluate Risk: Get Fit Together had never built a responsive product before and was aware that this functionality requires extra learning, time and effort.

Plan to Mediate: Get Fit Together have created the login section of the website, experimenting and getting familiar with responsive design. Get Fit Together have decided to use bootstrap as it provides a responsive layout which means they were only required to make small adjustments to responsify the design throughout.

Likelihood of Occurrence: 3

Risk Six: The ability to have different profiles for different users

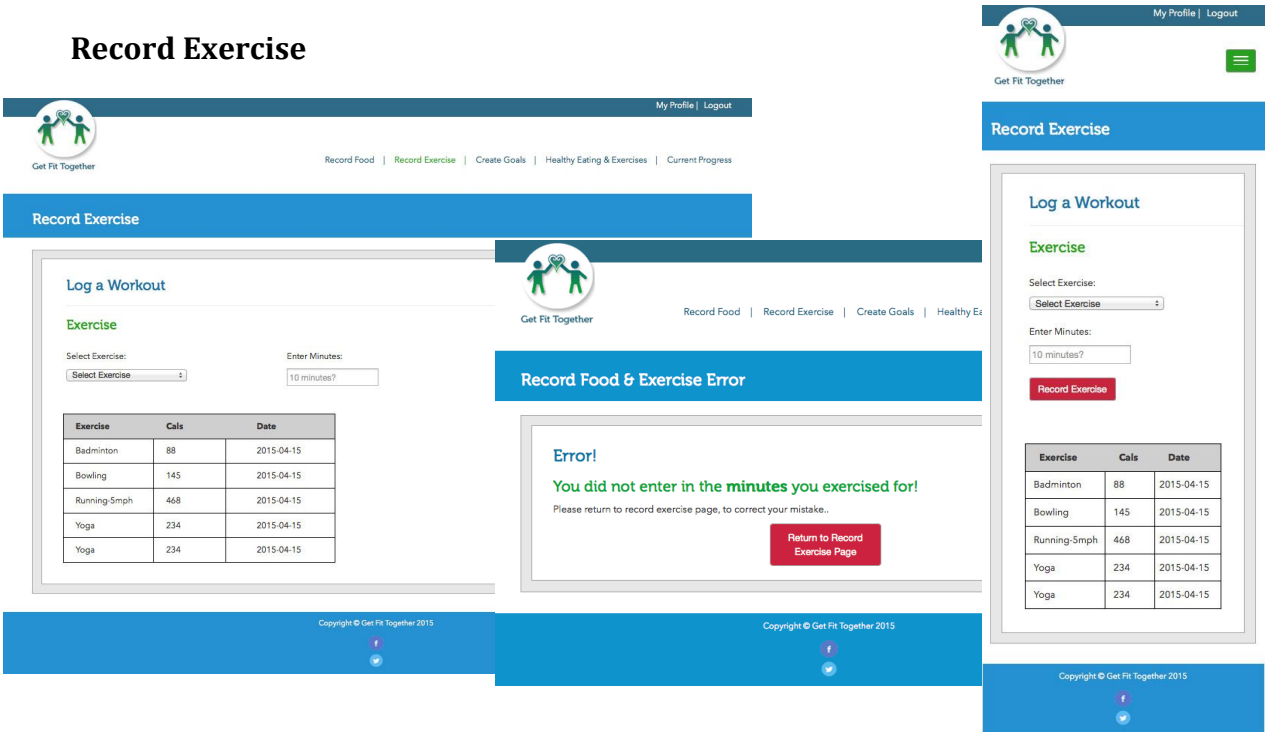
Evaluate Risk: This risk was slighlty worrying for Get Fit Together as they were not experienced with storing different information for different users and this was a very important aspect of the web application. Users must sign up or register to be able to access the system.

Plan to Mediate: Get Fit Together have successully built a prototype which allows different users to sign up. Get Fit Together looked at ways they could load data depending on the user which signs in.

Likelihood of Occurrence: 4

9.5 User Interaction Journey

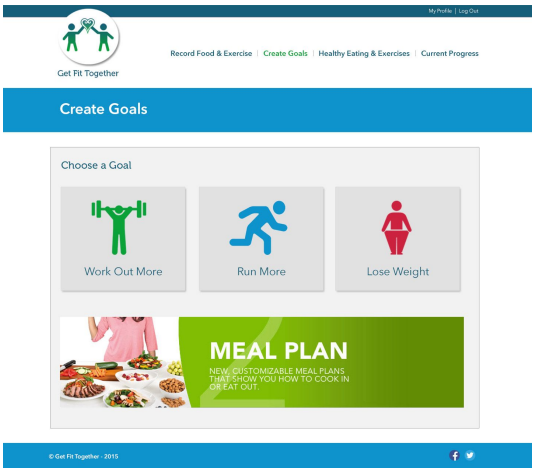
Record Exercise

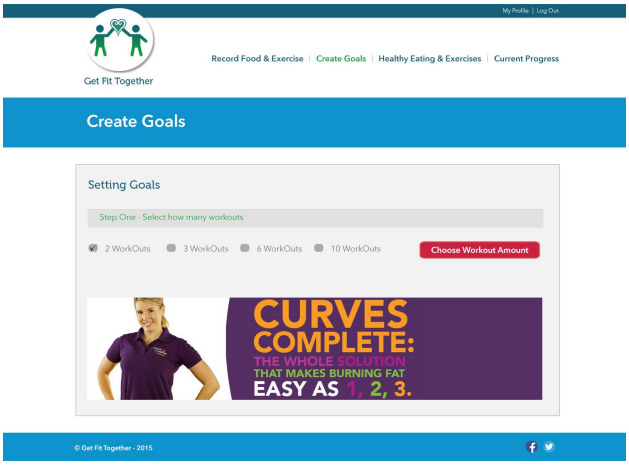


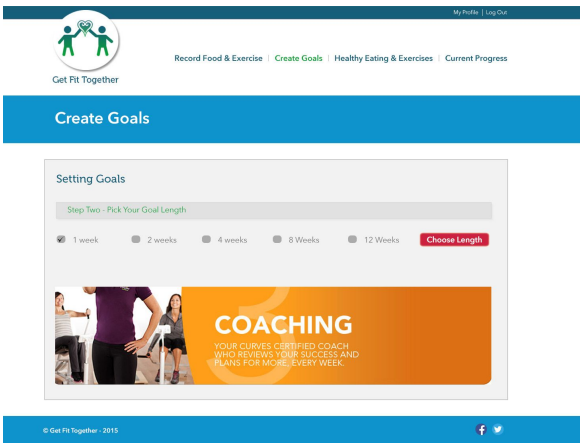
For the exercise section a similar procedure to recording food takes place. Users can select an exercise from the drop down, however they are then required to enter the duration performed. Once this has been completed successfully, data will again appear in the table positioned below to allow users to clearly view the calories they have burned. If a user does not enter a value into the minutes field and selects the 'record exercise' button, an error message appears to inform users of the mistake. If this occurs, users are provided with a button to return to the record exercise page.

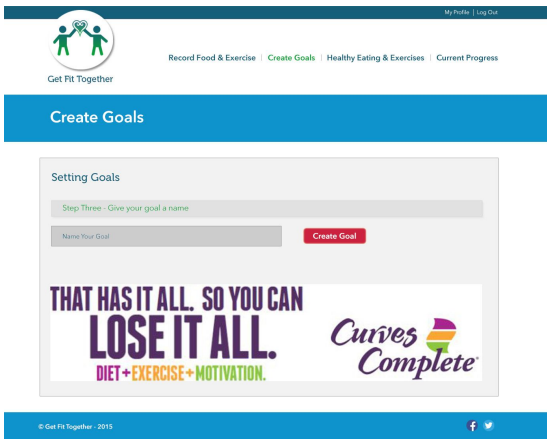
Create Goals

As seen in the following initial design users were required to complete four different steps in order to create a personal goal. These steps included choosing a goal, selecting how many workouts, picking a goal length and also giving the goal a name.

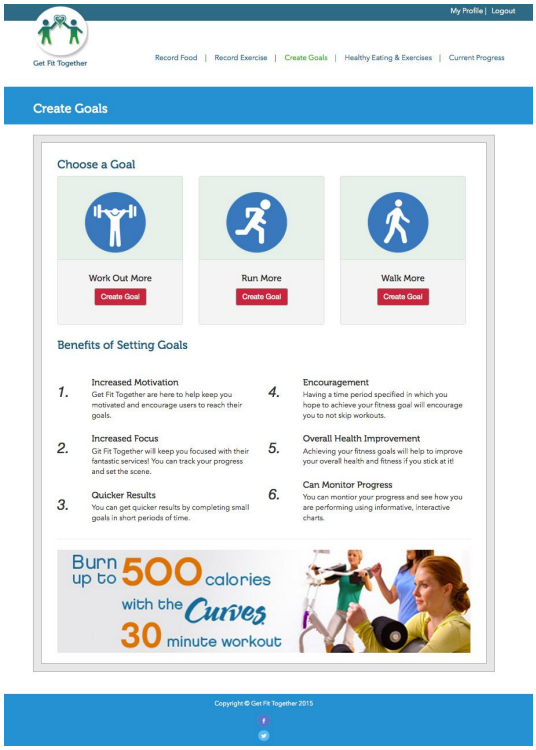


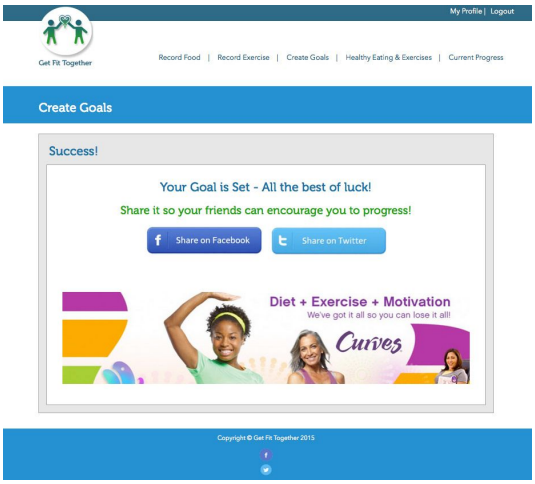


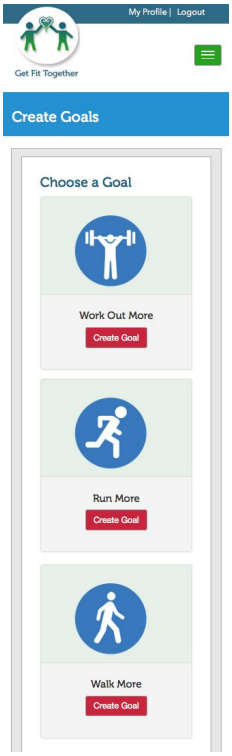




After examining the initial designs Get Fit Together came to the conclusion that it would be more beneficial to make the process simpler and easier for the user by basically allowing them to just choose between three goals. This means that users don't have to go through various unnecessary options before the goal is set. The refined create goal designs can be seen below.

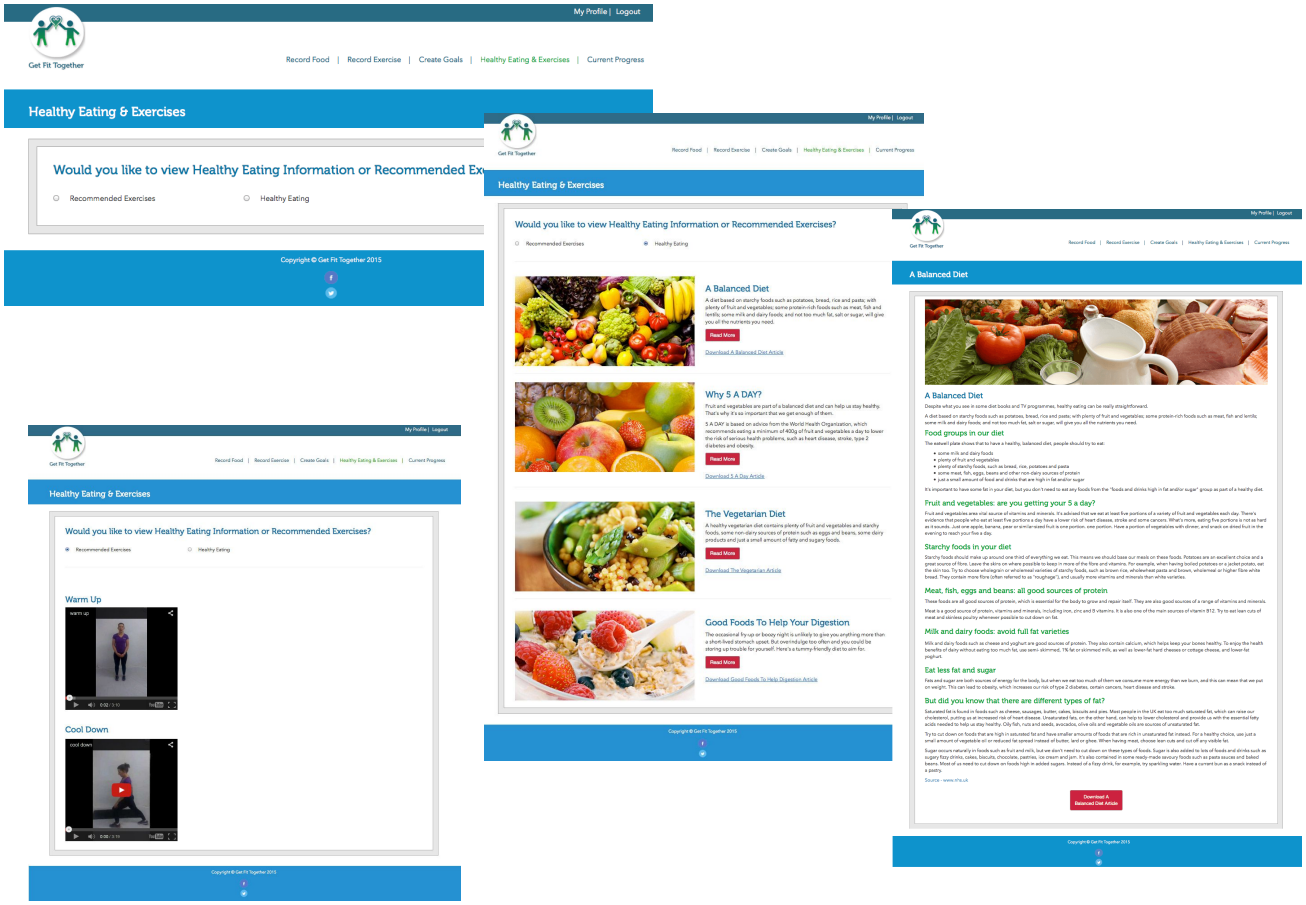






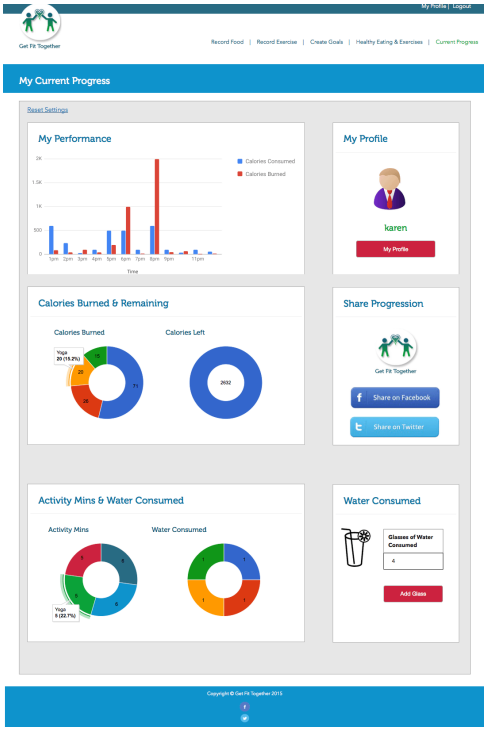
Since it was discovered that setting target goals could have an influence on a person's activity Get Fit Together knew that this page had to be designed as effectively as possible in order to promote its usage. Get Fit Together purposely displayed the three goal options which are work out more, run more and walk more at the top of the screen before displaying any other content. The reason being, Krug states that the more important it is, the more prominent it should be. Underneath the choice of goals, numerous benefits have been added to help encourage users to create personal goals. When a user creates a personal goal, they are redirected to a success page, which states that the goal has been set and provides the opportunity to share this information on Facebook and Twitter. Get Fit Together believed that having the option to share information on Facebook and Twitter is effective as social persuasion helps encourages users.

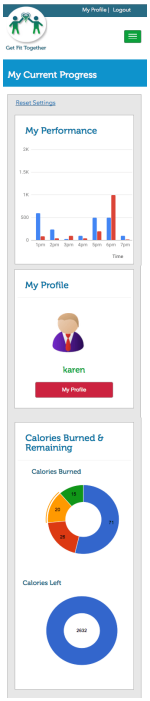
Healthy Eating and Recommended Exercises



As shown in the designs above, users are able to use the select feature to define whether they would like to view healthy eating information or recommended exercises. When a user chooses healthy eating, four different articles appear. Users are able to select a particular article, read it in more detail or download it to their device. On the other hand, if a user selects recommended exercises, a video of a warm up and a cool down that was carried out by a professional gym instructor appear on screen.

Current Progress



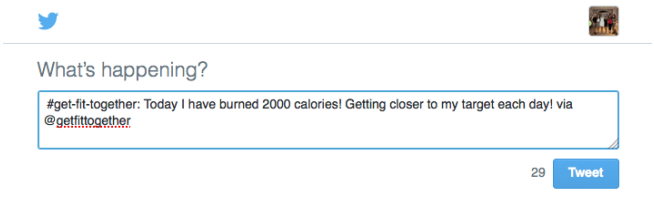


The current progress page has been designed to show users how they are performing. Firstly, there is a bar chart, which shows in detail how many calories have been burned and consumed. This is a suitable feature to have displayed as it shows visually in a graphic to the user how much calories they are consuming compared to the amount they are burning. Further on down users are able to use the interactive charts to view a break down of the calories burned, calories left, activity minutes and water consumed. For example, in the above design it is possible to see that a user has burned 20 calories doing yoga for five minutes.

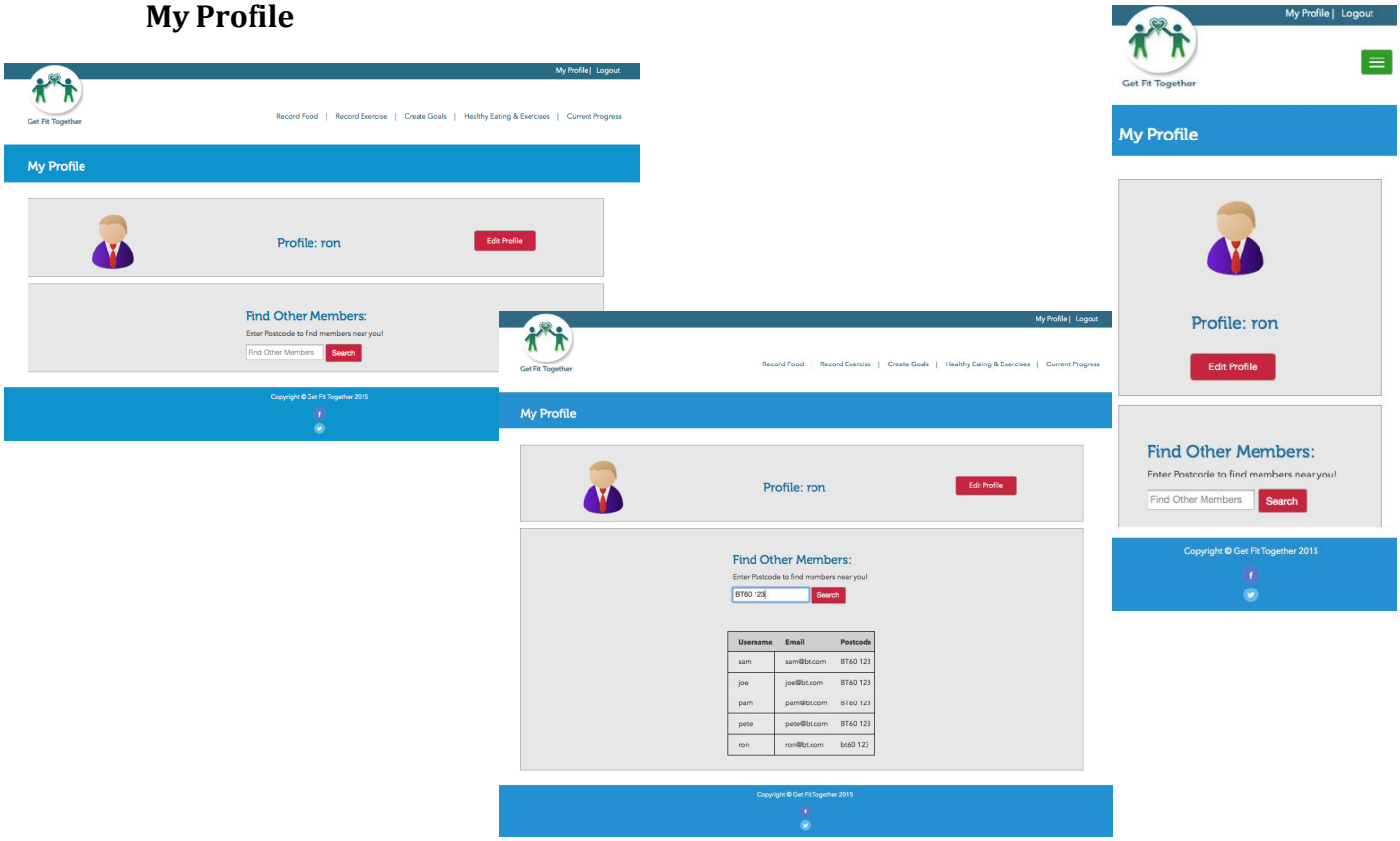
Users also are able to add glasses of water. The European Food Safety Authority recommends that women should drink 8 glasses of 200ml a day, and 10 glasses of 200ml each for a man. By having this feature available, users are able to keep track if they are drinking the recommended amount.

Krug's third law of Usability for the Web is to omit needless words. Get Fit Together felt that this design was suitable, informative and uses an effective way to display data by using charts rather than text-based statistics.

If a user selected to share their progress on twitter, the following screen will appear to allow them to do so.



My Profile

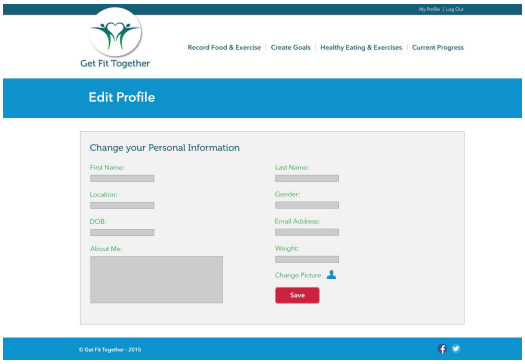


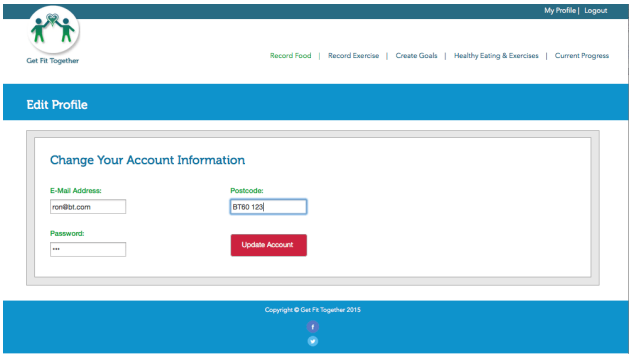
The profile page has been designed to allow users to add some personal information about themselves and also to find other members. If a user decides to edit their profile they will be redirected to the edit profile page, which allows them to do this. In order to find other members, users are required to enter a postcode into the search field. If there are any results, a table appears stating the users name, email address and postcode. This feature is to help promote easier ways for people to get fit together. If users are able to find friends that live closely beside them, they are more likely to send them a message and in turn hopefully exercising together.

Edit Profile

In the initial design users were able to add detailed information about themselves, such as gender, occupation and age into the personal information section. However, Get Fit Together decided it would be best to remove this. Users may not feel comfortable showing their private information online so this change

was considered appropriate, to ensure users are not irritated. The refined profile design allows users to update their email address, password and postcode.

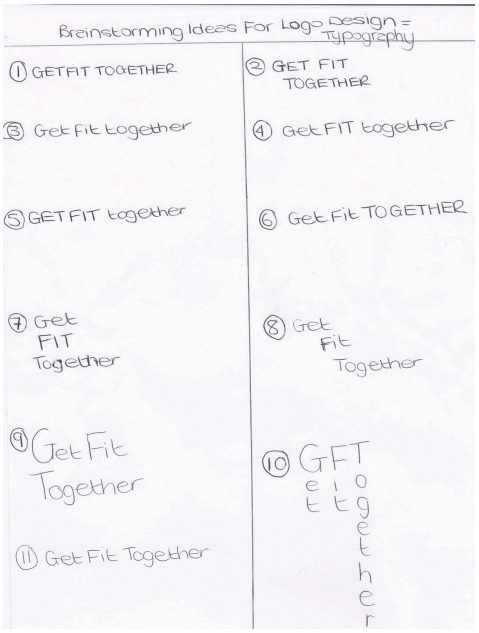




9.6 Branding

9.6.1 User Survey

Typography



Get Fit Together wanted to collect opinions from potential users regarding branding for the product. In order to do this, Get Fit Together began by brainstorming ideas on paper based on possible typography. Get Fit Together sketched a variety of different ways 'Get Fit Together' could have been displayed. The possible styles ranged from using capital letters to catch the eye of the user and different positioning of the text which can be seen in the image to the right.

Get Fit Together visited a gym in County Armagh and showed these ideas to twenty potential users and asked them to state which style they preffered and their reason to enable Get Fit Together to move forward. Results from this experiment are displayed in the table below.

Style of text for logo											
Styles	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11
Votes	1	1	1	2	0	1	0	1	1	0	12

From collecting this data, Get Fit Together was able to see that the most desired style was version number 11, captialising the first letter of each word. The average reason for this choice was because it was plain, simple and easy to read.

Get Fit Together wanted to explore further with the style and began experimenting with different fonts to see which was best suited for the product. Get Fit Together purposed ten different style types, taking some suggestions from the style tiles that were created.

1. Get Fit Together
2. Get Fit Together
3. Get Fit Together
4. Get Fit Together
5. Get Fit Together
6. Get Fit Together
7. **Get Fit Together**
8. Get Fit Together
9. Get Fit Together
10. *Get Fit Together*

Since the first survey of potential users was a success and in turn extremely helpful Get Fit Together decided to carry out the same task. Results that were collected are displayed in the following table.

Font type for logo										
Font Type	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10
Votes	11	0	2	0	2	0	1	0	1	3

Get Fit Together received most of the votes based on the font type number one which was Museo because it was striking and easy to read. Get Fit Together agreed that Museo was an appropriate and suitable font type and a decision was made to apply it as the main font type. It is extremely important that users like the style and appearance of the website, to ensure that they are satisified when using it, leaving this task very beneficial and worthwhile.

To progress even further Get Fit Together wanted to add another level to their experiment and explore with the use of colour. Get Fit Together had already decided on their main colour scheme which is the use of blue, green, red and grey. The reason these colours were selected was because they are mainly connected with health and wellbeing meaning users are aware of the nature of website they are viewing. However, Get Fit Together required help from potential users to establish what shades are more recognisable and visually appealing. Results can be seen in the following table.

1. Get Fit Together
2. Get Fit Together
3. Get Fit Together
4. Get Fit Together
5. Get Fit Together
6. Get Fit Together
7. Get Fit Together
8. Get Fit Together
9. Get Fit Together
10. Get Fit Together

Font colour for logo										
Font Colour	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10
Votes	9	2	3	0	4	0	0	1	1	0

At this stage, Get Fit Together was aware that potential users prefer the product name displayed using a dark shade of blue, winning in total nine votes.Users suggested that the font colour is the most engaging and clear.

Get Fit Together took this experiment very seriously, taking onboard all comments and suggestions based on users feedback. After collecting all of the above data, Get Fit Together came to a conclusion based on the style, font type and colour for the text of the logo, which can be seen below.

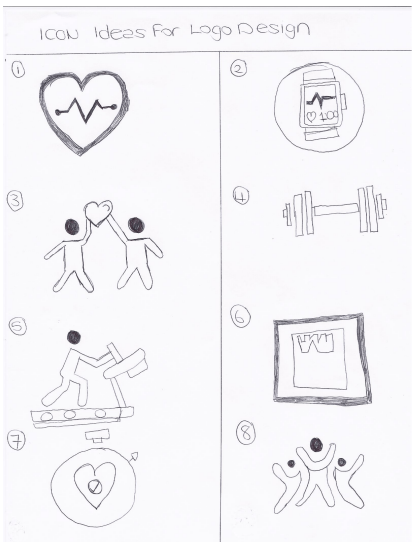
Get Fit Together

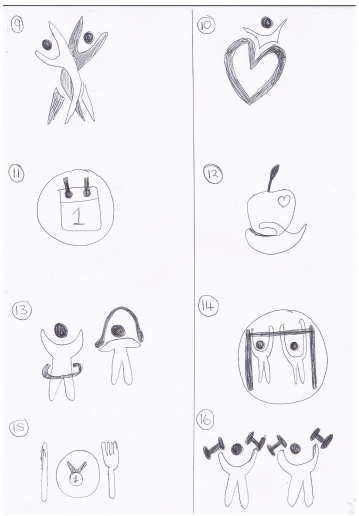
Icon

Since the typography had been founded, Get Fit Together was in a great position to design an icon for the brand. Get Fit Together was aware that they could have just created a text based logo but decided that was not enough. Get Fit Together's competition also incorporated icon based logos, which meant they must compete with this and more in order to stand out.

Initial Icon Ideas

Get Fit Together was extremely impressed with the generosity of potential users, giving up their time to help with a survey. As this was the case, Get Fit Together decided to take advantage of it and conduct another experiment. This time, Get Fit Together provided potential users with various styles of health and fitness based icons in order to discover which they thought was the most attractive. The icon ideas can be seen in the images below.





After enquiring which icon potential users prefered, Get Fit Together recorded the results which are in the table below.

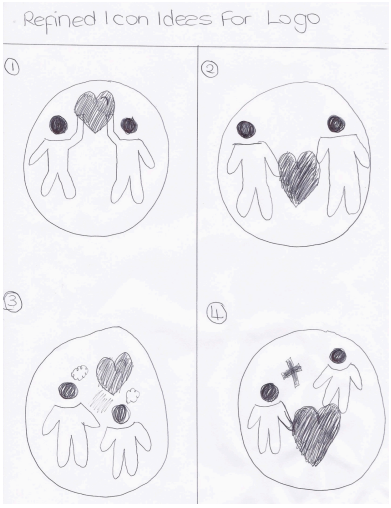
Icon Ideas for logo															
Icon Ideas	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Votes	2	0	8	0	1	0	0	2	2	0	0	0	2	0	0	3

It is possible to see that a variety of icon ideas were awarded votes, however version three was the most popular. During the task, a few potential users stated they loved the style of version three but also liked the circle feature which was based around some of the other icon ideas.

With the name of the product in mind, Get Fit Together also agreed that version three was a suitable and sensible icon choice for the logo as it simply represents the product faultlessly.

Refined Icon Design Ideas

The next obstacle Get Fit Together had to overcome was to make a decision on whether or not an outline feature would be added around the icon. In order to gain inspiration, Get Fit Together began by sketching four ideas on paper in order to visualise how the icon would appear placed within a circle, also altering the position of the people and heart.



The final stage of the survey was to ask the same group of potential users if they still suggest on adding the circle and also which style they would pick. Results are seen in the table below.

Refined Icon Ideas for logo				
Refined Icon Ideas	No.1	No.2	No.3	No.4
Votes	13	7	0	0

Final Icon Design

From gathering all of the above information, suggestions and inhouse ideas, Get Fit Together was able to make a decision regarding the branding for the product. Get Fit Together agreed with potential users that the icon looks more structured and tidy within an outline shape.

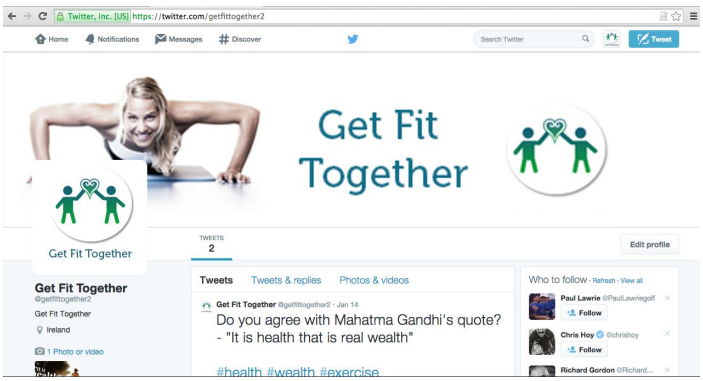
Finalised Logo

Displayed to the right is the finalised Get Fit Together logo created using professional software. Get Fit Together realised that it would not have been possible to create this logo without the help from potential users and are grateful for this. As an advantage to Get Fit Together, some potential users have already seen the logo and will hopefully recognise it straight away.

9.6.2 Incorporating Get Fit Together Logo

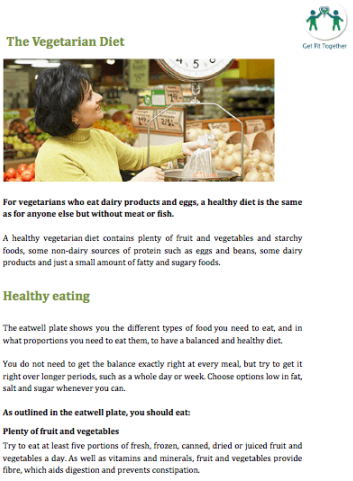
Social Media

Get Fit Together have two social media accounts which are Facebook and Twitter. Get Fit Together created cover and profile images for the accounts, which make effective use of the logo, as seen in the images below. It is important that users can tell straight away that the accounts belong to Get Fit Together and this has been achieved successfully.



Healthy Eating Articles

Get Fit Together have applied the content from the healthy eating articles to pdf's in order to allow users to download it to their device. A sample downloadable article can be seen below.



The Vegetarian Diet

For vegetarians who eat dairy products and eggs, a healthy diet is the same as for anyone else but without meat or fish.

A healthy vegetarian diet contains plenty of fruit and vegetables and starchy foods, some non-dairy sources of protein such as eggs and beans, some dairy products and just a small amount of fatty and sugary foods.

Healthy eating

The eatwell plate shows you the different types of food you need to eat, and in what proportions you need to eat them, to have a balanced and healthy diet.

You do not need to get the balance exactly right at every meal, but try to get it right over longer periods, such as a whole day or week. Choose options low in fat, salt and sugar whenever you can.

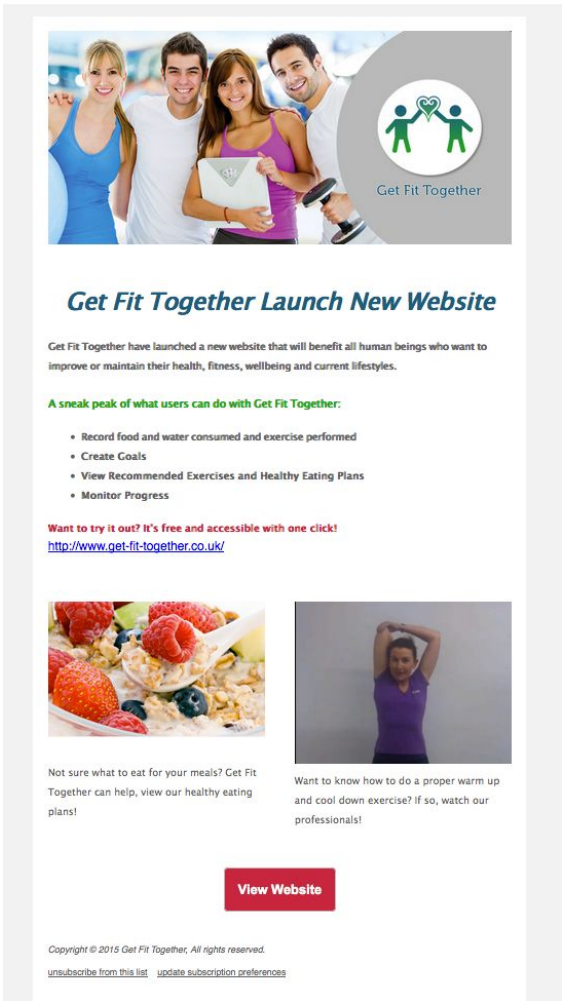
As outlined in the eatwell plate, you should eat:

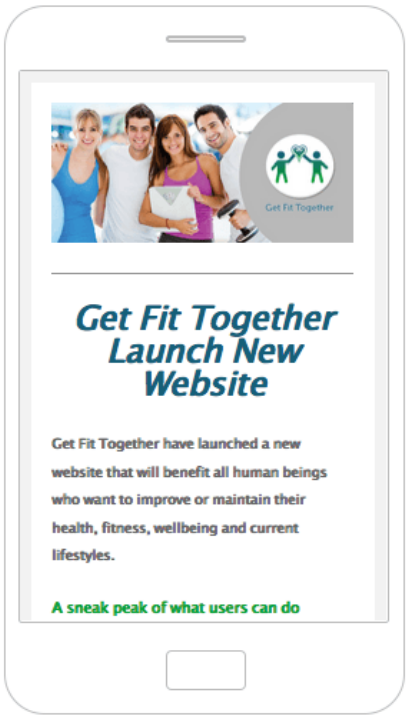
Plenty of fruit and vegetables

Try to eat at least five portions of fresh, frozen, canned, dried or juiced fruit and vegetables a day. As well as vitamins and minerals, fruit and vegetables provide fibre, which aids digestion and prevents constipation.

9.6.3 Marketing Campaign Ideas

Get Fit Together have set up an email marketing campaign in another attempt to let the public know that the new web application has been launched and is ready for use. Get Fit Together will use MailChimp as a part of their marketing strategy and will record each email address that is used to sign up to the product. From this, Get Fit Together are able to send email marketing blasts to all registered users. Get Fit Together have bought a domain and hosting and once the website is fully accessible on the web, Get Fit Together will send the first email marketing campaign which can also be seen below.





9.7 Testing Process and Results

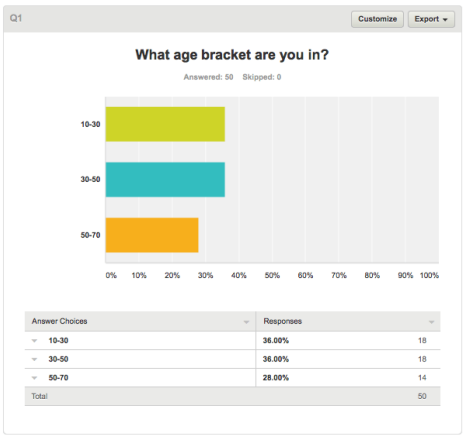
9.7.1 Black Box Testing Process and Results

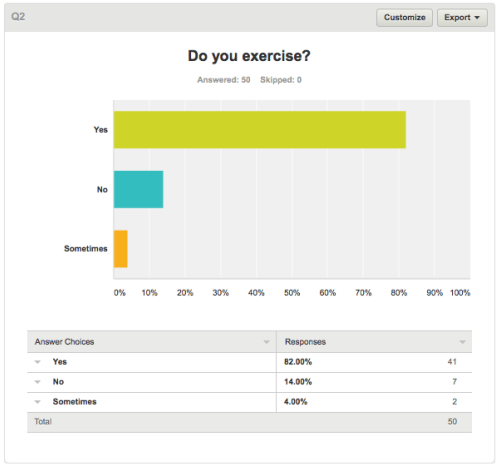
Test ID	Require-ment ID	Description	Expected Result	Pass/ Fail
11	11	Users must be able to record their food intake	Each time a user records a food item the system calcuates how many calories have been consumed and displays results in a table.	Pass x5
12	12	Users must be able to record their water intake	The system updates water intake data each time a user records a glass consumed.	Pass x5
13	13	Users must be able to record exercise performed	Each time a user records an exerice performed and duration, the system calcuates the calories burned and also the remaining calories based on this.	Pass x5
14	14	The system must store users current progress	Once a user records information, the system saves and stores the data to allow users to view their current progress at any time.	Pass x5
15	15	The system must restore users data back to 0 each day	At the start of each day the system clears previous food and exercise data	Pass x5
16	16	The system must display current progress statistics using interactive charts	Once a user enters their food or water intake or exercise performed the system captures this data and feeds it into interactive charts	Pass x5
17	17	Users must be able to create personal goals	Once a user sets themselves a goal, the system saves and stores this data	Pass x5
18	18	Users must be able to share progression on social media	Once a user selects the facebook or twitter button provided they are able to share their progress on social media	Pass x5
19	19	The system must display testimonials	The system has two testimonials displayed on the homepage	Pass x5
20	20	The system must display advertisements from companies	The system provides advertisments space on the homepage and create goals page	Pass x5
21	21	The system must have a rotating banner which displays enticing images and encouraging health quotes	The system provides a rotating banner on the homepage which presents three different images and encouraging health quotes	Pass x5
22	22	The system must inform users that they use cookies	The system provides a clear message informing users that the system uses cookies to track usage and preferences	Fail x5

9.7.2 Non-Functional Testing Process and Results

Require-ment ID	Type of Requirement	Expectancy	Pass/Fail
32	Usability and Humanity – Ease of Use	The product does not require users to remember a lot of information in order to use it	Pass x5
33	Usability and Humanity – Ease of Use	The product makes users want to use it by providing an easily used application that provides useful and informative information	Pass x5
34	Usability and Humanity – Learning	The product can be used by people who have not received any training on how to use it	Pass x5
35	Usabiliy and Humanity – Accessibility	Users who are colour blind are able to use the system	Pass x5
36	Performance – Speed and Latency	Responses from the system are fast enough to avoid interrupting the users flow of thought	Pass x5
37	Performance – Reliability and Availability	The product can be accessed 24 hours per day, 365 days per year	Pass x5
38	Security - Access	Users are only able to view their own information. If users do not want to be found via the search for other members feature they are provided with the option to remove their postcode	Fail x5
39	Security - Privacy	The product displays a message to make users aware of the information practices	Fail x5
40	Security - Cultural	The product is not offensive to religious or ethnic groups	Pass x5
41	Compliance – Legal Compliance	Personal information gathered complies with the data protection act	Pass x5

9.8 User Survey Results

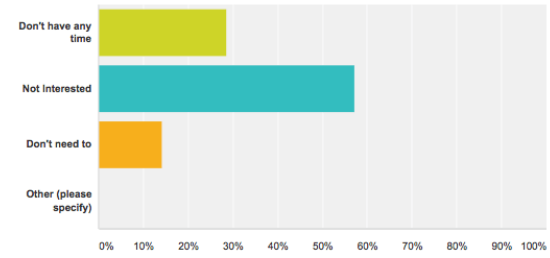




Q3 Customize Export

If the answer is no, why not?

Answered: 7 Skipped: 43

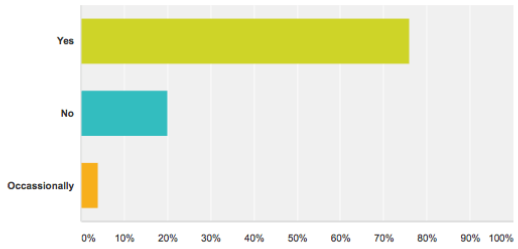


Answer Choices		Responses	
Don't have any time		28.57%	2
Not Interested		57.14%	4
Don't need to		14.29%	1
Other (please specify)	Responses	0.00%	0
Total			7

Q4 Customize Export

Do you view health and wellbeing related websites online?

Answered: 50 Skipped: 0

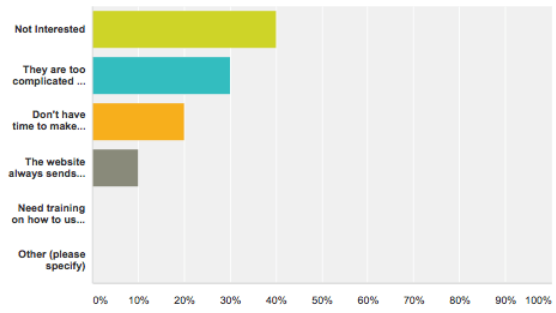


Answer Choices	Responses	
Yes	76.00%	38
No	20.00%	10
Occassionally	4.00%	2
Total		50

Q5 Customize Export

If answer is no, why not?

Answered: 10 Skipped: 40

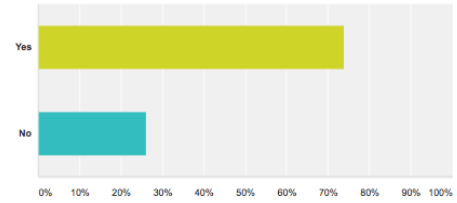


Answer Choices		Responses	
Not Interested		40.00%	4
They are too complicated to use		30.00%	3
Don't have time to make use of it		20.00%	2
The website always sends junk email to my inbox		10.00%	1
Need training on how to use it properly		0.00%	0
Other (please specify)	Responses	0.00%	0
Total			10

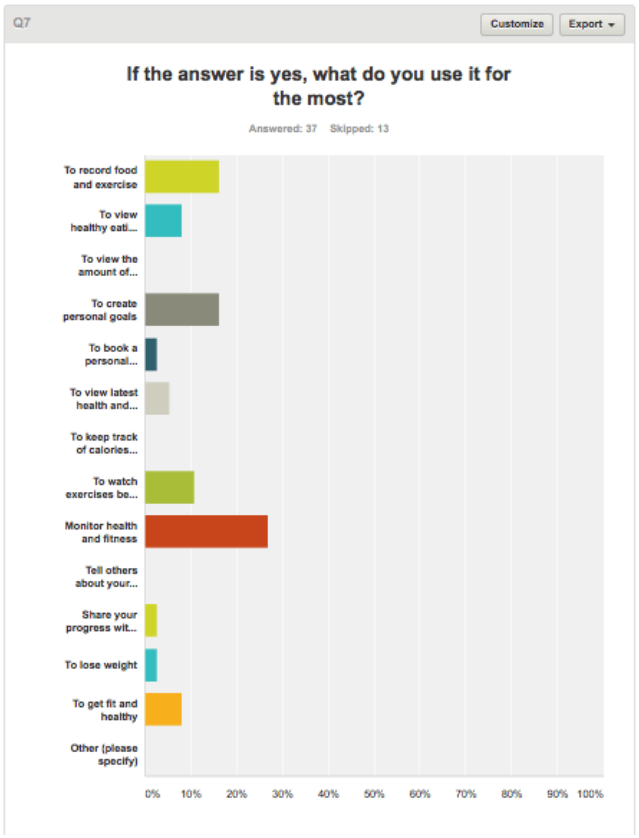
Q6 Customize Export

Are you a regular users of any health related website or app? EG. Fitbit, MapMyRun, Livestrong

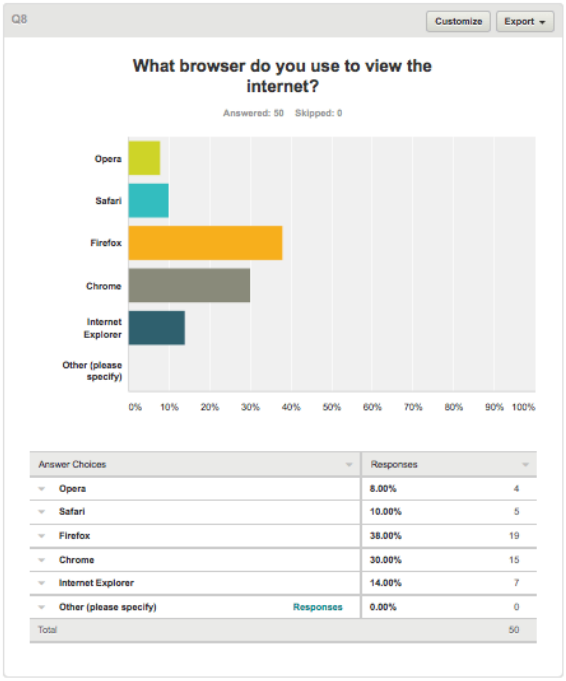
Answered: 50 Skipped: 0



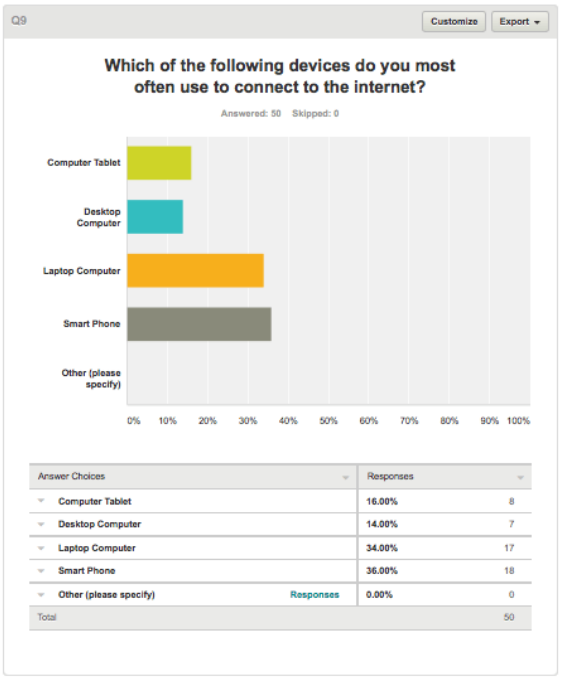
Answer Choices	Responses	
Yes	74.00%	37
No	26.00%	13
Total		50



Answer Choices	Responses	
To record food and exercise	16.22%	6
To view healthy eating plans	8.11%	3
To view the amount of people diagnosed with health related illnesses	0.00%	0
To create personal goals	16.22%	6
To book a personal training session	2.70%	1
To view latest health and wellbeing news	5.41%	2
To keep track of calories consumed and burnt	0.00%	0
To watch exercises being carried out by professionals	10.81%	4
Monitor health and fitness	27.03%	10
Tell others about your favourite exercises	0.00%	0
Share your progress with others	2.70%	1
To lose weight	2.70%	1
To get fit and healthy	8.11%	3
Other (please specify) Responses	0.00%	0
Total		37



Answer Choices	Responses	
Opera	8.00%	4
Safari	10.00%	5
Firefox	38.00%	19
Chrome	30.00%	15
Internet Explorer	14.00%	7
Other (please specify) Responses	0.00%	0
Total		50



Answer Choices	Responses	
Computer Tablet	16.00%	8
Desktop Computer	14.00%	7
Laptop Computer	34.00%	17
Smart Phone	36.00%	18
Other (please specify) Responses	0.00%	0
Total		50

9.9 Future Work

9.9.1 Personalised Fitness Gear

Futher examples of personalised branded fitness gear include vest tops, jackets, bags and caps.

9.9.2 Messaging and Friends System

Get Fit Together in the future want to incorporate a messaging and friends system to enable members to become friends and to be capable of messaging each other. Get Fit Together believes that this would further promote 'Get Fit Together' if users are able to easily invite one another to exercise using the system. Another idea could be to provide message blasting which would allow users to send all their friends a messaging saying 'Going for a run around Botanic Gardens at 5pm, who wants to join?'. Providing that functionality would also promote users to get fit together. This system could be set up using PHP, PDO and MySQL where users messages would be collected and saved in a database for a certain period of time.

9.9.3 Client-Side Validation for Login/Register Section

Moving forward, Get Fit Together want to add client-side validation to the login and register functionality. By incorporating this functionality an email can be sent to the user telling them to update their profile in case it is wrong or hacked.

This provides extra security and protects against unlawful activities. Get Fit Together will investigate how this can be added alongside the functionality, which has already been developed. If this proves difficult, Get Fit Together will then decide if they wish to eliminate the old system and incorporate PHP login.

9.9.4 Upload Photo

As already mentioned, Get Fit Together hope to provide an upload image feature to allow users to set themselves profile pictures. Get Fit Together has achieved getting the image to appear on screen, the next step is to discover how to save the image to the database. This could be done using PHP and MYSQL.

9.9.5 End User Suggestions

The end user provided suggestions for the web application in the requirements stage however it was mutually agreed that these were future goals. One suggestion was to provide users with the ability to report the amount of exercise they complete each week. Get Fit Together have considered achieving this by adding a message board on the users profile page were they could add, update or delete information at any time. Another suggestion was to allow users to use the system in order to clock in each time they visit the gym. Get Fit Together feel like this functionality would be completely out of their capabilities and have considered seeking advice from professional companies regarding how it could be achieved.

9.9.6 Find Nearest Gym

Get Fit Together woud like to incorporate a Google Maps API into the web application to allow users to enter their location and discover their nearest gym, easily and effortlessly.

9.10 Login Details for Get Fit Together

Listed below are various login details which can be used to access the system.

Username	**Password**
Sam	sammydonn18
Ralf	ralf2015
John	johnnymcg12

9.11 Database Structure for Get Fit Together

```
CREATE DATABASE IF NOT EXISTS `b00580950` DEFAULT CHARACTER SET utf8 COLLATE
utf8_general_ci;
USE `b00580950`;
--
-- Table structure for table `activity`
--
CREATE TABLE IF NOT EXISTS `activity` (
  `activity_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `activity_text` varchar(255) NOT NULL,
  `activity_type` varchar(20) NOT NULL,
  `activity_cals` int(11) NOT NULL,
  `activity_date` varchar(11) NOT NULL,
  `activity_mins` int(11) NOT NULL,
  PRIMARY KEY (`activity_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=utf8 AUTO_INCREMENT=232 ;
-- --------------------------------------------------------
--
-- Table structure for table `activity_2`
--
CREATE TABLE IF NOT EXISTS `activity_2` (
  `activity_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `activity_type` varchar(20) NOT NULL,
  `activity_mins` int(11) NOT NULL,
  `activity_name` varchar(20) NOT NULL,
  `calories_burned` int(11) NOT NULL,
  `calories_consumed` int(11) NOT NULL,
  `activity_date` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE
CURRENT_TIMESTAMP,
  `food_type` varchar(20) NOT NULL,
  PRIMARY KEY (`activity_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=utf8 AUTO_INCREMENT=1605 ;
--
-- Table structure for table `goals`
--
CREATE TABLE IF NOT EXISTS `goals` (
  `user_id` int(11) NOT NULL,
  `goal_type` varchar(30) NOT NULL,
  `goal_id` int(11) NOT NULL AUTO_INCREMENT,
  PRIMARY KEY (`goal_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=utf8 AUTO_INCREMENT=153 ;
--
-- Table structure for table `users`
--
CREATE TABLE IF NOT EXISTS `users` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `username` varchar(255) COLLATE utf8_unicode_ci NOT NULL,
  `password` char(64) COLLATE utf8_unicode_ci NOT NULL,
  `salt` char(16) COLLATE utf8_unicode_ci NOT NULL,
  `email` varchar(255) COLLATE utf8_unicode_ci NOT NULL,
  `postcode` varchar(11) COLLATE utf8_unicode_ci NOT NULL,
  `image` blob,
  PRIMARY KEY (`id`),
  UNIQUE KEY `username` (`username`),
  UNIQUE KEY `email` (`email`)
```

```
) ENGINE=InnoDB  DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci AUTO_INCREMENT=89 ;
--
-- Table structure for table `water_consumed`
--
CREATE TABLE IF NOT EXISTS `water_consumed` (
  `activity_date` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE
CURRENT_TIMESTAMP,
  `drink_type` varchar(10) NOT NULL,
  `glass_amount` int(11) NOT NULL,
  `user_id` int(11) NOT NULL,
  PRIMARY KEY (`activity_date`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```