

T LEVEL

*Technical Qualification in
Digital Production, Design
and Development*

Guide Standard Exemplification Material

Occupational Specialism:

Digital Production, Design and Development

DISTINCTION

Version 1.0

© everything possible / Shutterstock
© Independenz / Shutterstock
© 3dreams / Shutterstock



Pearson

23:35:60
Business Str
Management

Digital Production, Design and Development: DISTINCTION

Introduction

The exemplar materials within this document relate to the Digital Production Design and Development Occupational Specialism and have been created using the approved Specimen Assessment Material (SAM). These exemplification materials are designed to give Providers and students an indication of the knowledge, skills, and understanding that attest to a threshold Distinction grade. Each task within the GSEM shows the students work at that level for that task at the threshold of that grade.

The Guide Standard Exemplification Material is split into two sections: Exemplar material, the exemplars provided are representative of the tasks in the SAM. It is important to note that in live assessments a student's performance is very likely to exhibit a spikey profile and the standard of their performance will vary across the tasks, unlike this exemplar material. The overall grade will be based on an aggregated mark for all tasks.

Examiner commentary includes detailed comments to demonstrate how the exemplar material attests to the minimum standard of Pass for the Occupational Specialism. This may include commentary on improvements in the work to obtain higher marks/grades.

Providers can compare the exemplar material against the mark scheme within the SAM, to give guidance on the standard of knowledge, skills and understanding that need to be met for Pass.

Task 1 Analysing the problem and design a solution

Activity A(i)

Planning and system requirements

Minimum specification required for downloading the ToKa Fitness Website.

System requirements

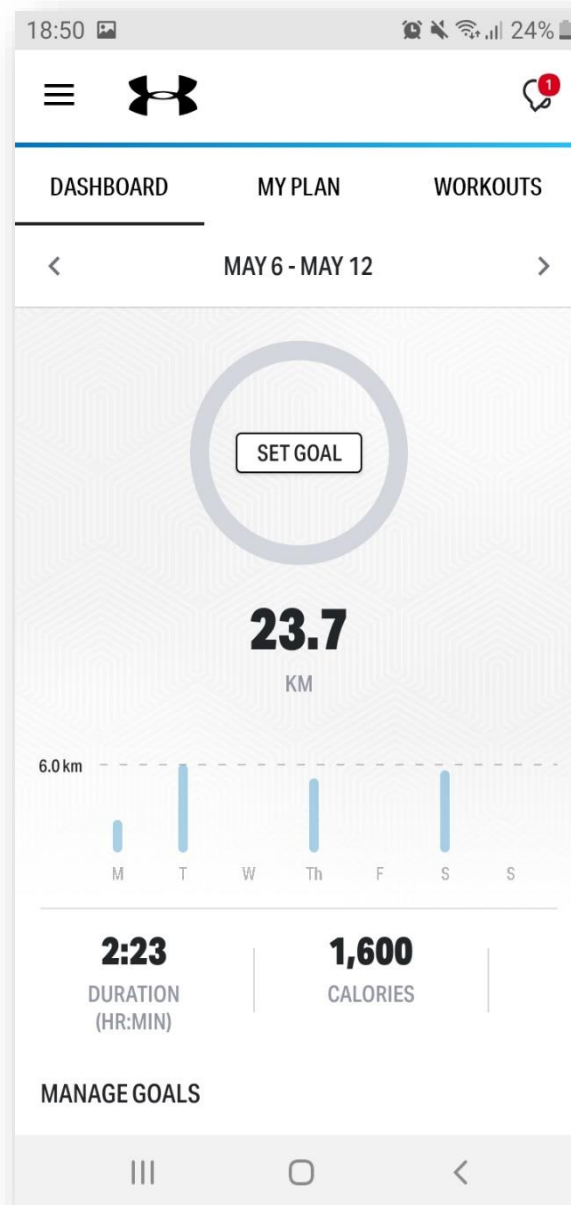
- Processor: 1 gigahertz (GHz) or faster processor or SoC.
- RAM: 1 gigabyte (GB) for 32-bit or 2 GB for 64-bit.
- Hard disk space: 16 GB for 32-bit OS 20 GB for 64-bit OS.
- Graphics card: DirectX 9 or later with WDDM 1.0 driver.
- Display: 800x600

Mobile device

- 1.3GHz dual-core processor.
- 1GB of RAM.
- iOS 6.1.4
- 1,440mAh battery

Research

There are many pre-existing websites and apps which are designed to track cardio only – UA's MapMyRun being one of the most popular, followed by RunKeeper, Strava. MapMyRun tracks your workout in real time where the user just presses start/pause/stop and then completes their workouts with the app running. This then uses location software to track your running route and therefore your speed and distance, which can be used to calculate more complicated averages over each kilometre and the entire workout. However, as this is in real-time, my personal experience is that the location services used by MapMyRun sometimes fail, especially if power saving modes are on. This is very frustrating for users who have finished their workout, only to discover that none or only some or inaccurate statistics have been recorded. Strava works similarly but is intended for cyclists. These are limited to either running or cycling only, so do not provide the facilities for users to log all types of workouts they complete



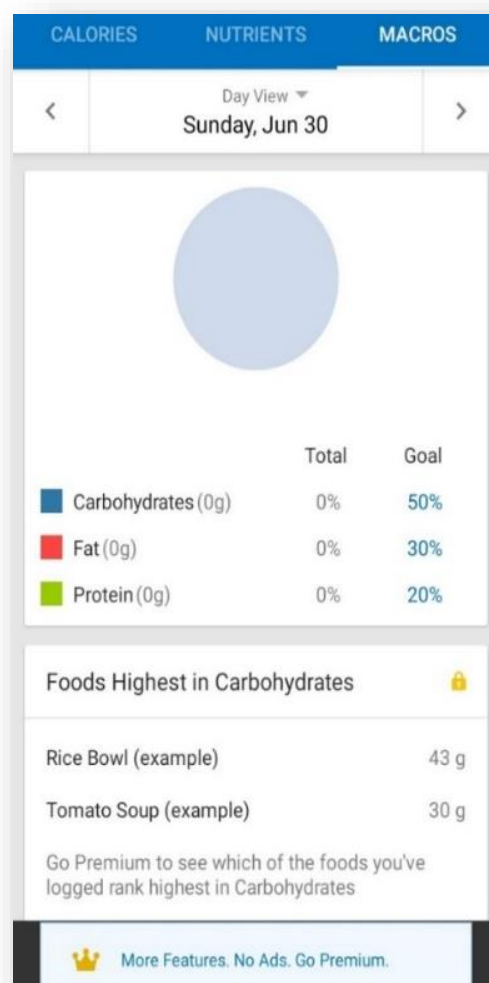
or allow users to see progress comparisons between cardio improvements and strength improvements. The client would like it to be convenient for users to track all types of workout in one place – it's a hassle to track different things in different places, often causing people to resort to non-technological solutions such as writing things down in a notebook. However, they do provide useful features, as the focus on cardio tracking allows them to calculate stats on each workout such as average pace, pace per kilometre and combine stats from workouts showing kilometres per week and potentially demonstrate progress in distance and speed over time. This statistical analysis is important to the clients as it provides useful information for the user to continue to make progress with an understanding of what has worked in the past.

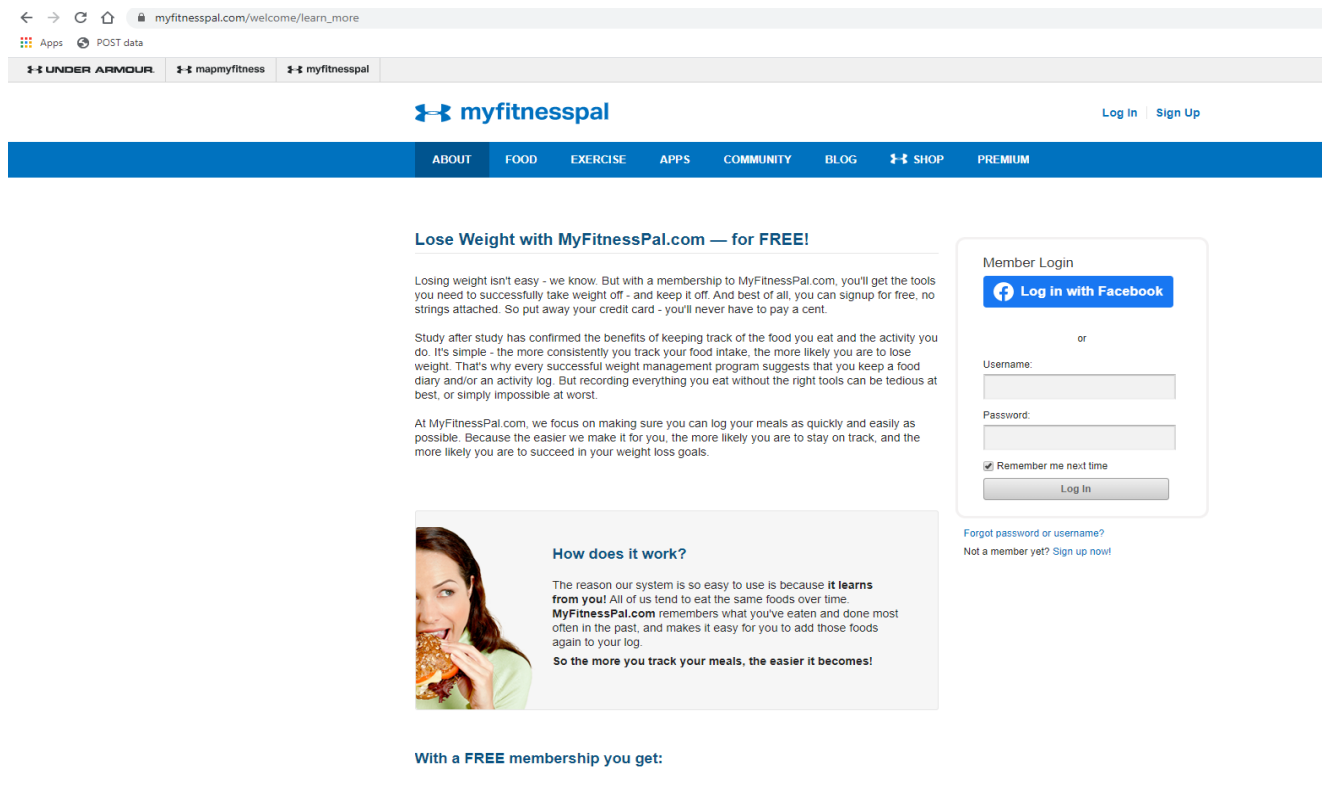
Other pre-existing fitness application include which are dedicated to fitness in general – UA's MyFitnessPal for example allows users to log their food intake as well as a range of predetermined sports, and calculates their overall calorie needs, intake and expenditure, as well as providing guidance on macros and showing complex statistics on your eating habits. However, it has no facility for users to create workouts based on

strength exercises or even just track the exercise itself, as the application is focused on calorie usage. However, it is a very popular app with a very easy to use UI, depicting each day on one screen and allowing the user to flick between, so I would like to take guidance from its interface as I have found it to be the easiest to use. Most of these general fitness application also have premium features only accessible to those who pay, usually the features which allow users to customise their experience more. MyFitnessPal also interfaces with many applications such as the preinstalled Samsung Health, other UA apps such as MapMyRun or MapMyRide, and wearable technology such as heart-rate monitors and shoes with GPS or accelerometers inside.

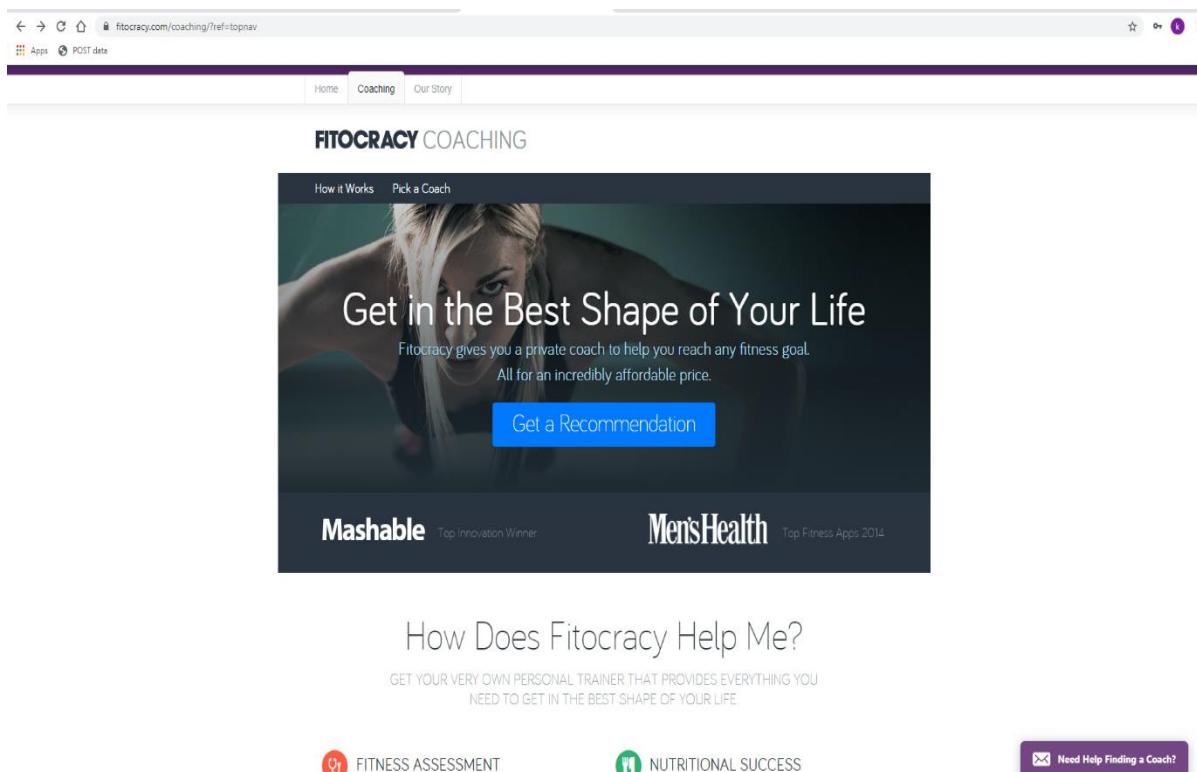
These are MyFitnessPal – the first gives an example of how a logbook could be created, with one day on each page. However, as workouts tend to be a few times a week as opposed to daily, the UI will be designed with more of an emphasis on the long-term view e.g. per week or per month as opposed to daily statistics. The second screenshot shows how MyFitnessPal uses the data input by the user to show them their habits. This screen gives a pie chart showing how much of your daily calories is used in each meal, with percentages and total calories shown in the key below.

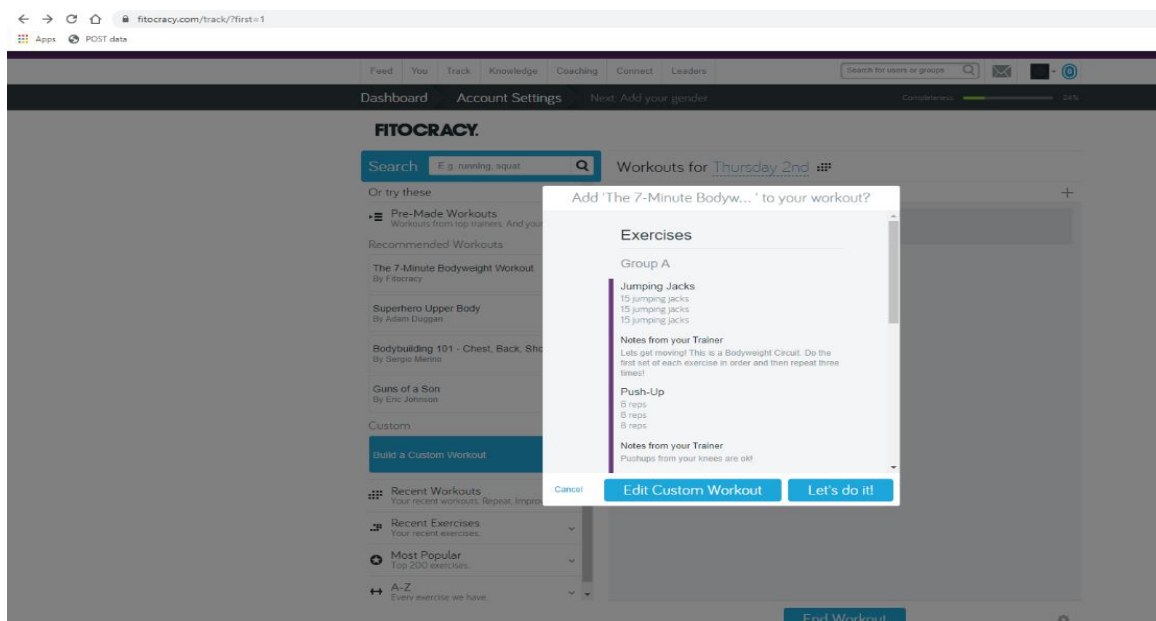
Other general fitness apps include ones which come preinstalled – Samsung Health, GoogleFit, and Health (for IOS) are the most common. As these are built and maintained by the manufacturers, they have little to no problems with them and have well-designed interfaces with lots of customer support. However, one of these apps is preinstalled on almost every mobile phone which is sold, meaning the app must be standard for millions of customs and therefore only provides very basic functions such as step/kilometres per day counters, and weight trackers. Some of these provide more features such as Google Fit's automatic activity log, but in general, as these must be applicable to millions of customs, the features are very limited.





FITOCRACY COACHING





This website was particularly impressive, you can sign up for free, and it provides you with work out programs and personal trainer you can select depending on what your goals are. Found it easy to navigate, you can also view other member's progress and what problems they have encountered on a live feed. Once you have selected you to work out session, you can then log your progress as shown below. I found this to be very valuable

Web Usability

Usability will be based on research done by Nielsen (2016), who specified 5 components which can be used to measure the success of the website.

- **Learnability:** How easy is it for the user to accomplish basic tests first time they encounter the design.
- **Efficiently:** Once the user has learned the design how quickly can they perform tasks?
- **Memorability:** When the user returns to the design after a period of not using it how easy is it to re-establish proficiency.
- **Errors:** How many errors does the user make, how severe are these errors and how quickly the user recovers from them.
- **Satisfaction:** How pleasant is it to use the design.

Using these elements, the website usability will be seriously enhanced, and therefore the elements will be embedded in the development process.

Homepages are the most valuable real estate in the world (Nielsen 2016). A homepage is fundamental to the success of the organisation, as this is the portal into the organisation. For example, you wouldn't go into the restaurant if dirty dishes were left

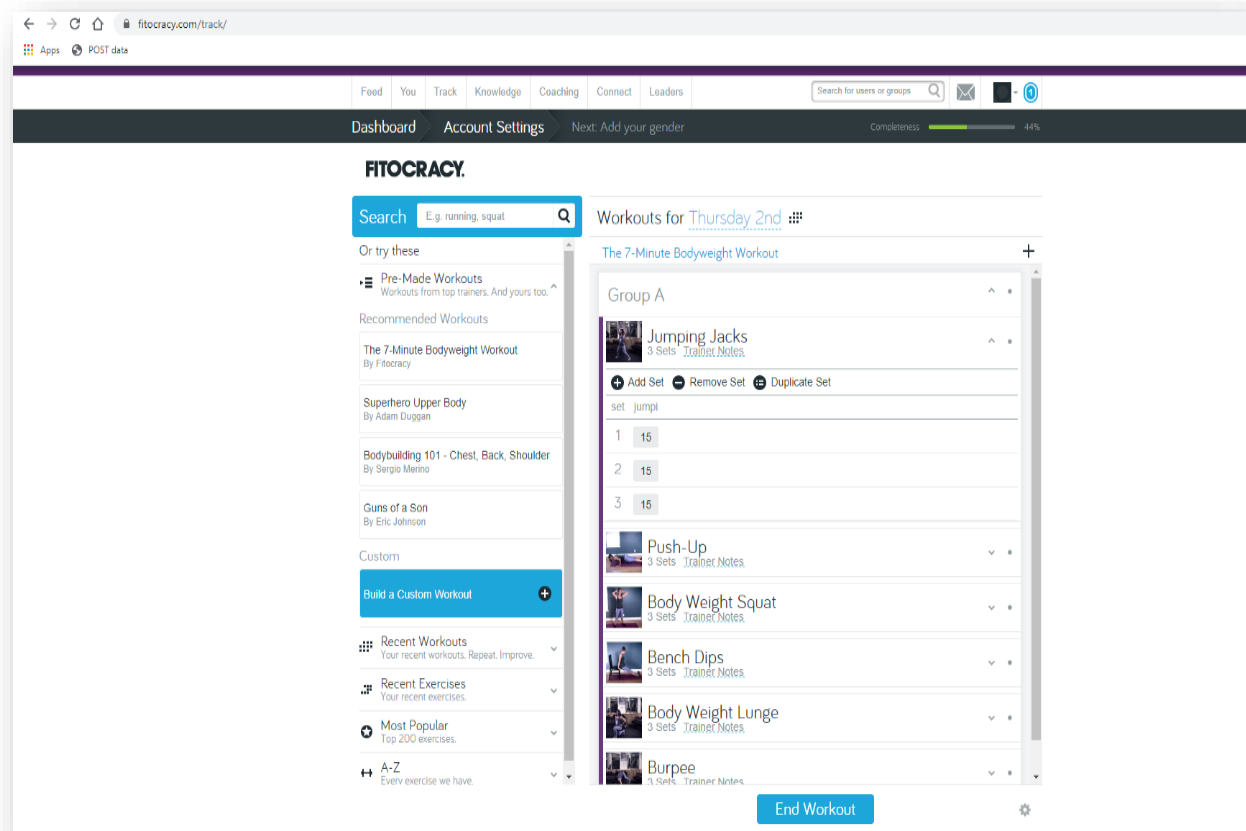
on the table, and the floor was dirty, no matter how nice it looked from the outside. Derek Powazek (2006) believes that the number one job is to ensure the homepage achieves its goal by answering “what is this place”. Powazek believes that if the visitor is unfamiliar with the site and you haven’t done a good job of answering that question the user will feel dumb, leave and never come back.

The page design is vitally important to ensure that pages are visible using any current browser technology. Most users are looking at a single page at one time. Some of the key issues that will impact on the web usability is ensuring that the structure of the page can properly help with the page identity. Important features to consider are page title, subheading, and areas sectioned off so that each component is easily identified but still within the context of the website.

Navigation is one of the hardest elements of the page and site development, this is partly because it is very subjective as everyone has their own opinion on how it should work. This is a difficult issue to solve, but it is hugely important from a usability perspective. If the navigation isn’t doing what it should, we risk losing visitors. A navigation system should work easily and allow the user to flow from action to action and from place to place. For example, on the homepage it is important to avoid scrolling from left to right, as scrolling can cause accessibility problems and can be difficult for users with motor skill impairment, low literacy users and elderly users who often have trouble getting to the right spot in scrolling menus.

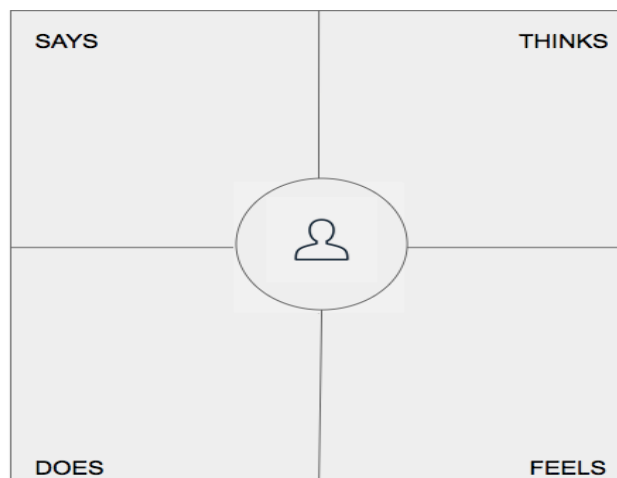
Another important challenge is for the site to cater for repeat visitors who already know what they are doing, as well as catering for new visitors. Powazek (2006) suggests that one technique that conquers this is to make one area of the page dynamic. Once we have catered for new people and repeat visitors it is important that we then ensure that the site remains impressive with something attractive for both new and repeat visitors. An idea to cater for this is to add a forum in. It is worth noting that, according to Powazek, too many sites fail before achieving these first two fundamental goals.

Content within the page is also important. However, users look at headlines before deciding if the content is likely to be of interest to them. They will scan areas of the page for ideas that indicate where to go (Nielsen 2000). With this in mind, both headlines and content are pivotal to website success, and having the ability to understand how web user's access user content is very important but according to Nielsen is easily underestimated. It is important to remember that 79% of web users scan rather than read, which may be due to time constraints, to tiredness as eyes are



25% slower than reading on paper, and to the nature of user driven medium where the user feels the need to click on to new things.

Empathy Map



Empathy mapping was an efficient tool used to understand user behaviours, but also help visually to communicate the findings.

When conducting user research, we learnt a lot about the users—through what they say and do, as well as through more subtle clues like body language and facial expressions. Using an empathy map to help visualise all these findings; it presented the data gathered about your users during the research phase in a condensed, easily digestible format.

The information gathered from interviews, product reviews, surveys, and then sorting it into the four sections of the map. So research conducted looked at the following areas;

- Who is the ideal customer?
- What are the current behaviour patterns of my users?
- What are the needs and goals the users?
- What issues and pain-points do they currently face within the given context

The results will be used to formulate the design in task 2.

Activity A (ii)

Description of the proposed system

We are all on a fitness journey in one way or another. With life's hectic schedule, it's easy to lose track of where you are and where you want to be regarding your fitness. No matter whether you are trying to lose weight, put on mass, or maintain where you are, tracking fitness progress is an essential piece of your ongoing success. I have been asked by the owner of ToKa Fitness to develop a digital system that will:

- provide information about fitness training
- provide information on healthy living to help customers improve their own health and fitness
- provide access to digital content to support customers with their training
- provide access digital content on healthy lifestyle
- encourage existing customers who have access to digital devices to use more of the services provided by ToKa Fitness

ToKa fitness would like to help its customer track every single workout, all gains, and all food consumed in their fitness journey. These are some of the reasons mentioned during the interviews.

- People have extremely busy time schedules and it is hard for them to find slots to fit in running or other forms of workout.
- Lack of motivation is another significant reason.
- Finding people with similar goals is extremely difficult, and mostly people end-up with inactive or over-active company, if found at all, which does not serve as an effective motivation booster. Not being able to track your progress is a huge roadblock in many cases.
- No proper schedule to be followed, sometimes you have the time but don't know how much and how to go about it
- What's more, after a formidable exercise, people would get lazy or boring without any rewards or recognition. Expensive tracking and other health monitoring gadgets leave the interested people with either a big credit or without any equipment
- Complex user interfaces and systems.
- No real data on the systems, only web fed data
- Very little or no data analysis, as to how much calories burnt, how much time to run improve the stamina
- No simple helpful application.

For those who regularly log and track their progress maybe using paper or some way of recording, by using some form of electronic tracking system they would achieve some of the following aims;

- Makes it more likely to reach and surpass their goal.
- Allows them to be more efficient in your time and workouts.
- Lends accountability to themselves and their goals.
- Allows for easier modifications and shows when and where changes need to be made.
- It can be motivating and reinforcing to remind them why you are doing what you are.
- Keeps you committed to their plan.

This project lends itself to a computational approach, partly because of the convenience of tracking details on the website after workout (removing the need to carry pen and paper, and allowing users to track the details immediately, reducing the risk of errors), and partly because a computational solution will allow automatic progress tracking as it can automatically calculate and display your progress from the previous input data. This will make users' gym progress much easier and provide them with details of their progress which would be very difficult and time-consuming to recalculate themselves every week.

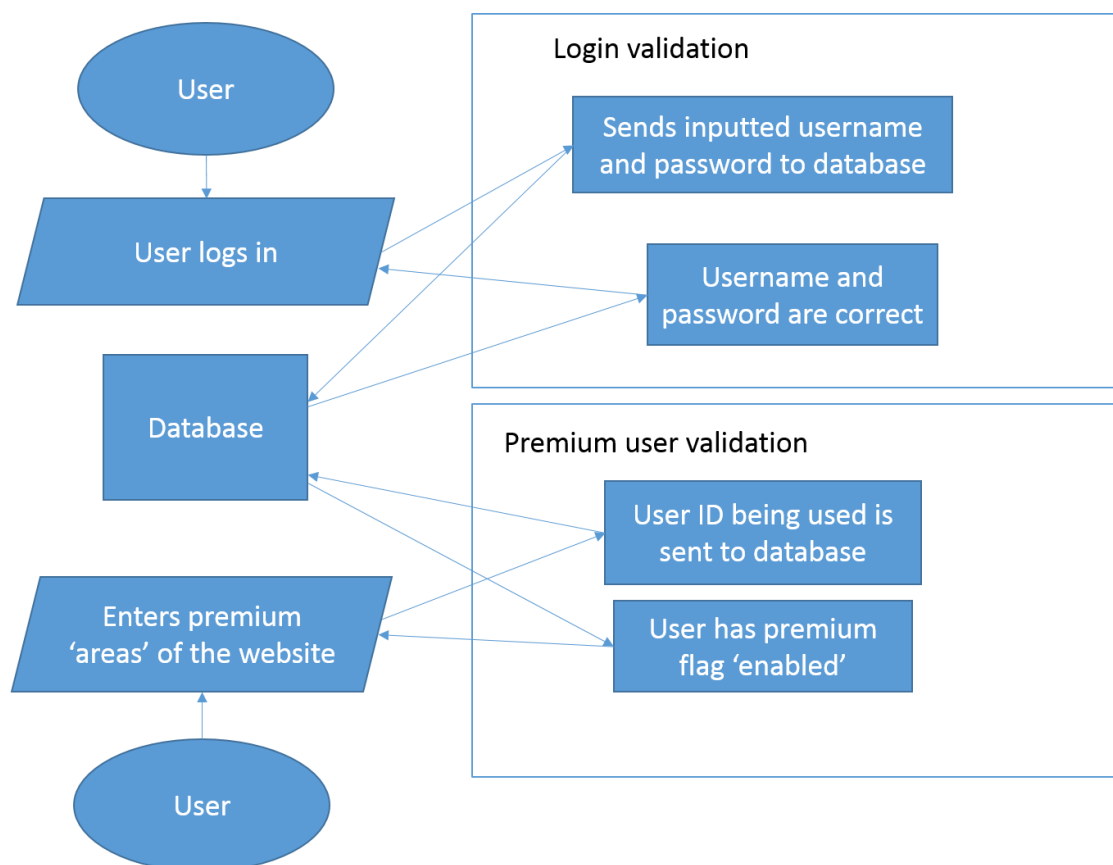
The Key Performance Indicators (KPIs) and user acceptance criteria for the proposed ToKa Fitness offers personal training sessions and advice on fitness training and healthy living to its customers and would like a Website for their specific requirements. ToKa Fitness specific requirements are that the proposed solution:

- Must have a membership system that allows the user to access extra content
- Must allow my client to add new content without touching the code
- Must be compatible with various devices, such as a desktop, a tablet and a smartphone
- Should have different page layouts based on the user (e.g. client can add content, but members can only watch content)
- The layout should be simple and easy to navigate, so, information should be diluted across the page (no clutter to confuse the user), also, text information should be balanced with images and other media
- Could use external services to provide content (e.g. use YouTube for display free videos)
- Could add advertisements to monetise the free content without making the user pay

The system was split into sub systems which interact among each other or with the user. Also provide the aim of each of the many components our system is split into. The interaction between the various components will elaborate in later sections. The system can be seen to have 6 components that work in unison to produce the results which help the user the best results.

- Mobile Interface
- Web Interface
- Database
- Location Data acquisition
- Accelerometer data collection and analysis
- Profile Monitoring

For the purpose of this project we will produce the first prototype which will be the web interface



The Website can be accessed via mobile device or a desktop computer and will have the following functionality.

Non-functional requirement is used to specify the criteria of system operation, which should be contrast to functional requirement that define specific behaviours and function. In order to clarify software quality attributes, we will use the FURPS model. FURPS is acronym for functionality, usability, reliability, performance and supportability, which is founded at Hewlett-Packard and elaborated by Grady and Caswell.

Usability: Usability is used to determine the ease of using and learning for human-made object. First, we use PHP, JavaScript and SQL as our developing platform which is accessible and widely used. Secondly, to make our software and website easy to use, user interface design would play a very important role. User design should make information more accessible for user, such as, a help option can be found at once when the customer encounters some problems, a traceable history for users to review their progress of previous period in their account. Also, inform users of their condition while they are working out real-time updated information.

Reliability is defined by the system's availability and how long it will take to recover from a failure. It is very important to our program, since our system is based on a huge amount of data. If failure occurs, it always accrues loss of data. In order to maintain high reliability, we should try our best to keep a low appearance of error in our system, and also, if there's a failure encountered, the system should have the ability to figure it out, send it to the programmer and then reset giving a reasonable explanation to the users. Performance is closely related to how fast our system can perform. As user is training, they may want to know his calories burnt. So, it requires the system with a high performance of computer's calculation.

Supportability includes a variety of elements, such as maintainability, sustainability, testability and so on. As requirements above, we should make our program easier to use, not only for users, but also for people who want to modify it or add new functionality to it. In order to make sure that code can be fixed and reused easily, we should separate the whole system into several independent functions. As for several independent parts, people can find the main problem more quickly and rewrite the one with a problem without changing others, which will save a lot of time and manual work. Based on the above abstract information a more discrete set of requirements can be tabulated as follows.

Functional requirements:

- send email to a customer when they open a ToKa account
- User form-based authentication
- system for daily calories and movements, sleeping, fitness training and any other activates
- historical data to show trends
- transaction corrections, adjustment and cancellations
- external interface
- customer payment portal – secure considering all regulatory and legal requirements
- blog or forum for group support

Non-functional requirements:

- Performance good response time, throughput and utilization
- Scalability
- Readability so should be able to view on any medium e.g. tablet, mobile phone or Desktop
- Security ensure login details are secure and any important data used by the user or client
- Usability

Link to:

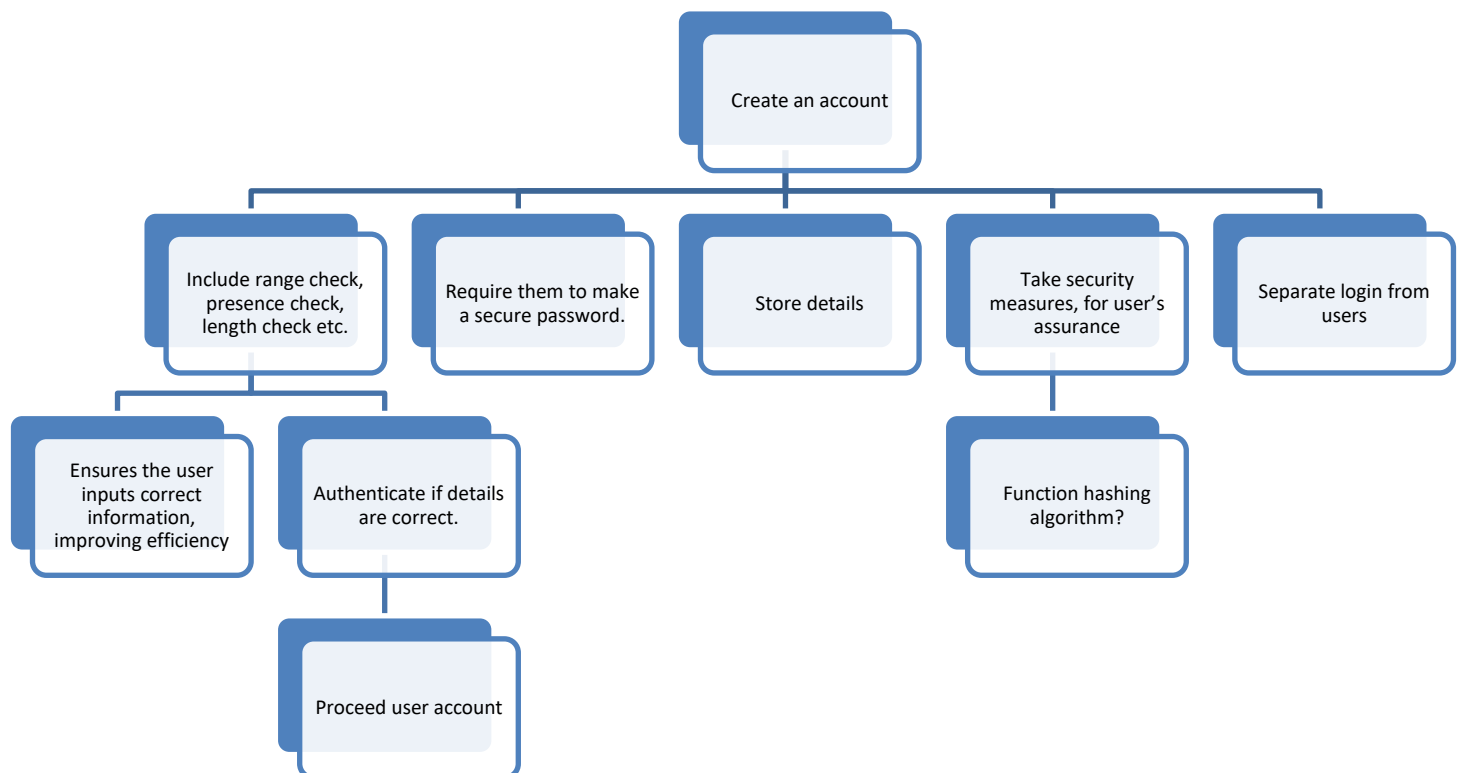
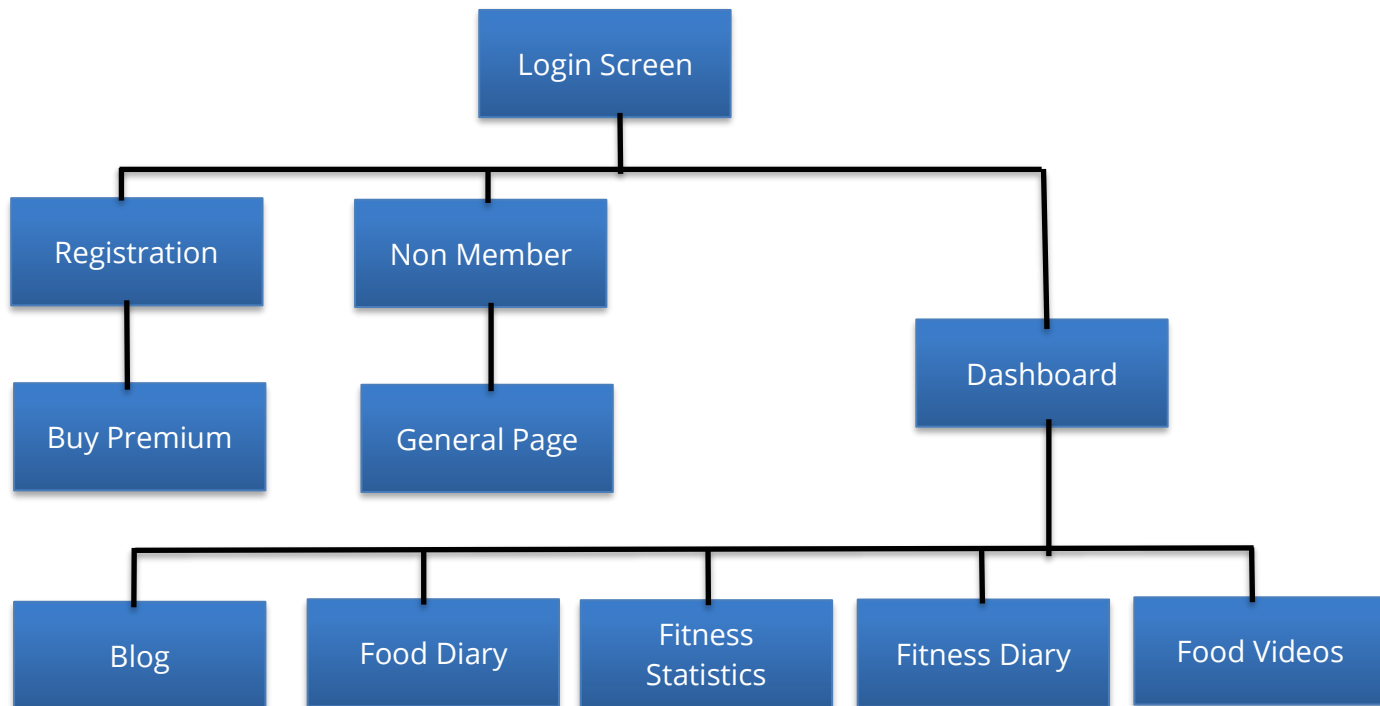
- fitness training videos
- recipe videos
- social media
- chat facility
- blog / forums
- help files on Website use
- Facility to record personal food notes

Accessibility issues to be considered:

- keyboard accessibility
- colour contrast
- copyright of the use of images and videos

- colorblindness and the partially sighted user
- error messages to also have an error icon
- headings
- alternative text
- forms
- downloading materials

Hierarchy Diagram



My proposed solution should provide ToKa Fitness with professional and easy to use system that promotes their business and encourage customers to use it. All customers would have their own account. 'Free member' will have a basic level of accessibility and 'Full member' with a monthly fee for more complex features and functions.

UI/UX

My stakeholders had various requests for the design of the site, including that a minimalist design would be preferred for the website, as well as indicating how many custom options they would like, and how much they can change what is visible on the main screen. There was a unanimous response that a minimalist design would be preferred over a more detailed or perhaps cluttered design. This will be implemented by taking general minimalist principles into the first prototype, such as utilising large amounts of whitespace with relatively small amounts of screen taken up by clickable options, simple flat coloured background and clear labelled options.

The decision on the type of options available is less obvious, as there was no clear consensus from my stakeholders on what would be the most preferable option, as the results were quite evenly split between having all options customisable, having some hidden by default and having most hidden by default. Because of this divide I have chosen to go with most commonly chosen option, as this will hopefully provide the best experience for users, before asking the initial question again to see if any opinions have changed. If they do not then the other options will be used in the next prototypes in order for all solutions to be tested until either a consensus is reached, otherwise a middle ground option will be used for the final release.

Another slightly vaguer set of responses to do with the UI/UX was also a focus from the stakeholders, and included the site having a fast and intuitive design, as well as providing easy access to the features that it offers. While these are harder to measure and implement, as it cannot easily be said that the site definitely offers these things, the features mentioned earlier, as well as including decisions to label fields so that they are more obvious to first time users e.g. labelling buttons 'backup files' or 'Enter Username' will aid in making the site more easy to use. As well as this, using commonly used icons for non-labelled options (such as using a cog to represent the settings for the site) will also help to make the site more intuitive to use. Feedback will be collected after each iteration of prototypes in order to improve these features and create the best possible experience for the stakeholders, and eventually users.

These decisions should allow for a good initial UI and UX, but these features are very liable to change as stakeholder feedback is given during the prototyping. Any suggestions for changes will be logged during the development phase, suggested to the other stakeholders and then finally implemented into the next version.

Free member	Member
Unregistered users should be able to: <ul style="list-style-type: none">• See information about the system including guidelines and developer information.• View general information available for diet, exercise regimens and blog site.• Only view (not post on) existing forum topics• View the community of existing users• Sign-up for an account	Registered users should be able to <ul style="list-style-type: none">• Check in their current body measurements• View and modify their goals• View progress reports – daily and overall• View BMI based on last check in information (add in requirements)• View Current day's progress• Produce log reports• Logout at any stage in the session

Customers would have access to a daily fitness training planner and videos that have been verified by sports professionals and doctors. It is important that the videos and planners are safe to use and provide the correct advice and guidance.

The setup of the customised eating plans will also have to be verified by a nutritionist as they must meet the correct and current nutrition guidance. If the nutrition guidance is incorrect, the member could get very ill as the result of following the customised eating plan, and ToKa Fitness could be sued and get a bad reputation and go out of business.

Members should be able to view different workouts and monitor daily food diary statistics, depending on the customers' membership level. If the customers' experience of using the Website is good, they will continue to use it and promote its use to their friends and on social media.

The Website will have to be secure because of the member's privacy and security of user data to comply with legal requirements such as Data Protection legislation and food and nutrition regulatory guidelines. Customer details must be secured by password protection and clear terms and conditions. The interface should be easy to use and navigate, be accessible across different devices and have accessibility features for users with sight loss. The password will be encrypted to prevent unauthorized access to the database.

Since there's a lot of spam and frauds. The artifact will include email verification service it identifies any issues and possible problems. Built into the validation should be script to prevent wrong format but can't prevent misspelled email address. The service checks your mailing list for spam traps – email addresses which have been created with the intention of capturing senders who aren't following proper practices. Email verification makes sure that these addresses are removed from your mailing lists. Otherwise, if you

send an email to a spam trap, you'll either be asked to remove that address from your list, or you'll be blacklisted.

For example, if someone put in this email address: john@john@dd, this is where email verification would catch it.

This project exhaustively covers many aspects of customers' requirements but there are certain limitations.

These can be summed up by the following points:

1. The ranking system is going to display the top 10 users, not all of them. However, the user can view his personal ranking.
2. Users cannot reply to others in forum. They can only make new comment.
3. Data of calories you burned will not be calculated exactly according to the actual situation, but statistically. Time data is being collected for these parameters and they would be calculated based on algorithms.
4. Accuracy of workout is relative.
5. There is a limitation to the "push factor", the alerts can only motivate and inform users, it is their responsibility to actually achieve targets.
6. Personal weight and body measurements must be updated by user, the system cannot get this information.
7. User data would be available on the community section after permissions and cannot be shared otherwise. Data on the user's personal device would never be shared directly.

User requirements

ToKa Fitness has commissioned my software development company to develop a digital system. ToKa Fitness offers personal training sessions and advice on fitness training and healthy living to its customers and would like a Website for their specific requirements. ToKa Fitness specific requirements are that the proposed solution.

- has free access with some accessibility to services
- customers section for paid content to full services

- accessibility features for users with sight loss
- link to 'social media' features
- ability to view graphs and daily statistics for monitoring
- Visualisation of the data to help user easy understand patterns

The target user group are adults, male and females. Due to legal and ethical nature of Websites, it might be difficult for under-18s to follow the exercise and enter the correct details and follow the food and recipes correctly. To comply with age restrictions and guidelines, clear advice will be given to reduce health issues or injuries.

The Website will be accessed via mobile devices and a computer and compatibility across different devices, Android and iOS. It is important that the Website is easy to use with on screen guidance and prompts so that the user experience is excellent in all areas of the Website to promote company image, for example, using website appropriate high-quality visual assets and content. All areas of the Website will comply with relevant legal regulations and guidelines.

The customer area will be secure accessed via a password and payment made in a secure platform. This will comply with legal requirements. The privacy and security of user data is important for each member to have access to their area via a secure login.

Each customer will be able to customisable workout and eating plans and generate a report on their progress for specific periods, and the level of detail of instructions in a fitness training plan will vary to allow the customer to meet their identified goal.

All links to external sources will take consideration of Copyright and intellectual property and Licensing requirements.

Functional Requirements			
No.	Features	Priority	Justification
1	Users are able to sign up and create profiles with a username and password	HIGH	This will allow many different features to work such as the booking process as this will allow the tutor to know which student has booked the session and will allow the user to access the videos he has paid for on any device as cookies cannot transfer on all the devices the student has.
2	Users are able to log in to their own profile	HIGH	Important that user can view their own profile details
3	Users can view the dashboard	HIGH	This will allow the tutor to upload his timetable so that student can choose which slot they want without waiting for the tutor to confirm if he is free or not.
4	The system should contain information about the calories, weight, carbs intake, fat intake, exercise regime	HIGH	This will ensure that client will trust the organisation and make the website more reliable.
5	Users are able to pay online for membership	MEDIUM	This will allow the payment process to be much easier and less manual this means there can be no altercation in the student not paying as it will all be recorded.

6	The system should be able to send payment confirmation to the user	MEDIUM	This will act as a receipt for the payment to the gym user and client
7	System should have user form authentication	HIGH	This is to ensure that the user does have the email address and verifies the ID
8	System should send a confirmation email once signed up	LOW	This will make that the client has all details for signing up
9	New system should have a blog or forum	MEDIUM	This will allow for user to raise questions and communicate with others gym members
10	historical data to show trends	MEDIUM	Important to generate report that allow the gym user to view historical data and demonstrate progression
12	external interface	HIGH	The gym user should be able to view the website on any device which allow them to see all the relevant information and perform any functionality

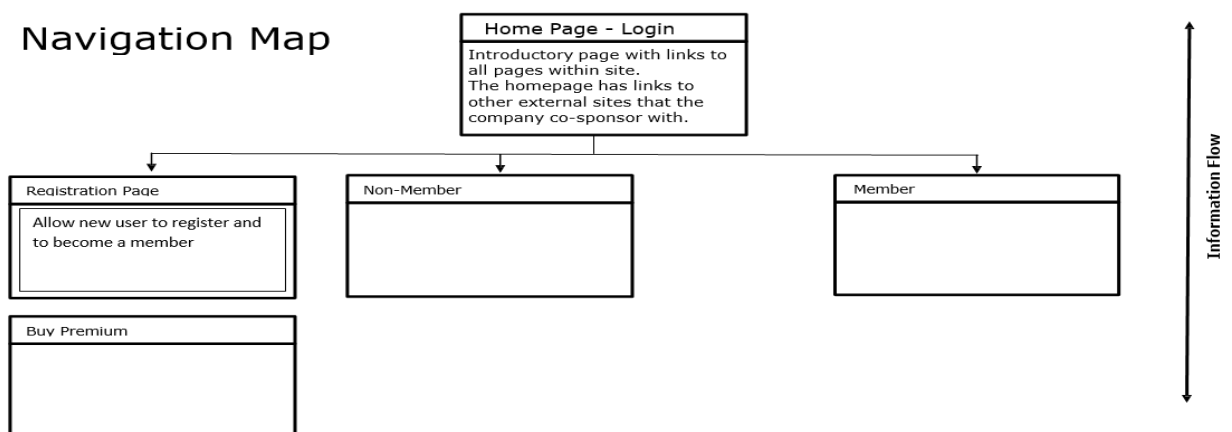
Non-Functional Requirements			
No.	Features	Priority	Justification
1	The system should be reliable.	HIGH	This will mean that it is more trusted which will mean more people will use the service.
2	The system should be accessible by everyone.	HIGH	This will mean that anyone can access the service, which will mean that the service will be advertised to more people.
3	The system should be secure.	HIGH	This will help users trust the service as they will be using their payment information on the website.
4	The system should be available at all times.	HIGH	If this was not the case it would mean less people would buy the service as they cannot access
5	PHP sessions should make the website customised to the user	MEDIUM	This will make it more customised to the user as it could be used for a faster login and it would be more personalised to the user.

Visual/interface designs

Log in page



Navigation Map



Flow Summary

Registration Page	External Links URL's	Information Flow
Summary of objective	Labelled the name Appropriately. Use of Facebook and Google	Two way flow using the hierarchal approach Ability to get home

Image 1

Create an Account!

Input fields and buttons for account creation.

Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Google and Facebook for sign in
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas
- Image Size
- Text boxes:
 - First Name
 - Last Name
 - Email
 - Password
 - Confirm Password
- Buttons:
 - Login
 - Google
 - Facebook

Dashboard

Buy Premium

Billing Address

Full Name

Email

Address

City

Payment

Acceptable Cards

Credit Card Number

Expiry Month

Security Number

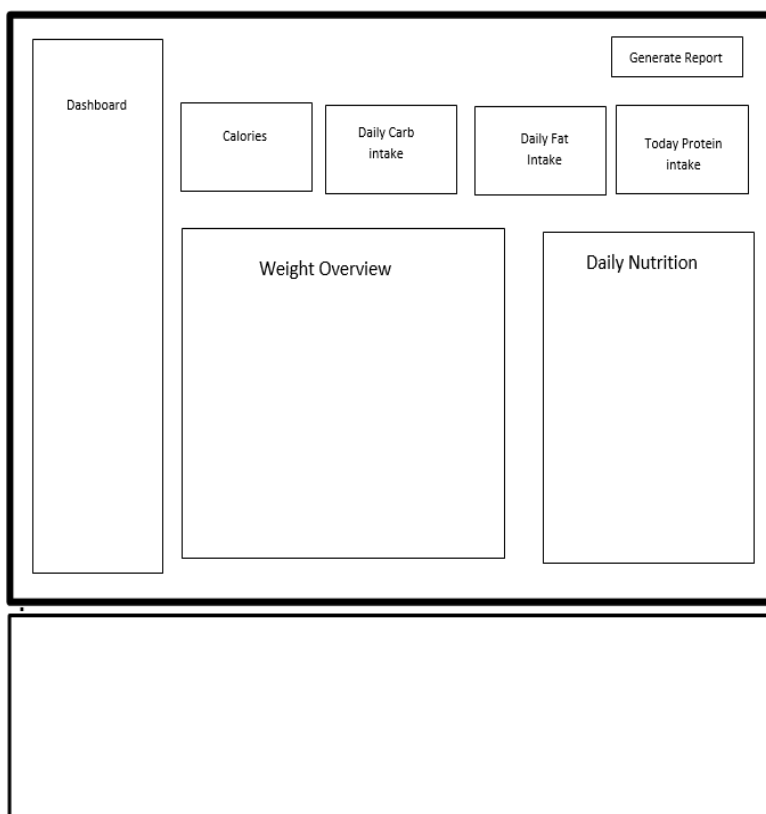
Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Dashboard
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Form:
 - Text area 1
 - Text area 2
 - Popular Post



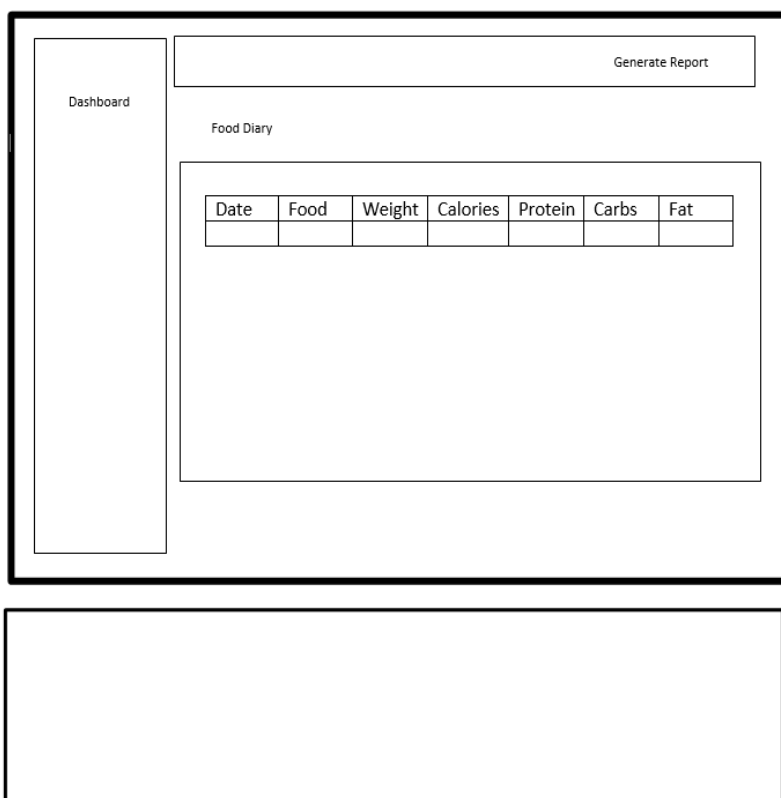
Page Specification

Interface

- Text Only- labels
- Global Hyperlinks –Dashboard
- Colour and typography: use company branding
 - Font type
 - Font colour
 - Background

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas
- Image Size: considered
- Bar Graphs
 - Calories
 - Carb
 - Fat
 - Protein
- Weight Overview
 - Y = Weight
 - X = Months



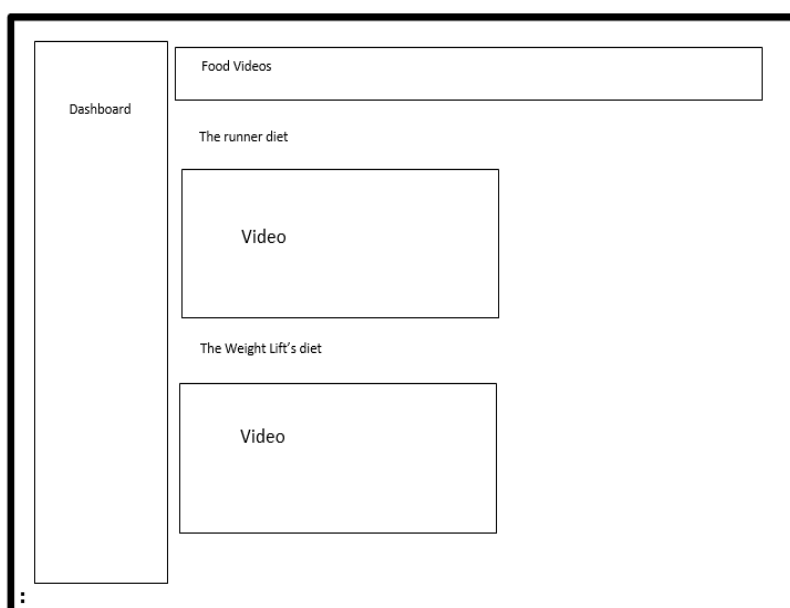
Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Dashboard
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Table: history
 - Date
 - Food intake
 - Weight(g)
 - Calories
 - Protein(g)
 - Carbs(g)
 - Fat(g)



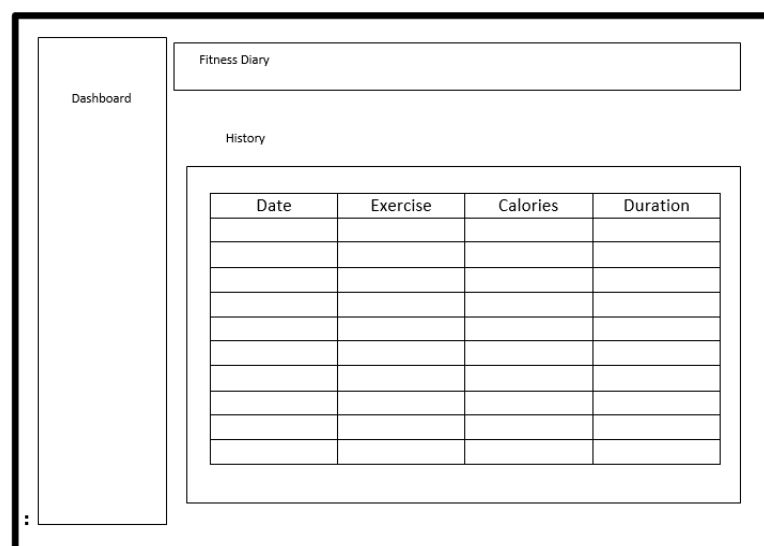
Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Dashboard
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Multimedia:
 - Video 1
 - Video 2



Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Dashboard
- Colour and typography: use company branding:
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Tabular Data
 - Date
 - Exercise
 - Calories
 - Duration



Exercise Data:

Dashboard

Add Exercise data

Exercise

☐ Running
 ☐ Walking
 ☐ Swimming
 ☐ Other

Duration (minutes)

Drop Down

Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Tracker diet
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Drop down:
 - Profile
 - Settings
 - Activity Log
 - Logout
- Add Exercise
 - Labels: running, walking, Swimming, other
 - Radio Button
 - Text Box
 - Button - submit

Add food Data:

Food intake

Dashboard

Add Exercise

Food:

Amount (grams)

Drop Down

Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Tracker diet
- Colour and typography: use company branding
 - Font type: TBC
 - Font colour: Grey
 - Background: White & Green

Page Elements

- Use crumb trails
- Page dimension: considered
- Textual Areas: None
- Drop down:
 - Profile
 - Settings
 - Activity Log
 - Logout
- Add Exercise
 - Labels: food, amount
 - Text boxes

Front-End Needs:

- Different icons which are easy for the user to use
- Attractive
- Clear link to the backend (not for the user but for management to ensure that they can receive data that user's input)

Back-End Needs:

- Data storage
- Reading/writing to and from this.
Stored in an efficient way.
- Security (hashing, encryption)
- Link to the frontend.

Security and data analysis

System security will be an important issue for the management, just as it will be for the customers. Overall some of the management's needs do overlap with other stakeholders although the management will be the ones who have to face the consequences of any breaches of the system. This means that it's their responsibility to ensure that the system they're providing to their customers is safe to use. Organising the data will make benefit the management when it comes to producing reports and carrying out queries. This is important because during periods where there are lots of customers, the management will be able to quickly carry out queries and find out the information they need. The data analysis section will make up parts of the report as well as a different section of the solution. This part is supposed to aid decision making about the whole restring process and it will impact, because it will impact which workout they choose to use. From the management's perspective the reason behind this data analysis is to help them reduce their costs and to improve the overall efficiency of the system.

Algorithms:

```
if(first time entry)
{
    Load registration form
}
else
{
    Res_userID = check whether input userID is unique

    res_pwd    = check whether input password1 and input password2 are the same

    res_email  = check whether input email is of correct format

    res_profile = check whether input profile is not empty

    res_name   = check whether input name field is not empty
```

```
if ( all check results == true)
{
    SQL insert queries

    connect to database

    pass queries to database

        if (any query fails)
            display error msg

    else display registration complete msg
    endif
}

if (res_userID == false)
    display message reselect unique user id
endif

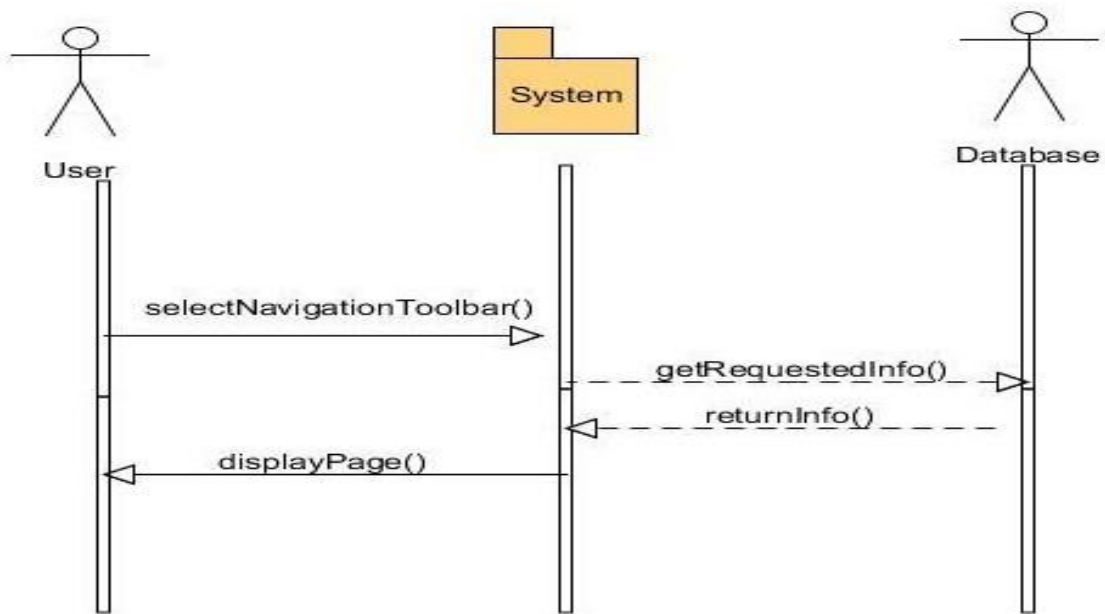
if (res_pwd== false)
    display message retype password
endif

if (res_name== false)
    display message retype name
endif)

if (res_email == false)
    display message retype a valid email
endif

if (res_profile == false)
    display profile is empty msg
endif
}
endif
end Registrations module
```

Test case	Path	Variable Value	Expected result
1	1	first time entry == 1	<ul style="list-style-type: none"> - load registration form - exit
2	2	first time entry == 0 && all check results == 1 && any queries == fail	<ul style="list-style-type: none"> - execute node 4 - generate error msg - exit
3	3	first time entry == 0 && results = true && query == true	<ul style="list-style-type: none"> - execute node 4 - display registration complete message - exit
4	4	first time entry = 0 && all check results = 0	- load registration form
5	5	userID == false	- display error msg
6	6	User ID == true	- go on
7	7	Password == false	- display error msg
8	8	Password == true	- go on
9	9	name == false	- display error msg
10	10	name == true	- go on
13	13	Email == false	- display error msg
14	14	Email == true	- go on



Login Screen:

START

```

clear username textbox
clear password textbox
    
```

INPUT Username

INPUT Password

```

count = 3
    
```

WHILE count is not equal to 0

```

print 'the number of attempts left is' count
    IF username = username in vault file
    
```

AND

```

    IF password = password in vault file
        open index
    else print 'username ort password is invalid'
        count = count -1
    
```

REPEAT until no more counts available

```

    message 'please contact administrator'
    
```

SQL statements:

```

SELECT * FROM customer WHERE Username = "username" AND Password =
"password"
    
```

Justification: The start clears the username and password to allow the user to login to the website. As it progresses, the while loop is used to prevent an automated robot from logging into random accounts. If the password and username is correct they are allowed to the main page, if not then the session will time out.

Validating Email:

```
Function ValidateEmail;  
If local length <1 or >64  
    Output Invalid email  
If domain length <1 or > 255  
    Output invalid email  
If character (0) equal to "." Or character (-1) equal to '.'  
    Output invalid email  
If email contains '..'  
    Output invalid email  
If email contain characters other than (A-Z,a-z,0-9) Output invalid email  
Else email is valid  
end function
```

The reason to validate the mail is to ensure that the user inputs the correct format, so that the details are correctly put in. A key will be sent to the email address to validate, that this is there email, so if they put the wrong email address in they can't access it and therefore won't be able to get the passcode.

Validating Password:

```
Function ValidatePassword  
If length greater or equal to 6  
    Output 'password must be over 6 characters'  
If password not equal to (0-9)  
    Output 'password must contain a number'  
If password not equal to (A-Z)  
    Output 'password must contain a capital letter'  
If password not equal to (a-z)  
    Output 'password must contain a lowercase letter'  
If password is not equal to Confirm password  
    Output 'the password entered doesn't match'  
Else password is valid  
End function
```

Validation of the password is to ensure the user creates a password. To make sure the password is sensible and strong is by making sure the password is over 6 character's long. There must be number in the validation as well as a capital and lowercase letter, increasing the strength of the password. The validation also compares the password to the confirmed password to make sure they are the same. This makes sure the user has entered the correct password therefore if the user has made an error typing in the password it won't be loaded into the database incorrectly.

Hashing Password:

```
Alphabet = ['ABCDEFGHIJKLMNOPQRSTUVWXYZ'] //List of characters to replace password with.
Numbers = [0123456789] //List of numbers to replace password with.
CREATE PROCEDURE hashPassword

    WITH CONNECT ('Accounts.db') AS Database //

    CreateAccount () //Calls this function because this is where the password is initially created.

Submit.onclick() //When the create account form (password) is submitted to the

    FOR I in range 0 to len (Password) //Checks length of password, which is retrieved
    from the create account function.

    N = 0
    WHILE N != len(Password) //Keeps replacing characters until the length of the password is met.

        HashedPassword = Password.ammend (randomchar[alphabet, numbers]) //Replaces characters with
        either letters or numbers.

        N = N+1 //Increments n, repeats until length of password has been

        ELSE BREAK //Ends the loop once fully hashed.

        INSERT INTO Accounts

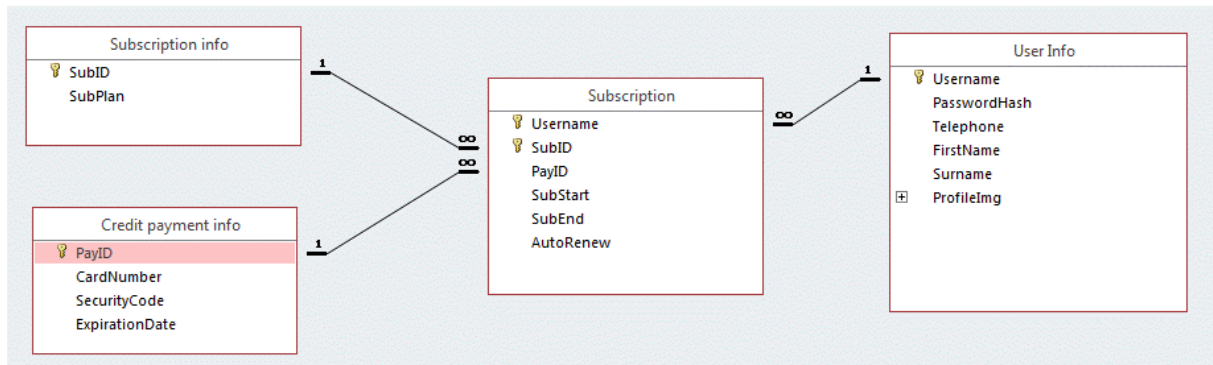
        Values (FirstName, Surname, Mobile, Email, HashedPassword); //Stores
        these values inside the table.
    END Procedure


CREATE Procedure loginWithHashedPassword()
Login () //Allows the user to login with their plaintext password.
HashPassword (Password) //Hashes the input in order to see if they match.
```


Data Requirements:


Variable name	Function	Data type	Reason
\$isValid	To determine if email entered by user is valid	Boolean	As email entered is either valid(true) or not valid(false)
\$atIndex	As a form of validation to make sure the email entered has an @ in	String	To locate position of @ sign.
\$domain	To do a length check on the domain of the email.	String	To assign the whole email to a variable
\$local	To assign the part of the email before the @ sign to a variable.	string	To help validate the first part of the email
\$localLen	Counts the number of characters in the local part of the email	string	To validate the length of the \$localLen
\$domainLen	Counts the number of characters in the domain	string	To validate the length of the domain
\$password	Assigning the users	string	To allow for validation

	input for password to a variable.		to the password.
\$password	Assigning the users input for confirm password to a variable	String	To allow for validation of the password.
\$passwordErr	To output a message when validation of password isn't met	string	If there is an error then it outputs a message.
\$confirmpErr	To output a message when confirmed password is check against password	String	To output an error when confirm password doesn't match password
\$nameErr	To check if the field "name" is filled	string	To make sure there is a present value
\$name	Assigns the input to the field "name"	string	To assign a value to the variable name
\$surnameErr	To check if the field "surname" is filled	string	To make sure there is a present value
\$surname	Assigns the input to the field "surname"	string	To assign a value to the variable name
\$data		string	



UserInfo	
Field	Data Type
UsernameID 	int (6)
Surname	varchar (25)
First Name	varchar (20)
Telephone	Varchar(13)
Profileimg	

Subscription	
Field	Data Type
Username	Int(6)
SubID	Int(15)
PayID	Int(15)
SubStart	Date/time
SubEnd	Date/time

CreditPaymentInfo	
Field	Data Type
PayID 	int (10)
CardNumber	Int(16)
SecurityCode	Int(3)
ExpirationDate	Date/time

Approach to testing:

To test my solution, I will be using white box testing (where I test the internal structure of the website) and black box testing (where I only test the inputs and outputs).

Test strategy	White box testing
Purpose	This test strategy is a form of structural testing. The testing is dependent on the code logic, and assesses the program structure rather than the program function. The program will be analysed, and tests will be devised to test every possible pathway at least once. In simple terms this tests that each part of the code itself functions as intended.
Who performs the test	Developer
Test data set	All possible inputs. Outputs to each input will be recorded.
Test criteria	The output should be as intended by the programmer (me) for each input
When to test	White box testing will be included in nearly all testing phases
Estimated time required	Individual inputs can be tested in less than a minute. Depending on stage of development, full white box testing and documentation of results for whole program could be more than 1 hour

Test outcome	Outcome data will be compared to intended outcome for each coding path, the results will be used to guide any alterations and improvements to each code that are required to ensure that each code pathway leads to the required outcome
--------------	--

Task 2 Developing the System Prototype

From the examination of the sources and assets gathered, I have considered my options.

As the user requirements are clear and, due to legal and ethical implications of using the identified assets, all of the images are to be sourced from free imaging providers or providers that allow use for non-commercial: "License: Non-commercial Use". Some of these providers require you to set up an account to download the images and some ask you to reference the source of the image.

Care was taken when selecting the images to use due to the legal and ethical implications of the assets.



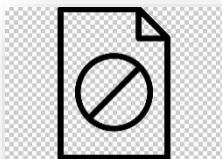
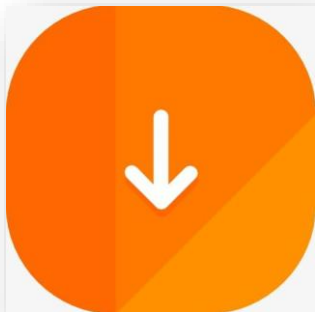
Great care was taken when selecting the external links to the health and fitness and food external links. All of the recipes were from a reputable source and promoted healthy eating and most identified the nutritional value of the meal. They were easy to follow with clear images of the prepared dishes.

The health and exercise video and information links were sponsored medical and personal trainers and supply website help and guidance as the customers will be using these videos unsupervised by health and medical experts. All of the links hosted fitness videos of a very professional quality and level. From the research of possible code snippets, the only code that I am going to modify is "chat room and blog example code" by using bootstrap which is excellent for events and layouts.

Legal and ethical consideration are important during the development of this artefact. The dilemma can be displaying people who may be overweight which reinforces that overweight means unhappy, eating lots of food and no exercise. And while this may be true to some extent, the different ways people view overweight is shocking, and this is most prevalent in the way the media portrays celebrities. Even that thin is therefore healthy. So, it is important that ethical and moral issues are thought of before selecting the images and videos.

There is a close relationship between law and ethics but not everything that is legal is ethical. Frequently law ... attempts only to set the minimum acceptable standard. The aspirations of ethical practice are higher ... It can never be appropriate to defend proposed practice solely on the basis that it is legal

Assets selected and rational:

Image	Source	Rational
	https://www.freepik.com/free-icon/search_788138.htm	Users see this search image more than the other option and it is also uses less colours.
	https://icons8.com/icons/set/settings	Will use the traditional settings icon as all users know what it is.
	https://imgbin.com/png/wfLgfRPc/computer-icons-mobile-phones-png	This is my option for "no access to member's area". Users may find the other option confusing and it has too many colours.
	https://imgbin.com/png/lm6mwH7T/a-logo-png	Decided to use this icon as it's free for non-commercial use as the other option needs an extended license. It also stands out.
	https://www.flaticon.com/free-icon/facebook-logo-button_69407	Used this social media logo as users will be able to identify it quickly.