T·LEVELS

Exemplification Materials

Technical Qualification in Digital Production, Design and Development

Occupational Specialism: Digital Production, Design and Development

Project 1

Pearson

Contents

Task 1 – example student response

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 website and apps that 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
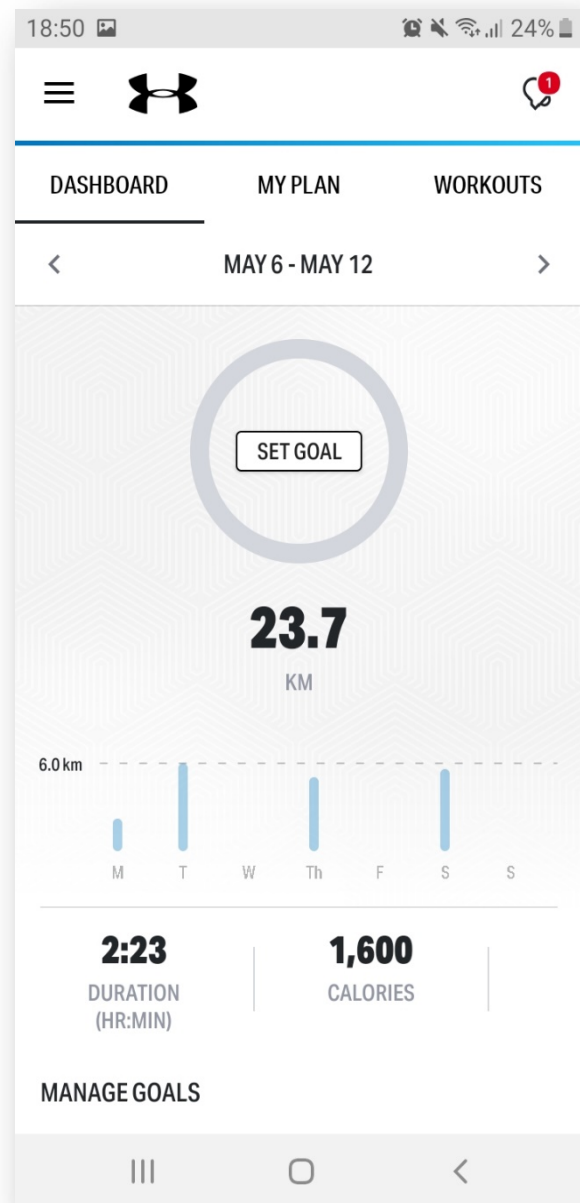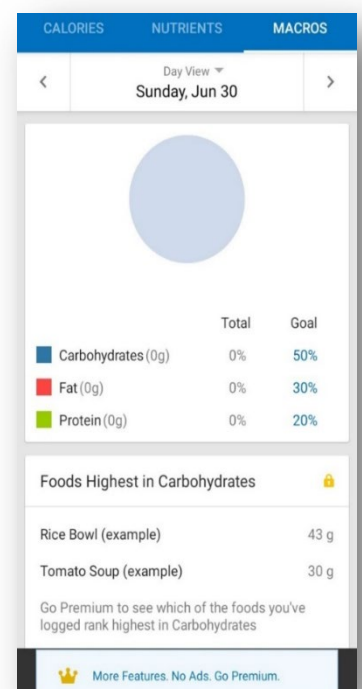
limited to either running or cycling only, so do not provide the facilities for users to log all the types of workout they complete or allow users to see progress comparisons between cardio improvements and strength improvements. The client would like it to be convenient for users to track all types 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 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 applications include those that 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 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 applications also have premium features only accessible to those who pay, usually the features that 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 screenshots of 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 that 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 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.

myfitnesspal

Log In | Sign Up

ABOUT   FOOD   EXERCISE   APPS   COMMUNITY   BLOG   SHOP   PREMIUM

Lose Weight with MyFitnessPal.com — for FREE!

Losing weight isn't easy - we know. But with a membership to MyFitnessPal.com, you'll get the tools you need to successfully take weight off - and keep it off. And best of all, you can signup for free, no strings attached. So put away your credit card - you'll never have to pay a cent.

Study after study has confirmed the benefits of keeping track of the food you eat and the activity you do. It's simple - the more consistently you track your food intake, the more likely you are to lose weight. That's why every successful weight management program suggests that you keep a food diary and/or an activity log. But recording everything you eat without the right tools can be tedious at best, or simply impossible at worst.

At MyFitnessPal.com, we focus on making sure you can log your meals as quickly and easily as possible. Because the easier we make it for you, the more likely you are to stay on track, and the more likely you are to succeed in your weight loss goals.

How does it work?

The reason our system is so easy to use is because **it learns from you!** All of us tend to eat the same foods over time. **MyFitnessPal.com** remembers what you've eaten and done most often in the past, and makes it easy for you to add those foods again to your log.

So the more you track your meals, the easier it becomes!

With a FREE membership you get:

Member Login

Log in with Facebook

or

Username:

Password:

☑ Remember me next time

Log In

Forgot password or username?
Not a member yet? Sign up now!

FITOCRACY COACHING

Home   Coaching   Our Story

FITOCRACY COACHING

How it Works   Pick a Coach

Get in the Best Shape of Your Life

Fitocracy gives you a private coach to help you reach any fitness goal.
All for an incredibly affordable price.

Get a Recommendation

Mashable Top Innovation Winner   **Men's Health** Top Fitness Apps 2014

How Does Fitocracy Help Me?

GET YOUR VERY OWN PERSONAL TRAINER THAT PROVIDES EVERYTHING YOU NEED TO GET IN THE BEST SHAPE OF YOUR LIFE.

FITNESS ASSESSMENT   NUTRITIONAL SUCCESS   Need Help Finding a Coach?

This website was particularly impressive, you can sign up for free, and it provides you with workout programmes and personal trainers you can select depending on what your goals are. Found it easy to navigate, you can also view other members' progress and what problems they have encountered on a live feed. Once you have selected you to workout 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 five components that 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 does the user recover 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 a 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. An analogy is the idea that if you met someone and they made you feel like an idiot, you wouldn't hang around with them anymore.

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. One 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, subheadings, 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 easy 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 . 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 users access 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
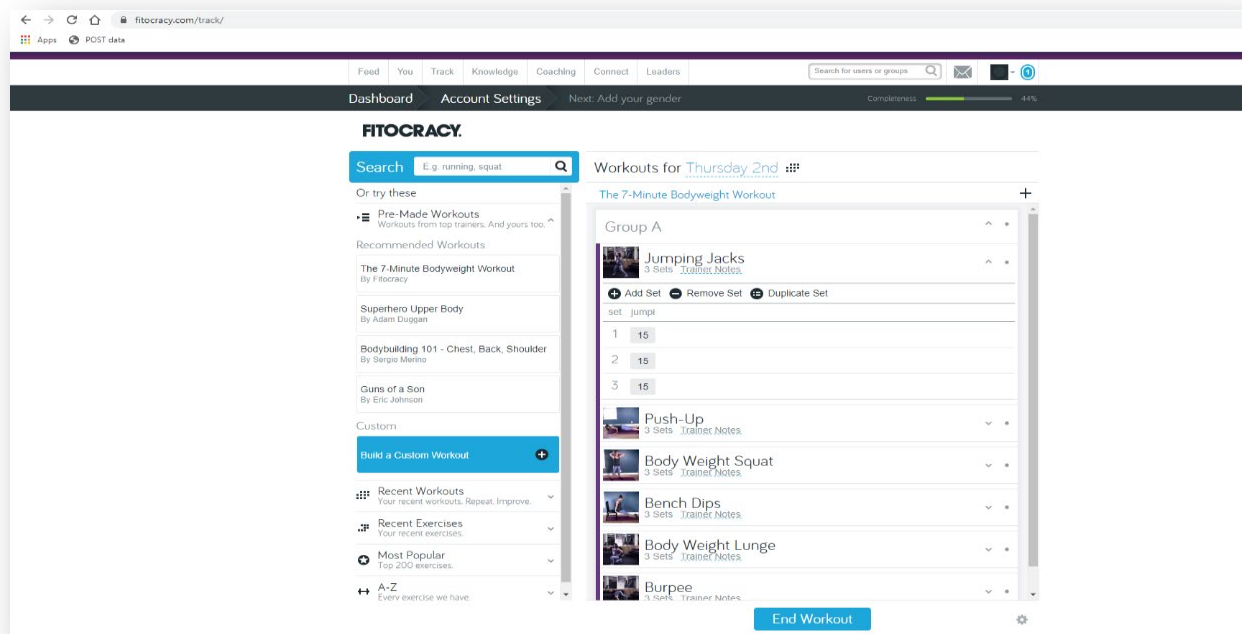
reading on paper, and to the nature of user driven medium where the user feels the need to click on to new things.

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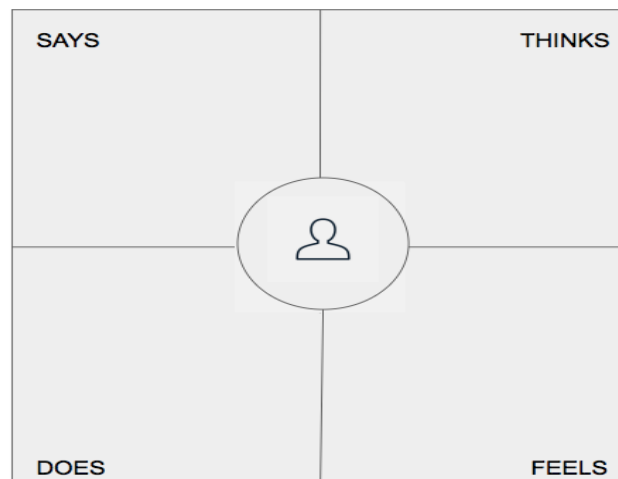
Empathy mapping is an efficient tool used to understand user behaviours, but also to help to communicate the findings visually.

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. By using empathy mapping to help visualise all these findings, it presented the data gathered about users during the research phase in a condensed, easily digestible format.

The information was gathered from interviews, product reviews, surveys, and then sorted into the four sections of the map. So, research conducted look at the following areas:

- Who is the ideal customer?
- What are the current behaviour patterns of my users?
- What are the needs and goals of 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 to 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 overactive 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 bored 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 many calories burnt, how much time to run to improve stamina.
- No simple helpful application.

For those who log and track their progress regularly, 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.

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- Allows them to be more efficient in 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 a 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's specific requirements are that the proposed solution:

- Must have a membership system that allows the user to access extra content.
- Must allow clients 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 to display free videos).
- Could add advertisements to monetise the free content without making the user pay.

The system was split into sub systems that interact among each other or with the user. The interaction between the various components will be elaborated on in later sections. The system can be seen to have six components that work in unison to produce the results that 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.
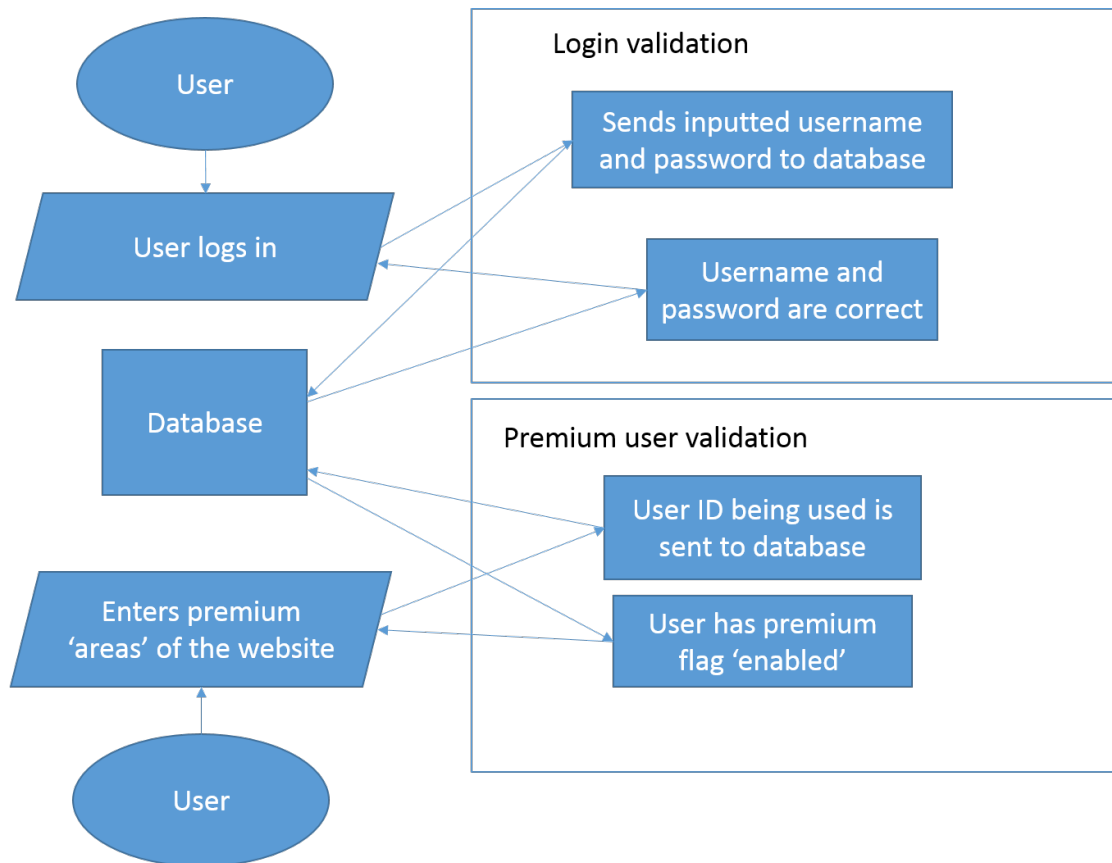
The website can be accessed via a mobile device or a desktop computer and will have the following functionality.

Non-functional requirement is used to specify the criteria forsystem operation, which should be in 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 an acronym for functionality, usability, reliability, performance and supportability, which is founded at Hewlett-Packard and elaborated by Grady and Caswell.

 Usability is used to determine the ease of using and learning for human-made objects. 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 the 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 in previous periods in their account

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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 a failure is encountered, the system should have the ability to figure it out, send it to the programmer and then reset giving a reasonable explanation to t users. Performance is closely related to how fast our system can perform. As the user is training, they may want to know calories burnt

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. In terms of several independent parts, people can find the main problem more quickly and rewrite the part 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 Fitness 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 utilisation
- 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
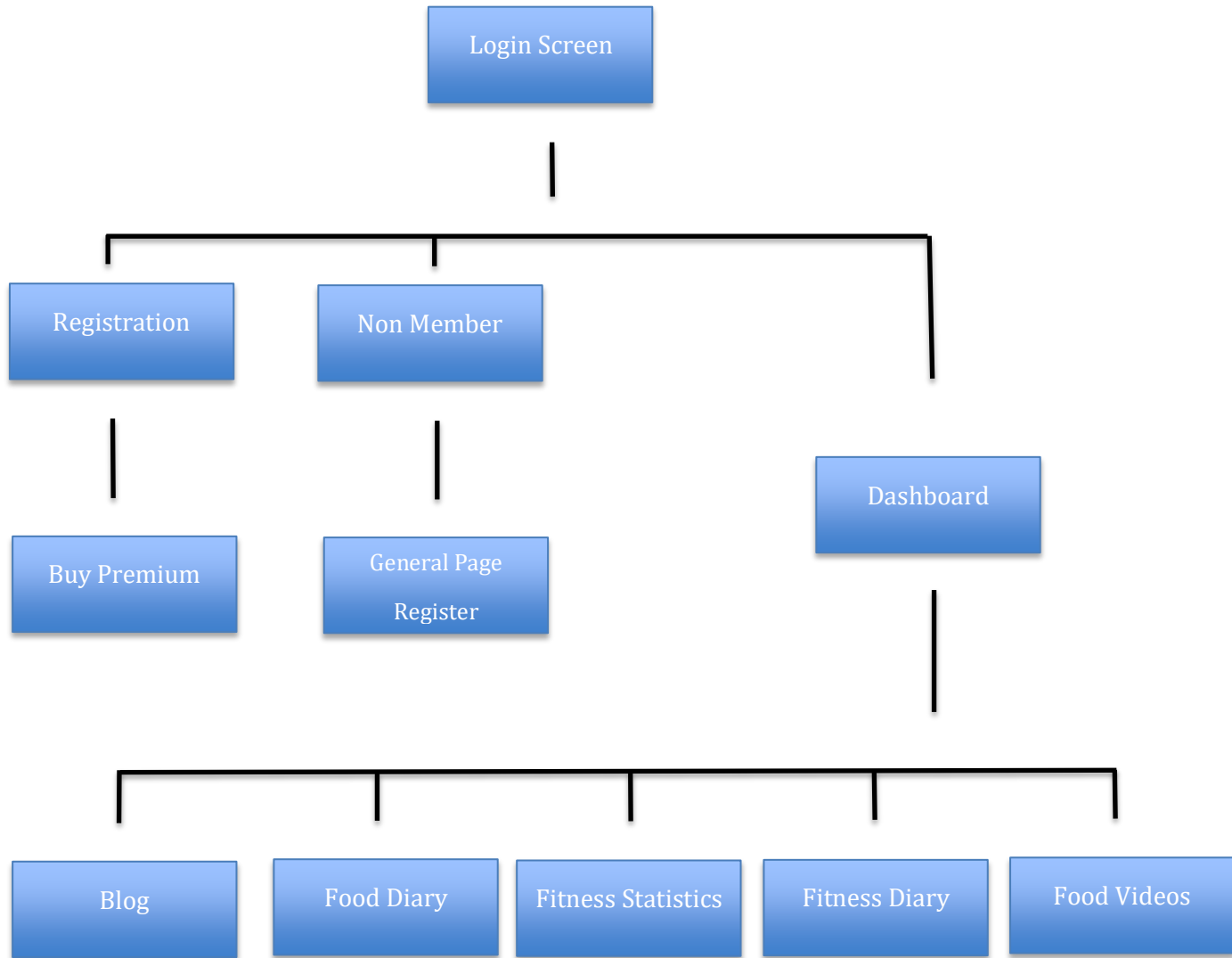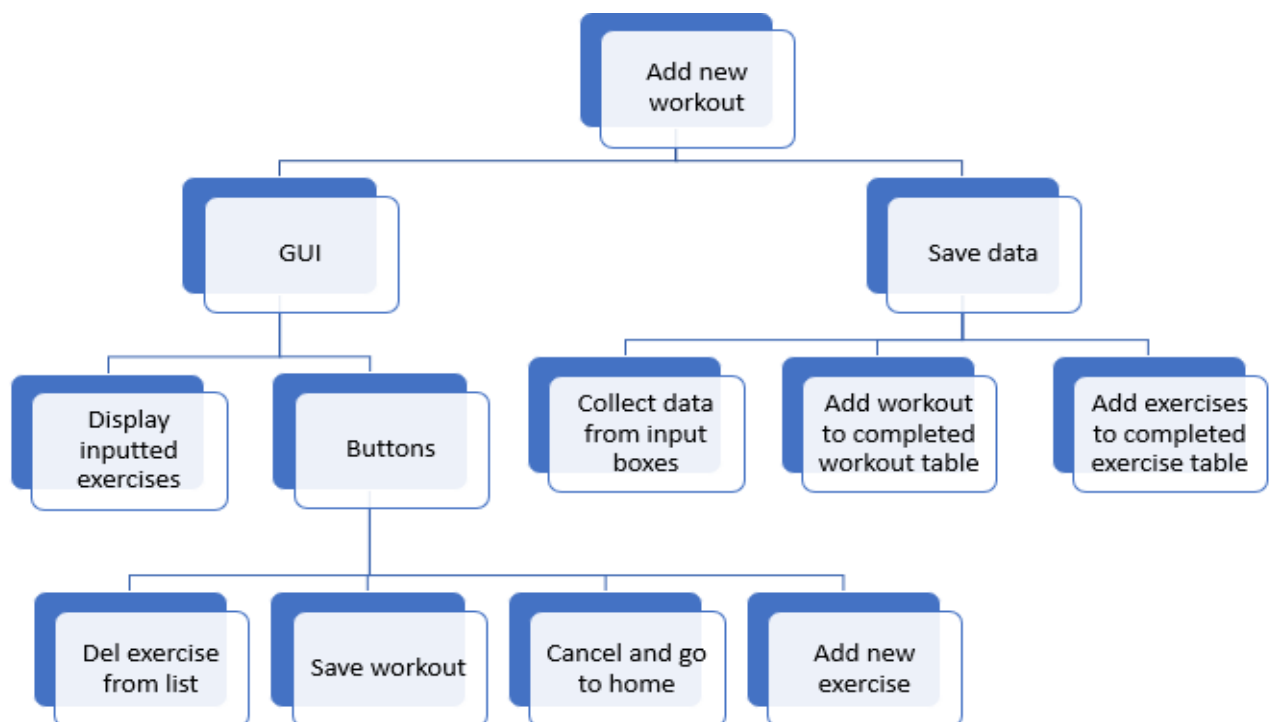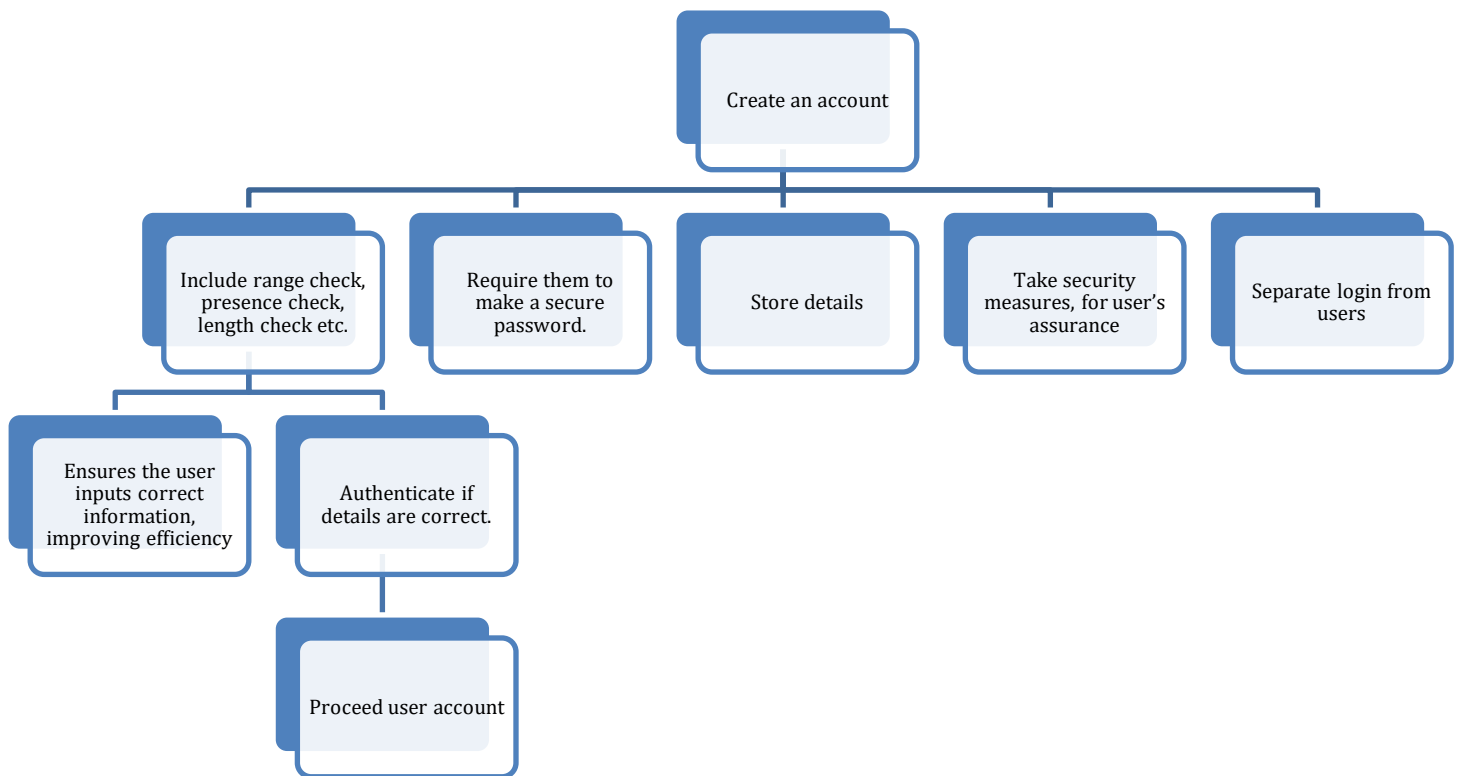
- usability.

Link to:

- fitness training videos

- recipe videos

- social media

- chat facility

- blog/forums

- help files on website use
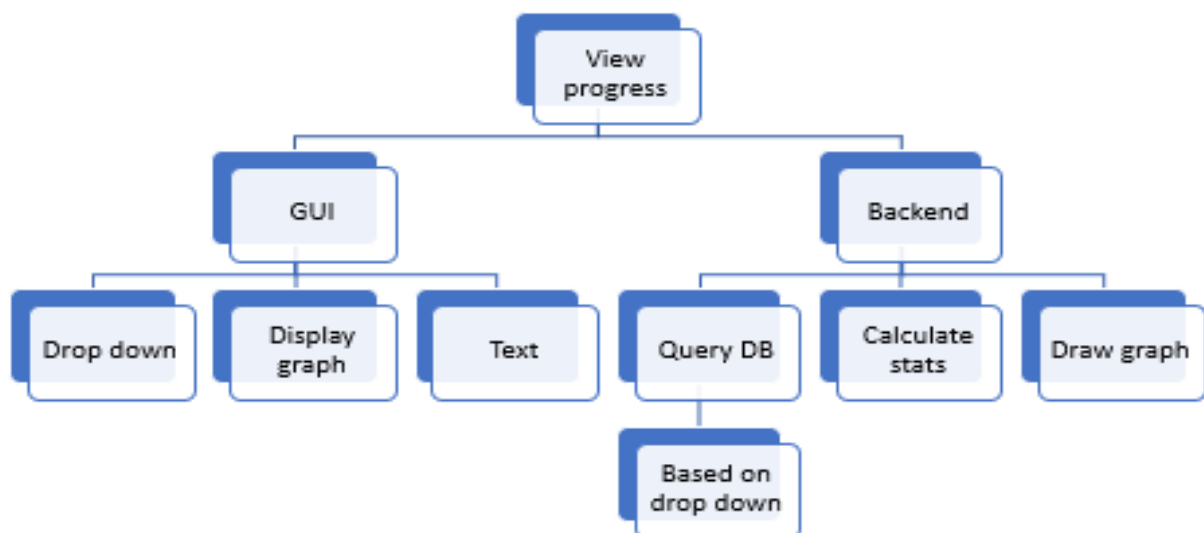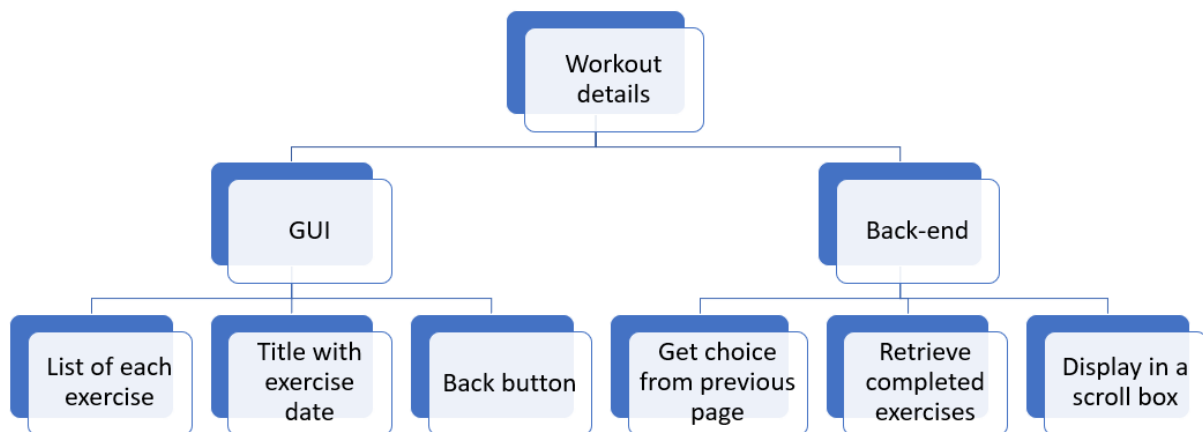
- facility to record personal food notes.

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

```
                        ┌──────────────┐
                        │ Login Screen │
                        └──────┬───────┘
                               │
        ┌──────────────────────┼──────────────────────────────┐
        │                      │                               │
┌───────────────┐      ┌───────────────┐              ┌───────────────┐
│ Registration  │      │  Non Member   │              │   Dashboard   │
└───────┬───────┘      └───────┬───────┘              └───────┬───────┘
        │                      │                              │
┌───────────────┐      ┌───────────────┐                      │
│ Buy Premium   │      │ General Page  │                      │
│               │      │   Register    │                      │
└───────────────┘      └───────────────┘                      │
```

Dashboard children:

Blog | Food Diary | Fitness Statistics | Fitness Diary | Food Videos

Create an account

- Include range check, presence check, length check etc.
  - Ensures the user inputs correct information, improving efficiency
  - Authenticate if details are correct.
    - Proceed user account
- Require them to make a secure password.
- Store details
- Take security measures, for user's assurance
- Separate login from users

Add new workout

- GUI
  - Display inputted exercises
  - Buttons
    - Del exercise from list
    - Save workout
    - Cancel and go to home
    - Add new exercise
- Save data
  - Collect data from input boxes
  - Add workout to completed workout table
  - Add exercises to completed exercise table

Workout details

- **GUI**
  - List of each exercise
  - Title with exercise date
  - Back button
- **Back-end**
  - Get choice from previous page
  - Retrieve completed exercises
  - Display in a scroll box

View progress

- **GUI**
  - Drop down
  - Display graph
  - Text
- **Backend**
  - Query DB
    - Based on drop down
  - Calculate stats
  - Draw graph

My proposed solution should provide ToKa Fitness with a professional and easy to use system that promotes their business and encourages 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

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 white space with relatively small amounts of screen taken up by clickable options, a 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 the 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 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 the 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 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: • 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: • 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. • Log out 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 customer 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 members' privacy and security of user data and 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 unauthorised access to the database.

Since there's a lot of spam and frauds, the artifact will include an email verification service that identifies any issues and possible problems. Built into the validation should be script to prevent the wrong format but this can't prevent misspelled email addresses. The service checks your mailing list for spam traps – email addresses that 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 their personal ranking.

2. Users cannot reply to others in the forum. They can only make new comments.

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 the 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

- customer section for paid content to access 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 users easily understand patterns.

The target user group is adults, male and females. Due to the 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 have 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 and 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 customise 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 who has booked the session and will allow the user to access the videos they have paid for on any device as cookies cannot transfer on all the devices the person has.
2	Users are able to log in to their own profile	HIGH	Important that the user can view their own profile details.
3	Users can view the dashboard	HIGH	This will allow the tutor to upload their timetable so that students can choose which slot they want without waiting for the tutor to confirm if they are 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, which 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 sure that the client has all the details for signing up.
9	New system should have a blog or forum	MEDIUM	This will allow the user to raise questions and communicate with others gym members.
10	Historical data to show trends	MEDIUM	Important to generate a 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 that 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 it
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.

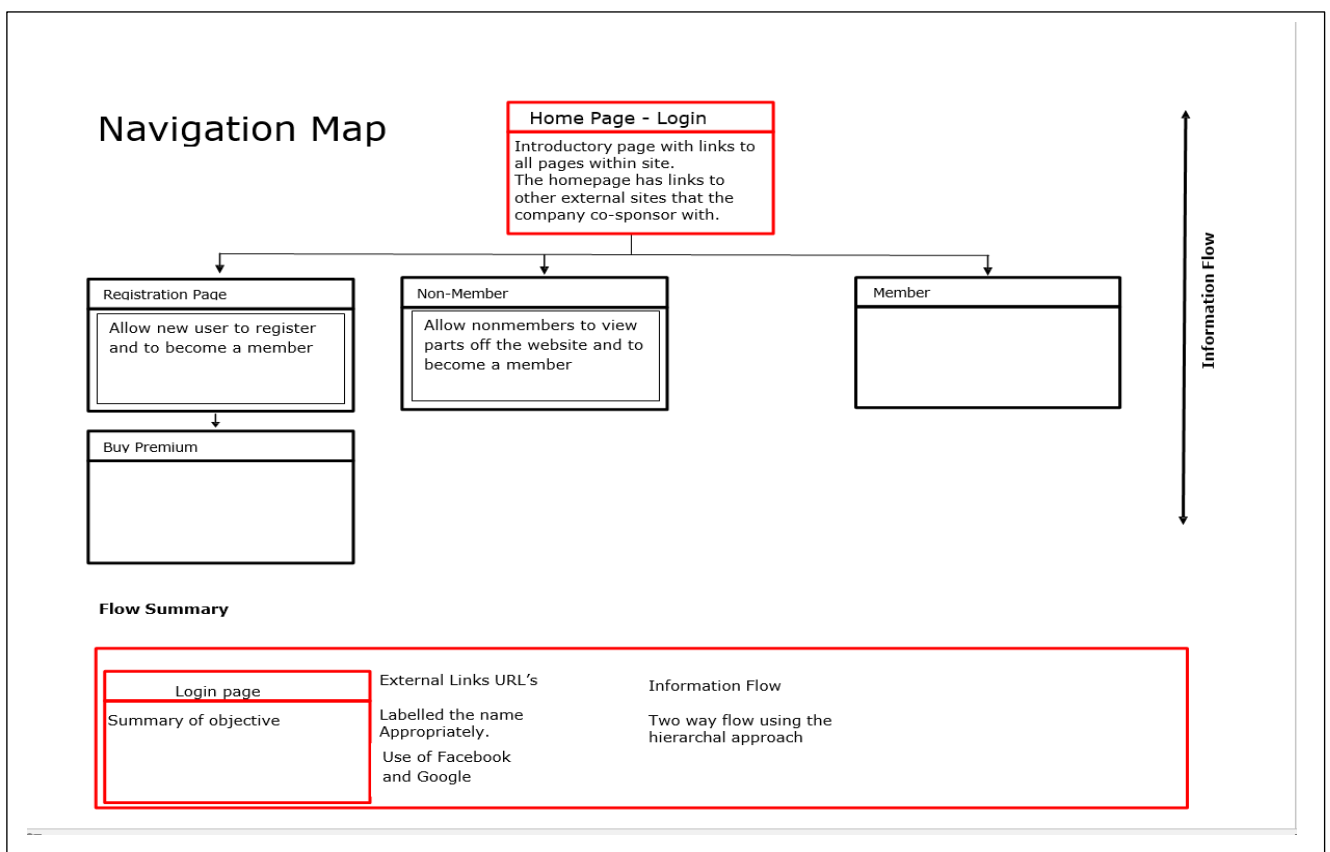**Task 1 Activity B the designs**

Visual/interface designs

Login page

Welcome Back

Image 1
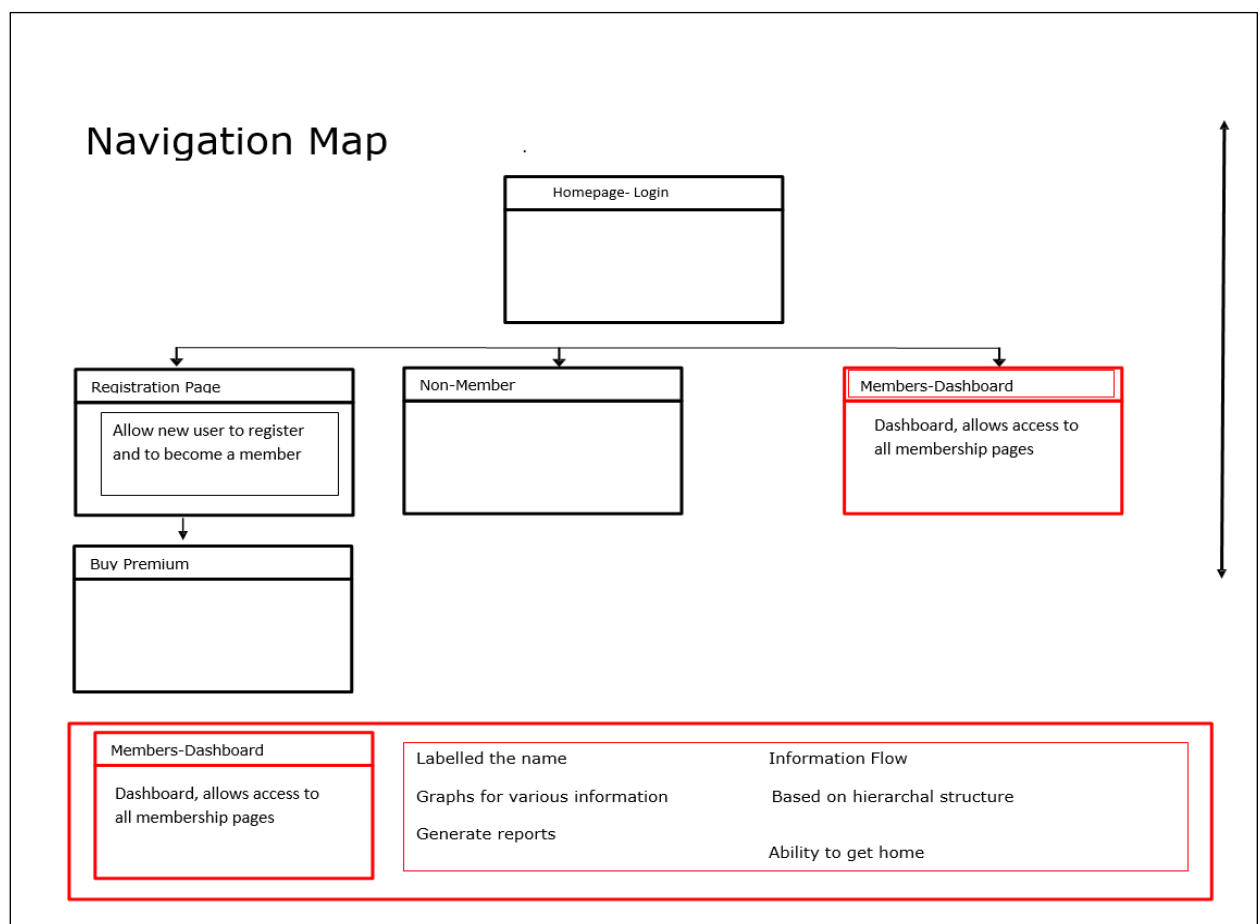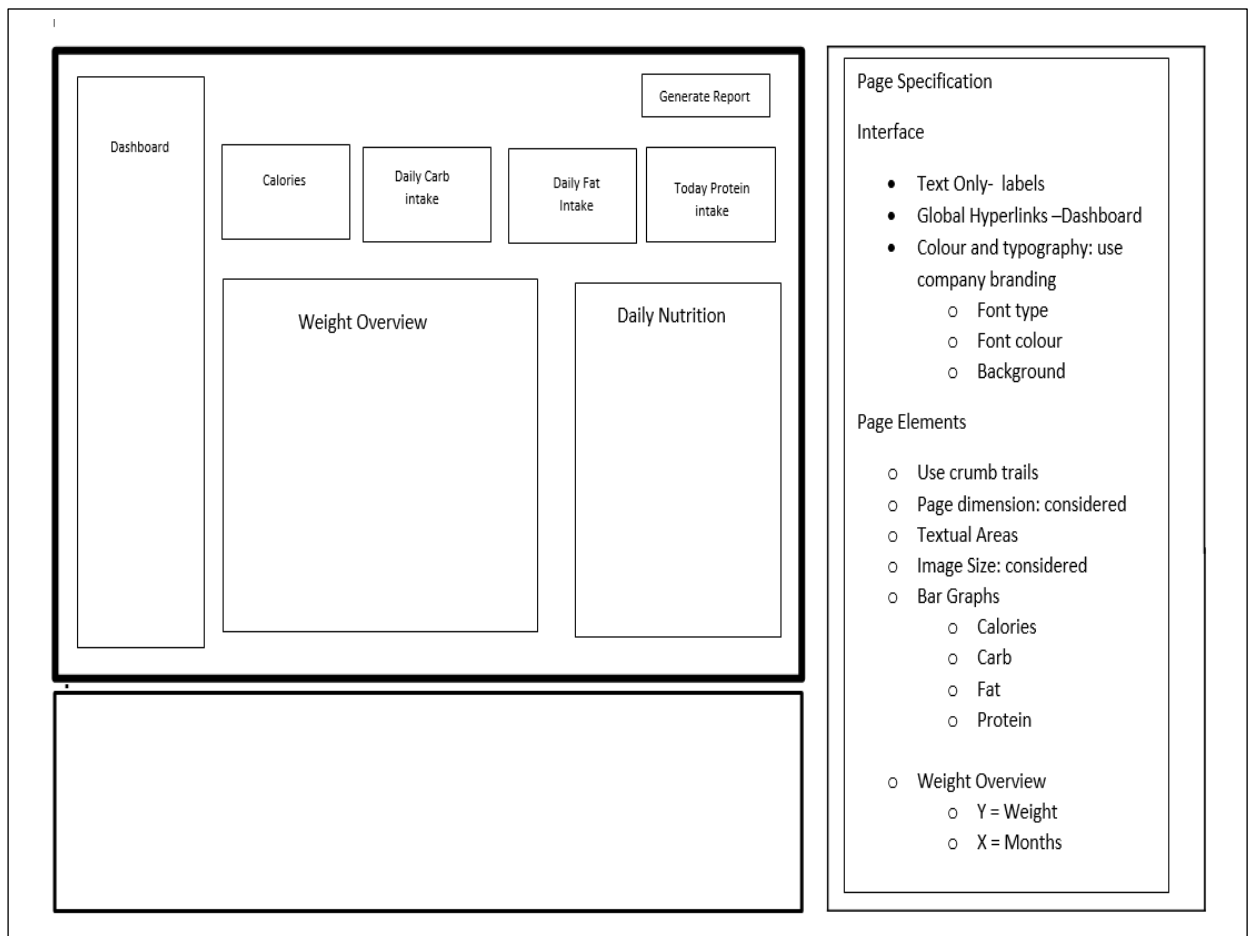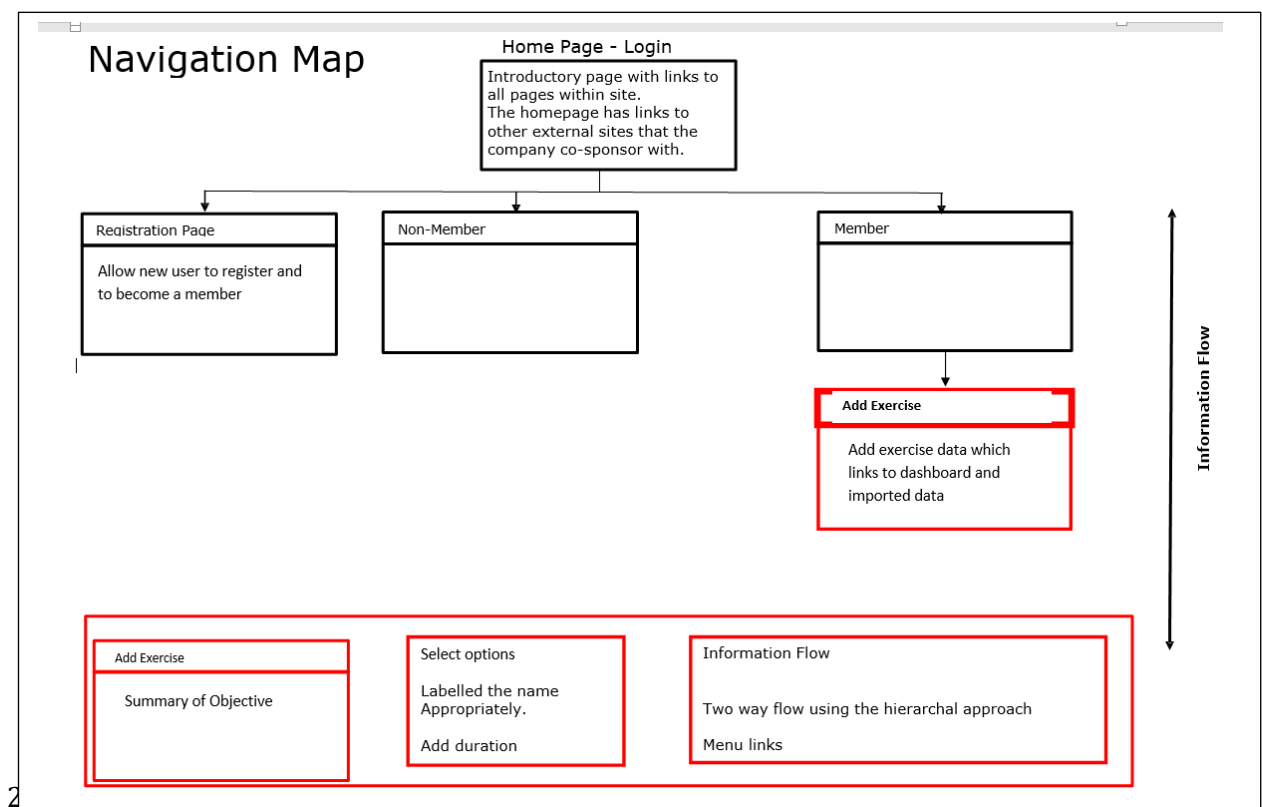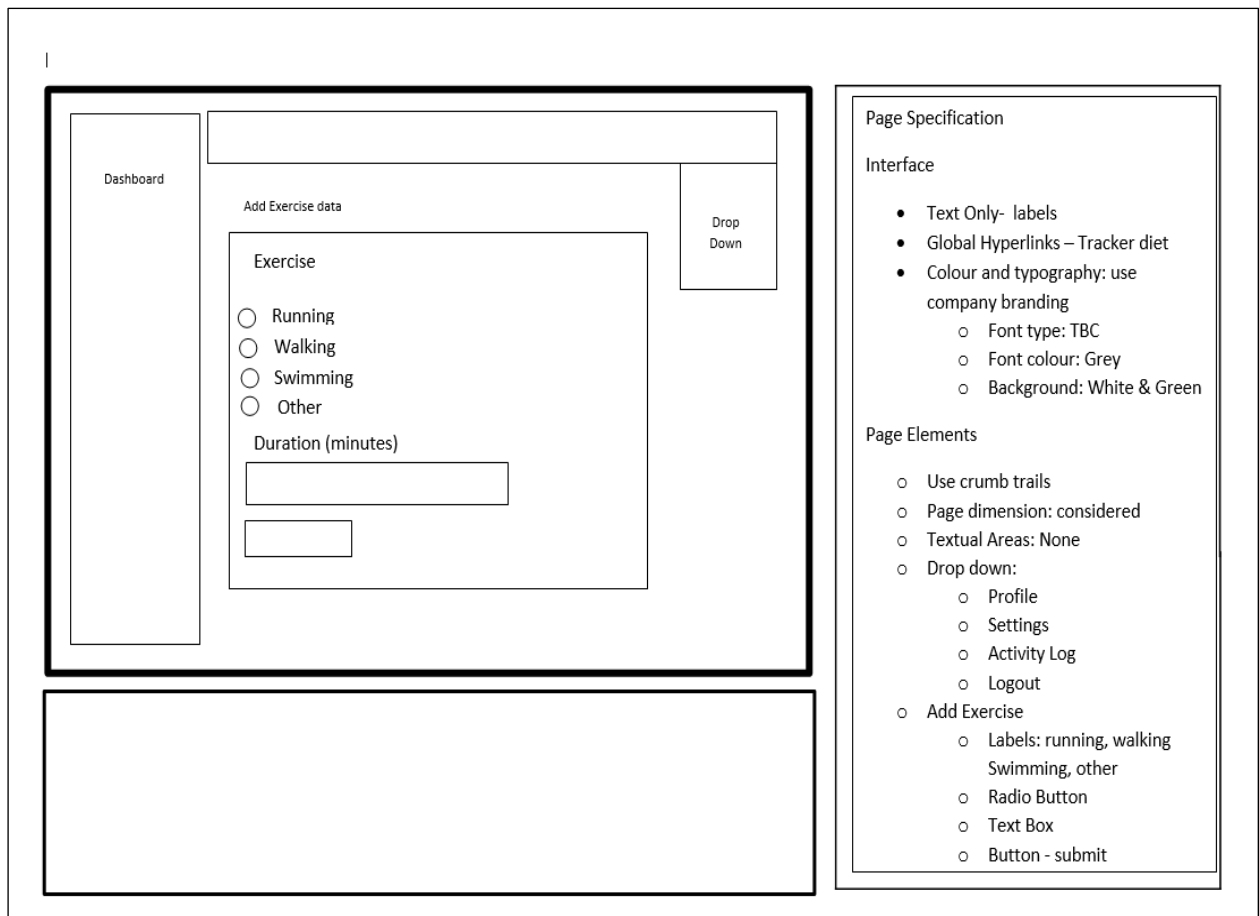
Remember Me

Page Specification

Interface

- Text Only- labels
- Global Hyperlinks – Google and Facebook for sign in
- Colour and typography: use company branding
  o Font type
  o Font colour
  o Background

Page Elements

  o Use crumb trails
  o Page dimension: considered
  o Textual Areas
  o Image Size
  o Text boxes:
    o Username
    o Password
  o Buttons:
    o Login
    o Google
    o Facebook

Navigation Map

Home Page - Login

Introductory page with links to all pages within site.
The homepage has links to other external sites that the company co-sponsor with.

Registration Page

Allow new user to register and to become a member

Non-Member

Allow nonmembers to view parts off the website and to become a member

Member

Buy Premium

Information Flow

Flow Summary

Login 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

Dashboard

Generate Report

Calories

Daily Carb intake

Daily Fat Intake

Today Protein intake

Weight Overview

Daily Nutrition

Page Specification

Interface

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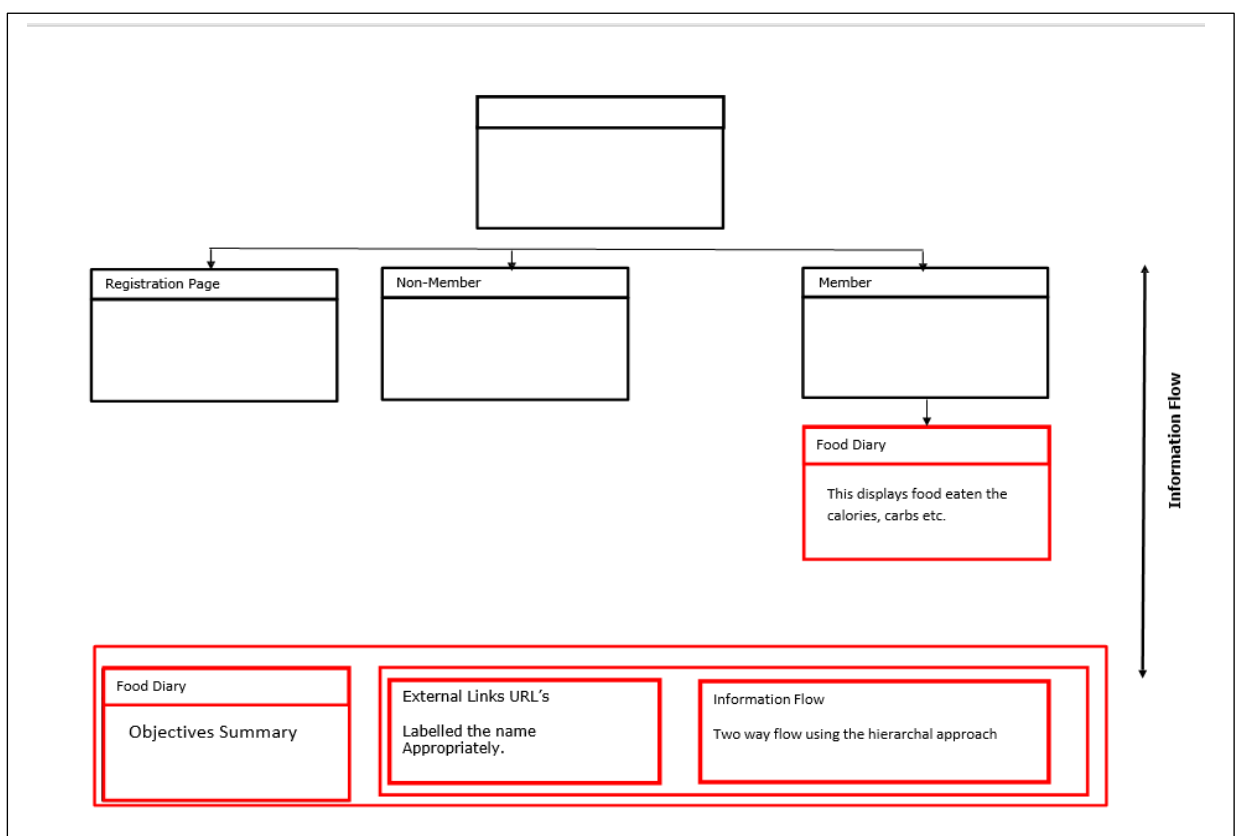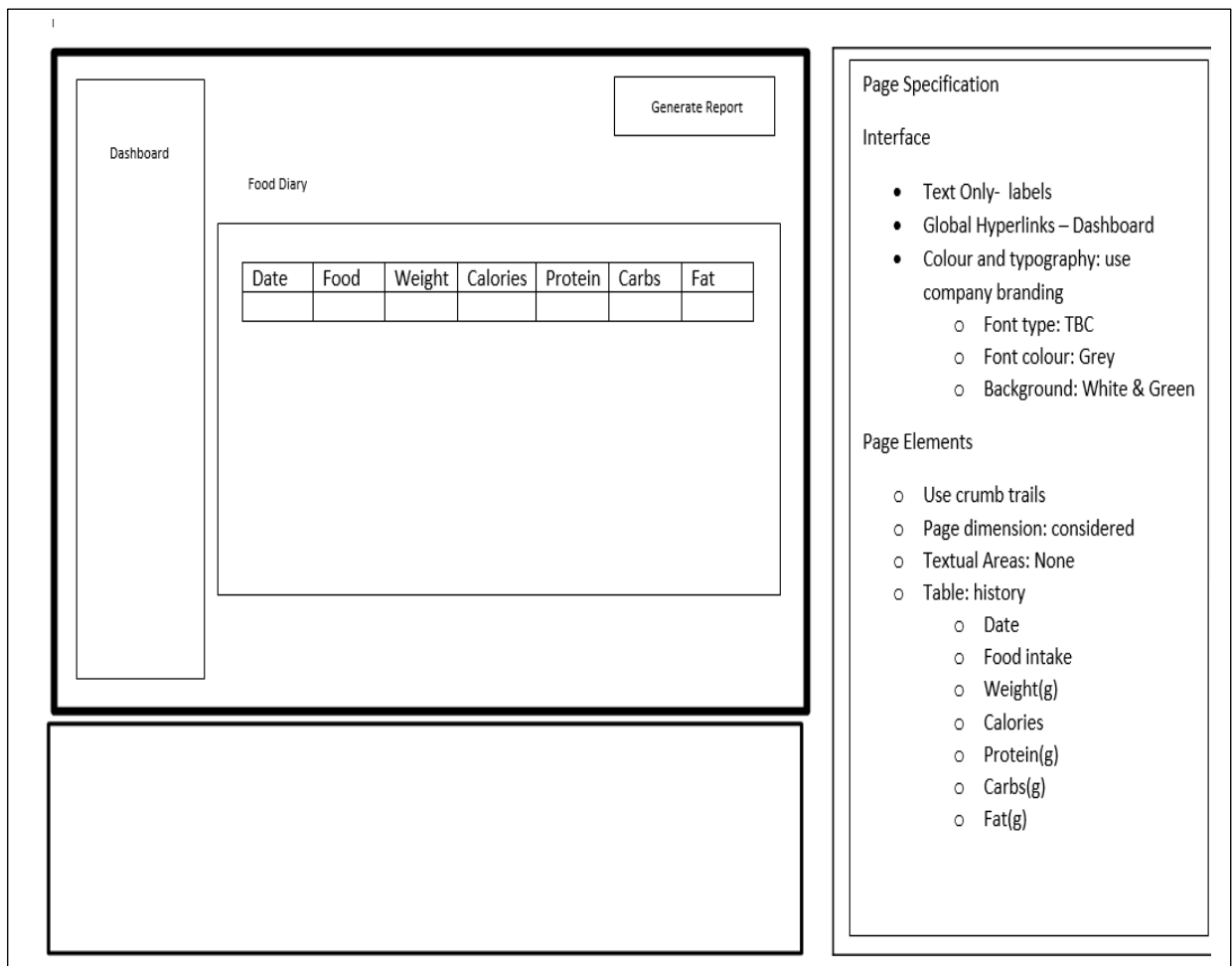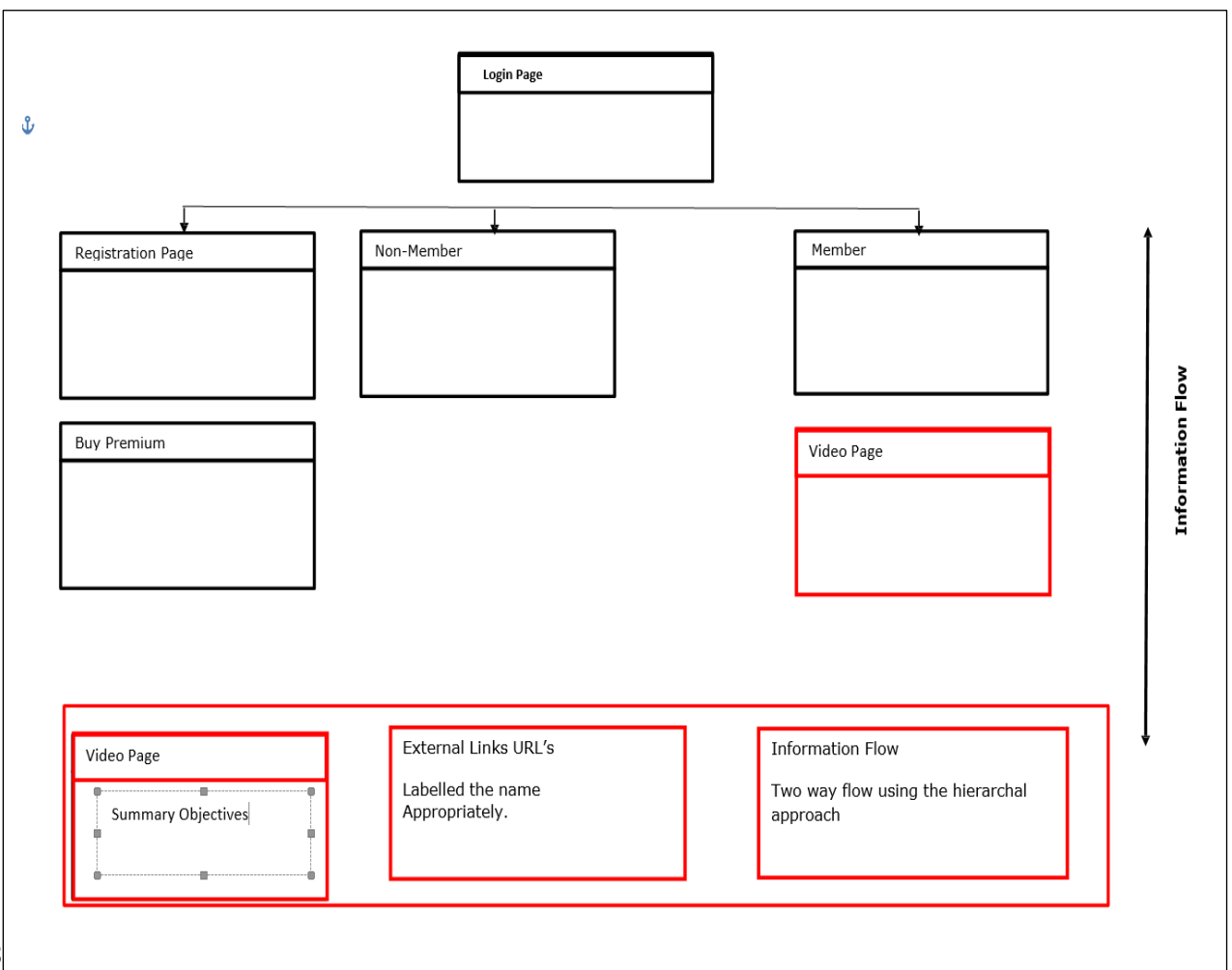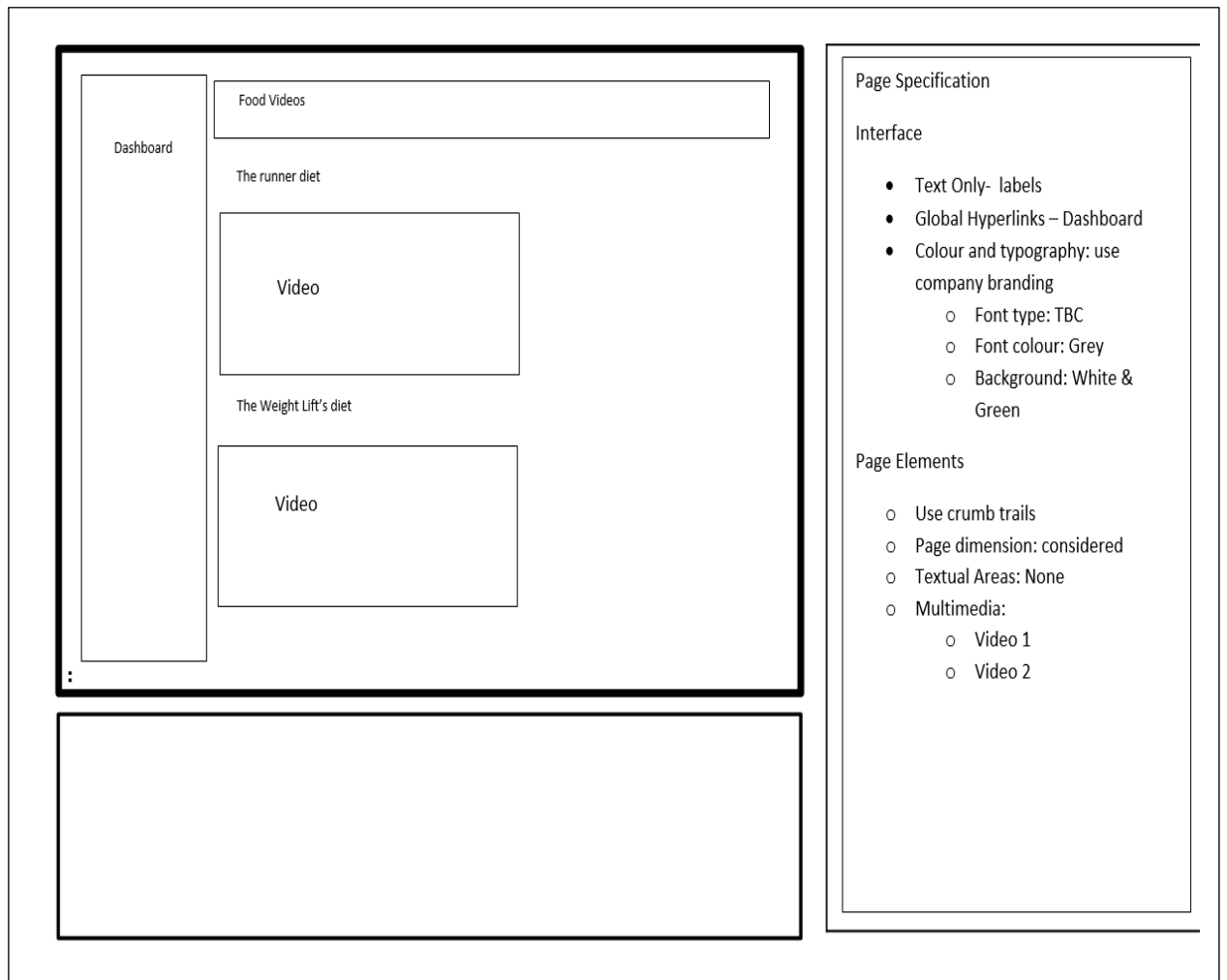 - Font colour
  - Background

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

Navigation Map

Homepage- Login

Registration Page

Allow new user to register and to become a member

Non-Member

Members-Dashboard

Dashboard, allows access to all membership pages

Buy Premium

Members-Dashboard

Dashboard, allows access to all membership pages

Labelled the name

Graphs for various information

Generate reports

Information Flow

Based on hierarchal structure

Ability to get home

First diagram (wireframe)

Dashboard

Add Exercise data
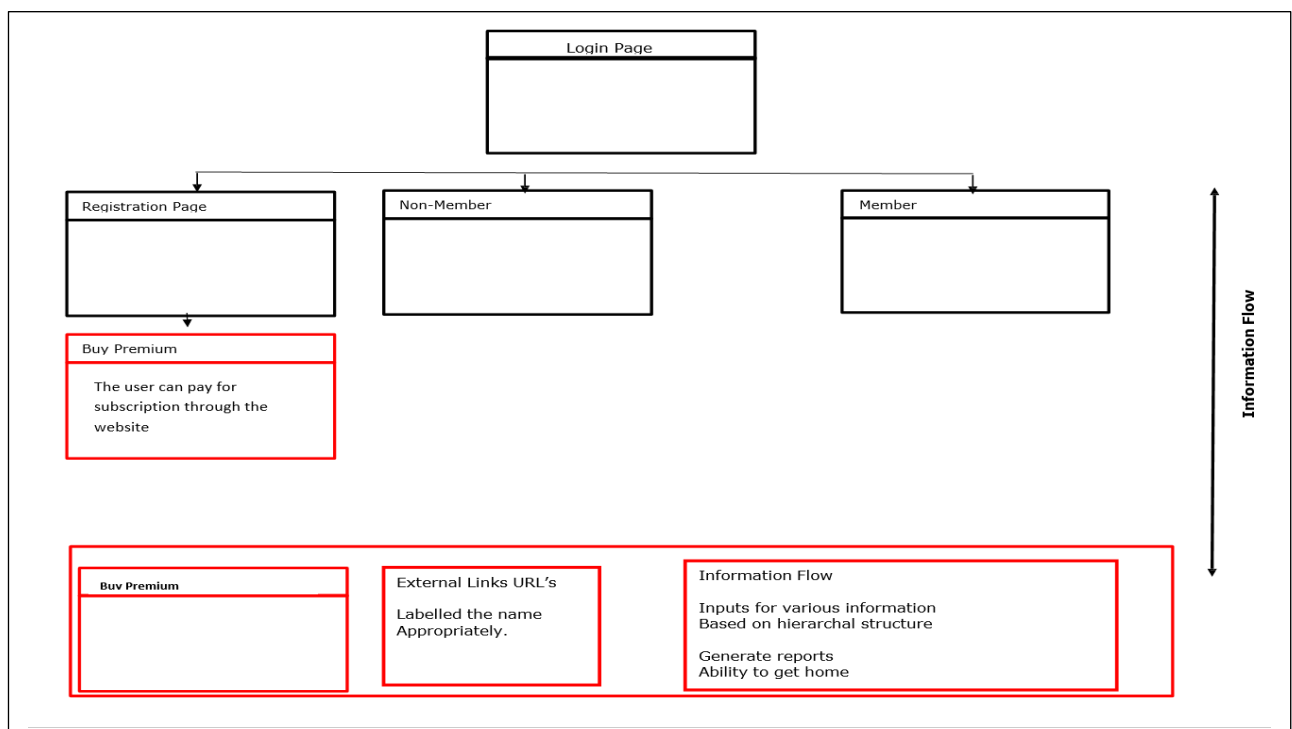
Exercise

- ◯ 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

Navigation Map

Home Page - Login
Introductory page with links to all pages within site.
The homepage has links to other external sites that the company co-sponsor with.

Registration Page
Allow new user to register and to become a member

Non-Member

Member

Add Exercise
Add exercise data which links to dashboard and imported data

Information Flow

Add Exercise
Summary of Objective

Select options
Labelled the name Appropriately.

Add duration

Information Flow
Two way flow using the hierarchal approach

Menu links

Diagram 1

Dashboard

Generate Report

Food Diary

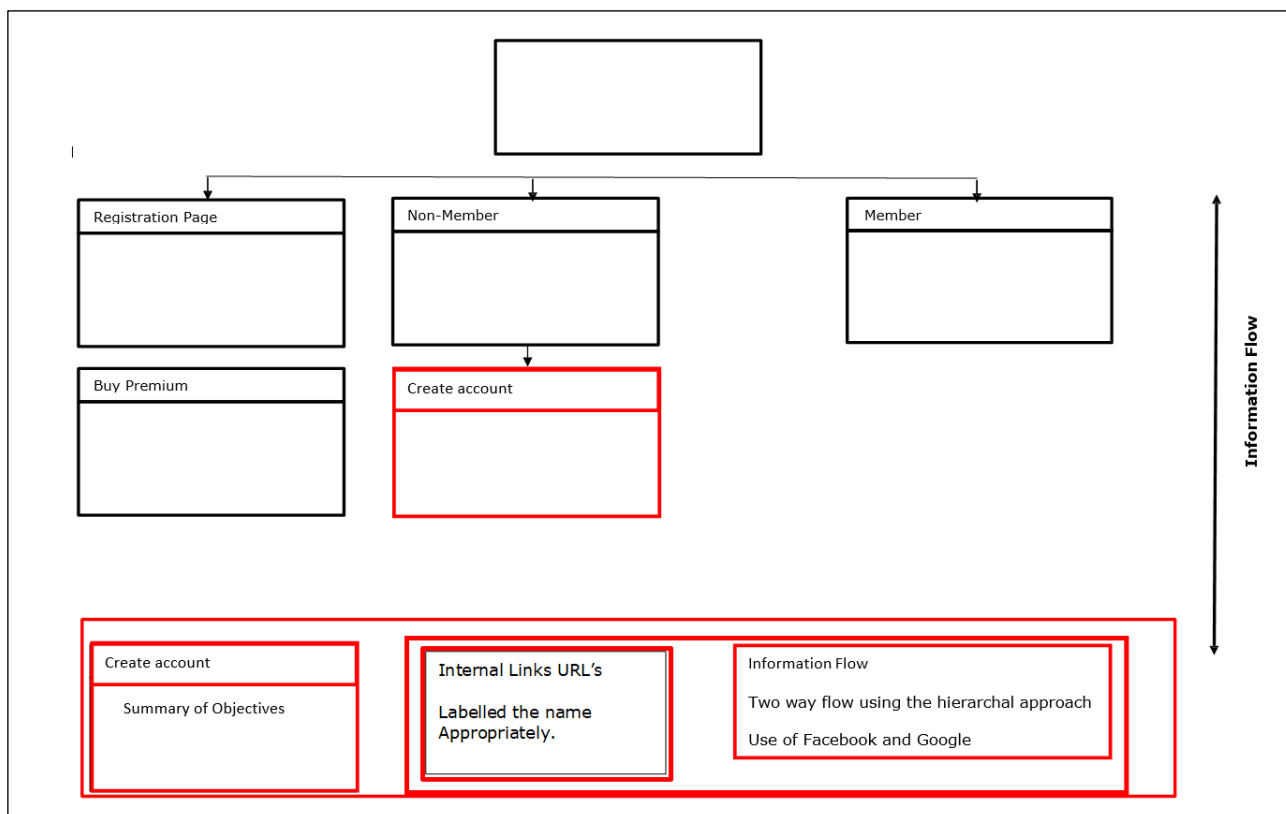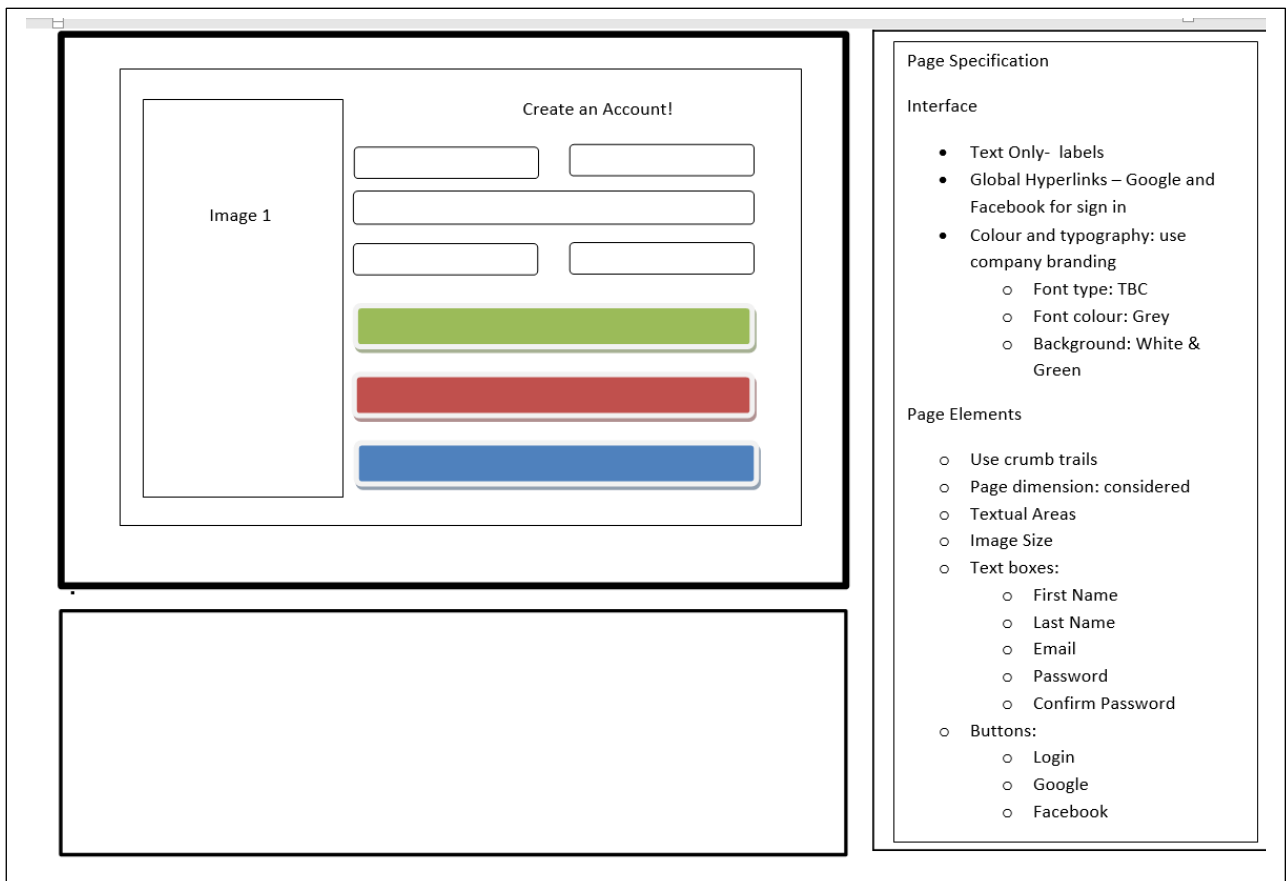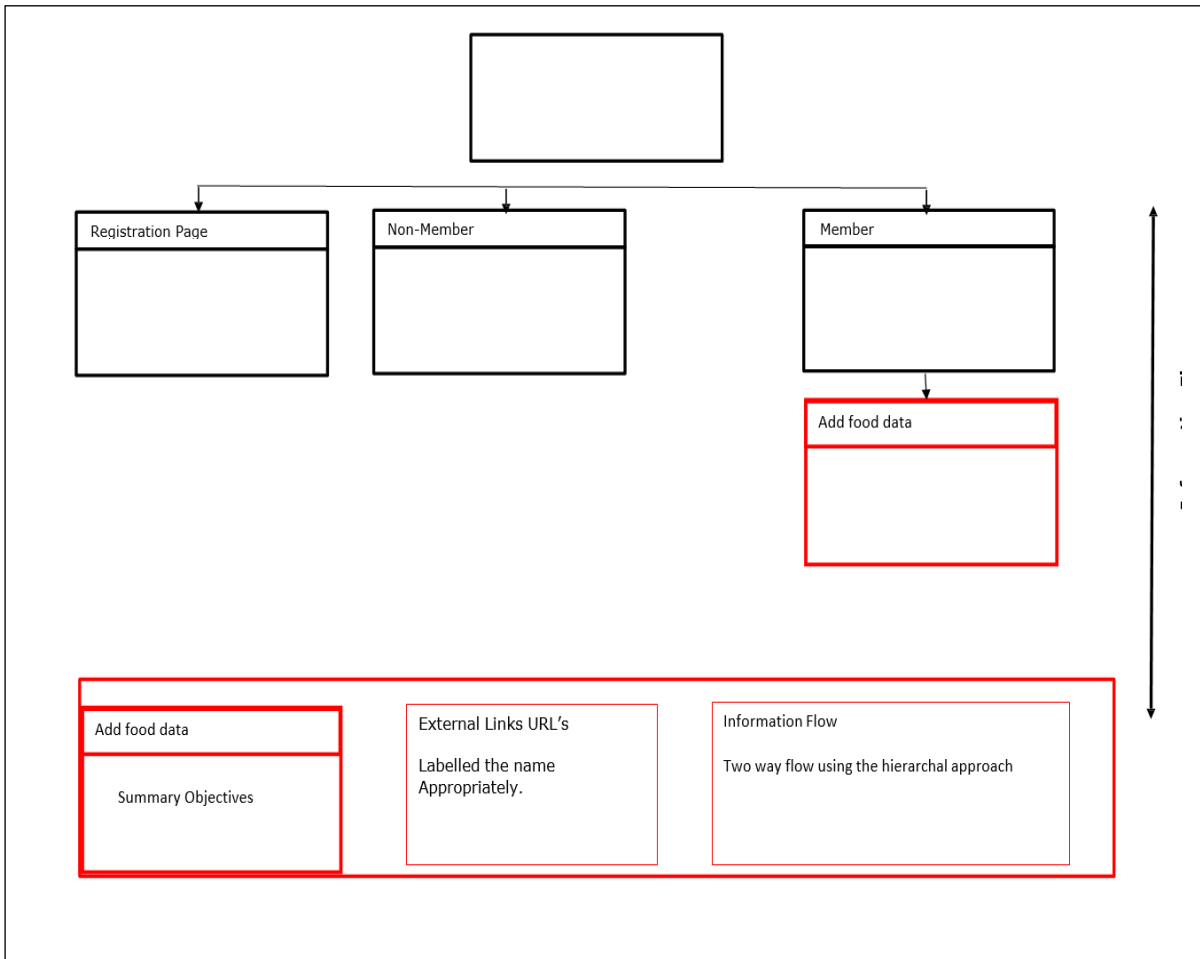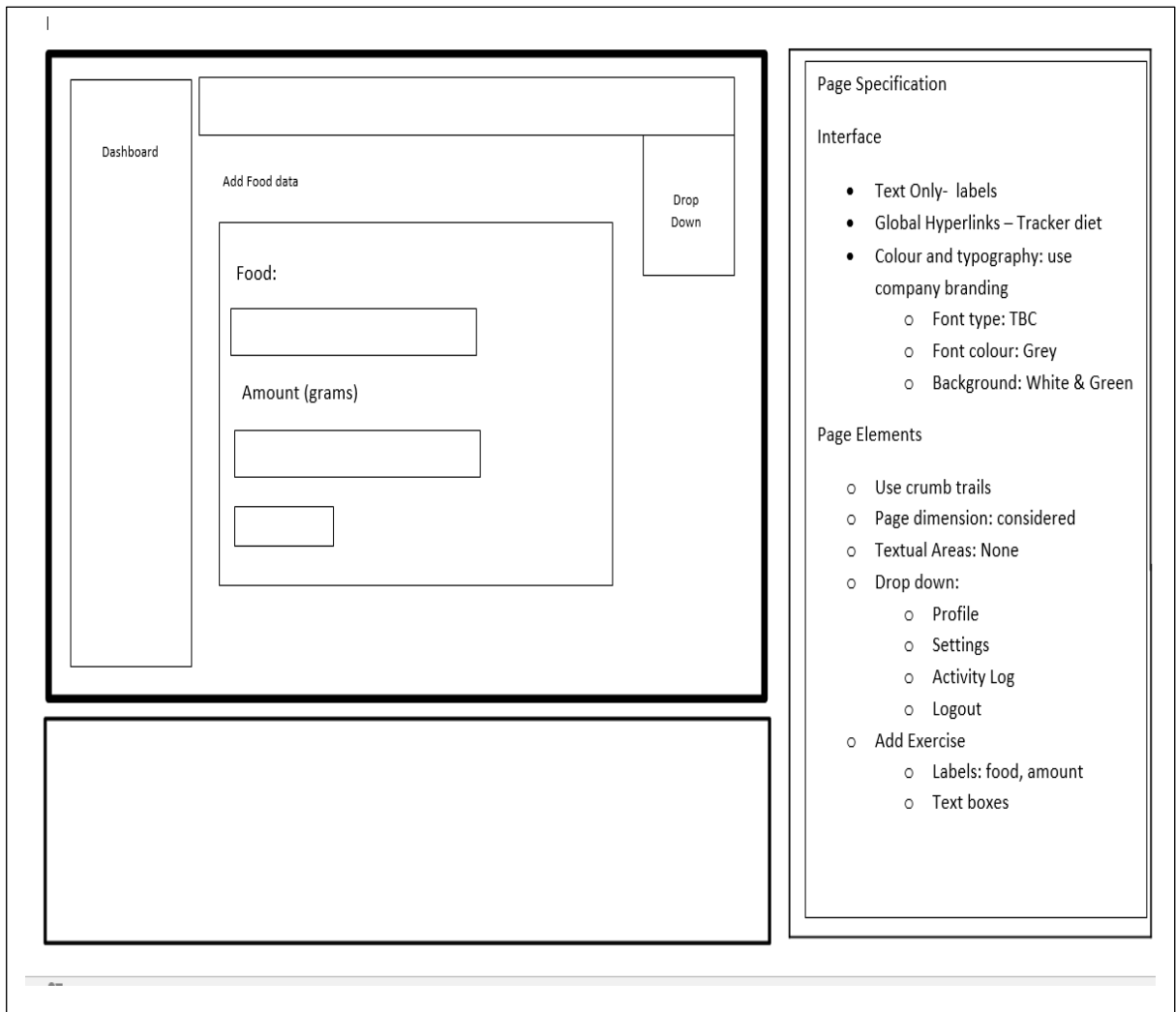| Date	Food	Weight	Calories	Protein	Carbs	Fat

Page Specification

Interface

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

Page Elements

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

Diagram 2

Registration Page

Non-Member

Member

Food Diary

This displays food eaten the calories, carbs etc.

Information Flow

Food Diary

Objectives Summary

External Links URL's

Labelled the name Appropriately.

Information Flow

Two way flow using the hierarchal approach

Dashboard

Food Videos

The runner diet

Video

The Weight Lift's diet

Video

:

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

Login Page

Registration Page

Non-Member

Member

Buy Premium

Video Page

Video Page

Summary Objectives

External Links URL's

Labelled the name Appropriately.

Information Flow

Two way flow using the hierarchal approach

Information Flow

Diagram 1

Dashboard

Fitness Diary

History

Date	Exercise	Calories	Duration

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

Diagram 2

Login Page

Registration Page

Non-Member

Member

Buy Premium

Fitness Diary

Information Flow (vertical label)

Fitness Diary

Summary of objective

External Links URL's

Labelled the name Appropriately.

Information Flow

Two way low using the hierarchal approach

Tracking diet presented in tabular format

Top diagram (page layout mockup):

Dashboard

Blog

ToKafit paying members

About ToKafit

Popular Post

ToKafit Non-paying members

:

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

Bottom diagram (site map / hierarchy):

Registration Page

Non-Member

Member

Blog

Allows members to chat and ask questions

Information Flow

Blog

Summary of objective

Internal links   two way flow using the hierarchal approach
Meet and greet with other members   Ask questions

Labelled the name appropriately.

Information Flow

Buy Premium

Dashboard

Billing Address   Payment

Full Name   Acceptable Cards

Email   Credit Card Number

Address   Expiry Month

City   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

Login Page

Registration Page

Non-Member

Member

Buy Premium

The user can pay for subscription through the website

Buy Premium

External Links URL's

Labelled the name Appropriately.

Information Flow

Inputs for various information Based on hierarchal structure

Generate reports Ability to get home

Information Flow

Create an Account!

Image 1

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

Registration Page

Non-Member

Member

Buy Premium

Create account

Information Flow

Create account

Summary of Objectives

Internal Links URL's

Labelled the name Appropriately.

Information Flow

Two way flow using the hierarchal approach

Use of Facebook and Google

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First diagram (page layout wireframe)

Dashboard

Add Food data

Drop Down

Food:

Amount (grams)

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

Second diagram (site map / hierarchy)

Registration Page

Non-Member

Member

Add food data

Add food data

Summary Objectives

External Links URL's

Labelled the name Appropriately.

Information Flow

Two way flow using the hierarchal approach

Front End Needs
- Different icons that are easy for the user to use
- Attractive
- Clear link to the back end (not for the user but for management to ensure that they can receive data that users input)

Back End Needs
- Data storage
- Reading/writing to and from this
- Stored in an efficient way
- Security (hashing, encryption)
- Link to the front end

Security and data analysis

System security will be an important issue for management, just as it will be for the customers. Overall, some of management's needs do overlap with other stakeholders although 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 benefit management when it comes to producing reports and carrying out queries. This is important because during periods where there are lots of customers, 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, 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

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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
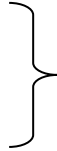
        pass queries to database

                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

}

endif


end Registrations module
```

Test case	Path	Variable Value	Expected result
1	1	first time entry == 1	- load registration form - exit
2	2	first time entry == 0 && all check results == 1 && any queries == fail	- execute node 4 - generate error msg - exit
3	3	first time entry == 0 && results = true && query == true	- 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
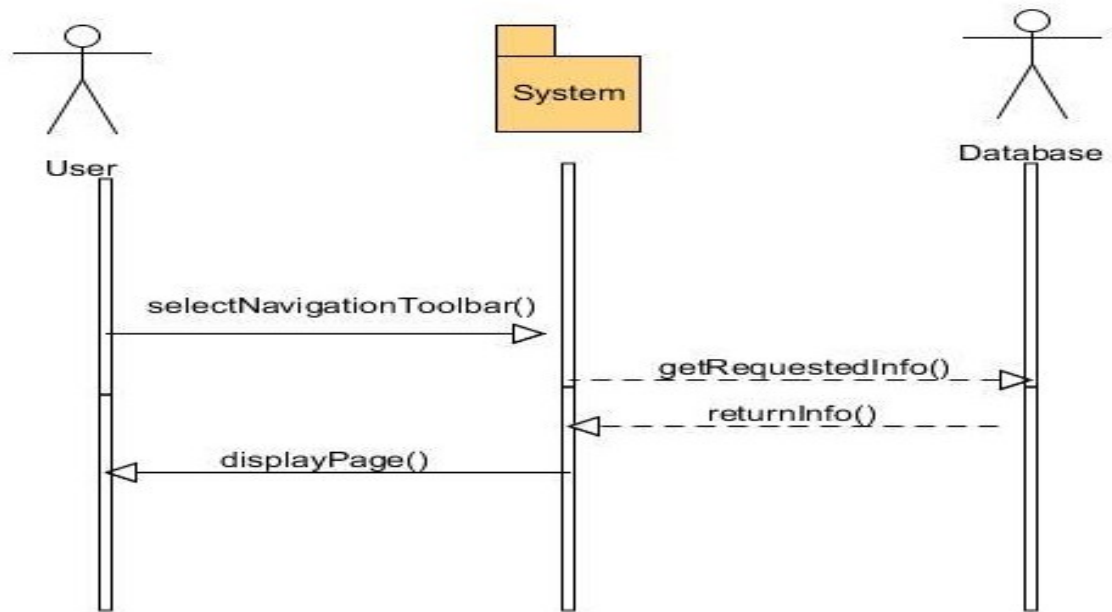
Login Screen:

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 are 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

The reason to validate the email 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 their email, so if they put the wrong email address in they can't access it and therefore won't be able to get the

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

<u>Validating Password</u>

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 characters 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.

system

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.

hashed.

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	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	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 user's	string	To allow for validation

	input for a password to a variable		to the password.
$cpassword	Assigning the user's input to 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 confirmed 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	
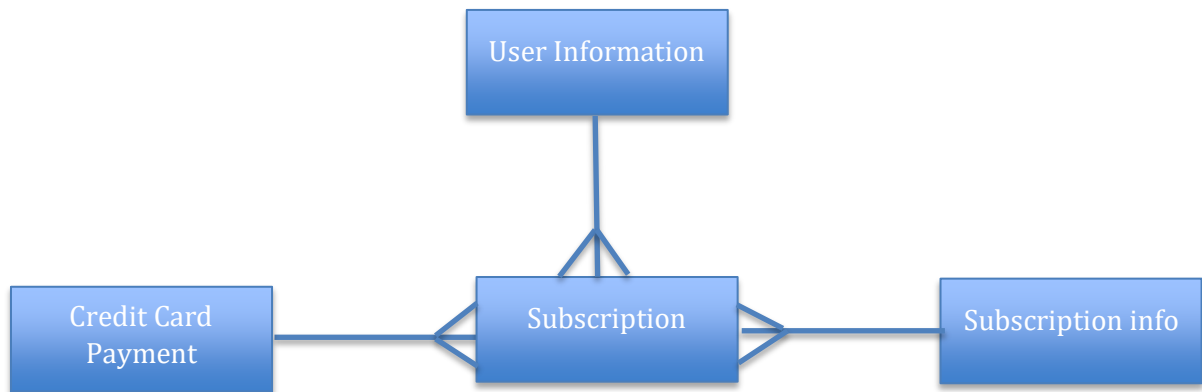
Credit Card Accounts

Field	Data Type
Account No.	int (10)
Username	varchar
Password	varchar
CustomerID 🔑	int (6)

Subscription

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

UserInfo

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

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 one 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 use: "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.
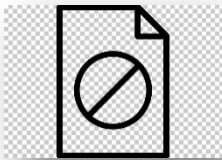
Great care was taken when selecting the external links to the health and fitness and food external links. All of the recipes were from a reputable source and promoted healthy eating and most identified the nutritional value of the meal. They were easy to follow with clear images of the prepared dishes.
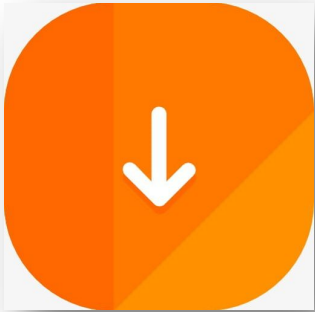
The health and exercise video and information links were sponsored by medical and personal trainers and supply website help and guidance as customers will be using these videos unsupervised by health and medical experts. All of the links hosted fitness videos of a very professional quality and level. 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. Being thin is therefore healthy. So, it 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 rationale

Image	Source	Rationale
	https://www.freepik.com/free-icon/search_788138.htm	Users see this search image more than the other option and it is also uses fewer 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 members' area". Users may find the other option confusing and it has too many colours.

	https://imgbin.com/png/Jm6mwH7T/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.
	https://www.stickpng.com/img/icons-logos-kemojis/tech-companies/whatswebsite-logo	Used this social media logo as users will be able to identify it quickly.
	https://www.stickpng.com/img/icons-logos-emojis/tech-companies/twitter-logo	Used this social media logo as users will be able to identify it quickly.
	https://www.stickpng.com/fr/img/icones-logos-emojis/societes-de-technologie/logo-youtube-play	Used this social media logo as users will be able to identify it quickly.

	https://www.flaticon.com/free-icon/instagram-logo_69366	Used this social media logo as users will be able to identify it quickly.

Contact us example code	This is the only code that I am going to modify. I am going to develop my code for the website to ensure that it efficient and robust.
bootstrap	

Links to external sites

| https://www.bbcgoodfood.com/recipes/collection/healthy-dinner | BBC good fool link | Decided to link to these external resources, they are all verified by the medical profession and have excellent reviews on social media.

The recipes featured have an image of the food and clear recipe and methods. Most also have user reviews for |
|---|---|---|
| https://lovefoodhatewaste.com/ | Love food healthy recipes | |
| https://www.ketocustomplan.com/ | Kenco diet plan | |
| https://www.foodsavvy.org.uk/ | Foodsavvy healthy recipes | |
| https://www.delish.com/cooking/ | Healthy recipes | |
| https://ifoodreal.com/clean-eating-recipes-dinners/ | Healthy recipes | |
| https://bitesofwellness.com/ | Healthy recipes | |
| https://www.everydayhealth.com/ | Health and fitness websites | |
| https://www.health.com/fitness | Health and fitness websites | |

https://www.health.harvard.edu/topics/exercise-and-fitness	Health and fitness websites	each of the recipe.
https://www.pinterest.com/reachyourpeak/health-fitness-topics/	Health and fitness websites	They are reliable sources of information to link to.

Blogs:

https://www.quora.com/What-are-your-top-5-favorite-health-and-fitness-topics	Fitness blog	Will provide further options for customers to select their own topics.
https://www.wix.com/	Wix blog	These are the top 3 blogs in the sector and have been established for some time and have a good following and lots of posts.
https://bitesofwellness.com/blog/	Bites of Wellness	
https://blog.feedspot.com/uk_fitness_blogs/	Top 10 blogs	

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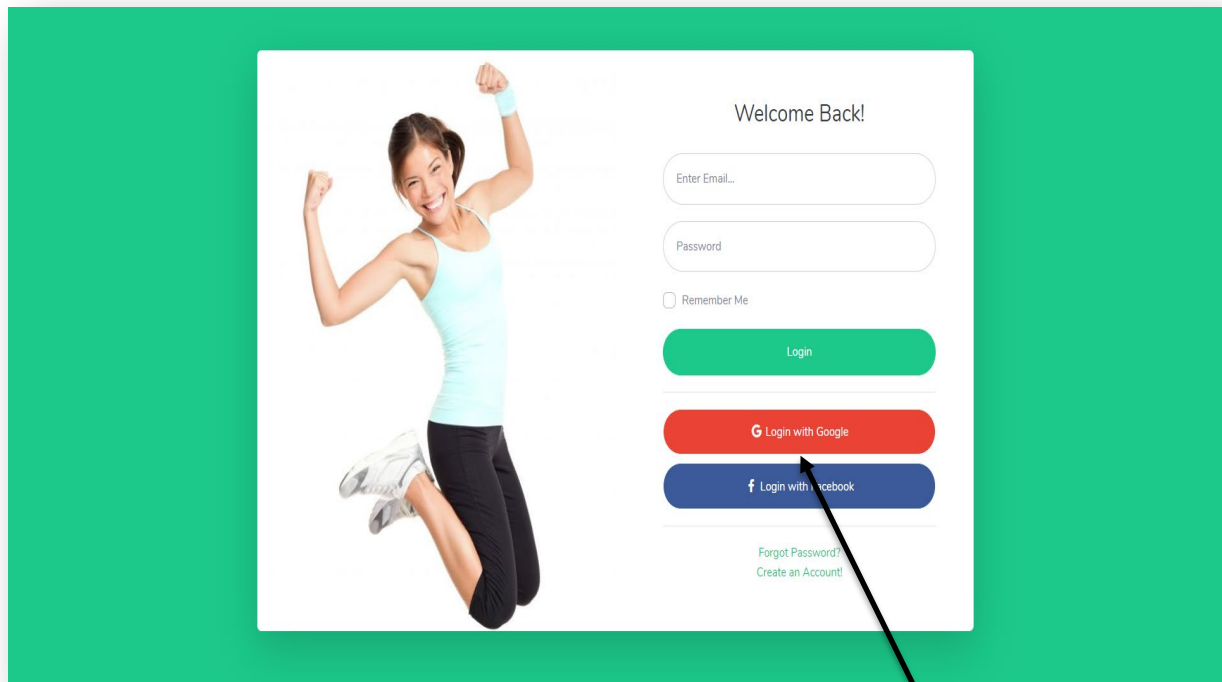
ToKa Fitness system prototype has commissioned my software development company to develop a digital system. ToKa Fitness offers personal training sessions and advice on fitness training and healthy living to its customers and would like a website for their specific requirements.

ToKa Fitness specific requirements are that the proposed solution:

- has free access with some accessibility to services

- customer section for paid content to access full services

- accessibility features for users with sight loss

- link to 'social media' features

- ability to customisable workout and eating plans
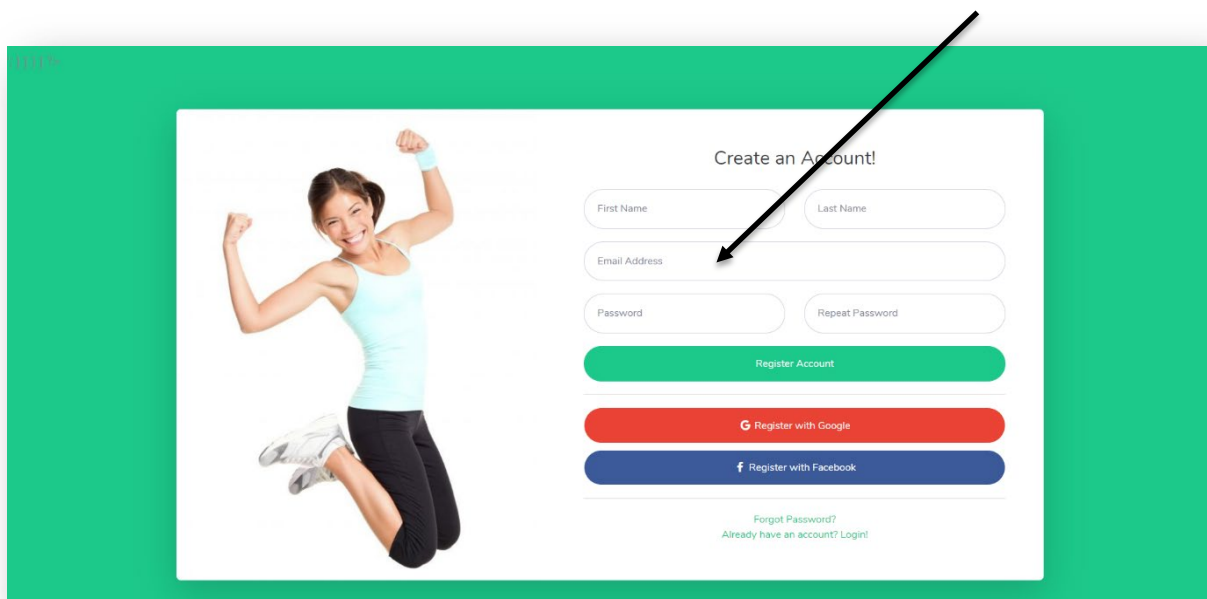
- access to various graphs to view stats on:
    - calories
    - fat
    - weight
    - food
    - comparisons and logs for day, week and month.

Login page

This is the login screen; you can use created username and password or if you originally registered using Google or Facebook you can use that option as well. This is to create an easier user experience. Below is the create account page.

This is the payment page, allow clients to pay for the members sections, which gives them access to various extra parts that are not available to standard users.

Client information table

This allows users to view fitness stats to help measure success and to see how their training is progressing.

Food diary is to capture how they monitor their food intake. Evidence suggest that viewing what they eat daily will help with keeping their diet in place.

Food Diary

History

Date	Food	Weight (g)	Calories	Protein (g)	Carbohydrates (g)	Fat (g)
19th December 2019	Chicken	500	975	147.75	0	38.
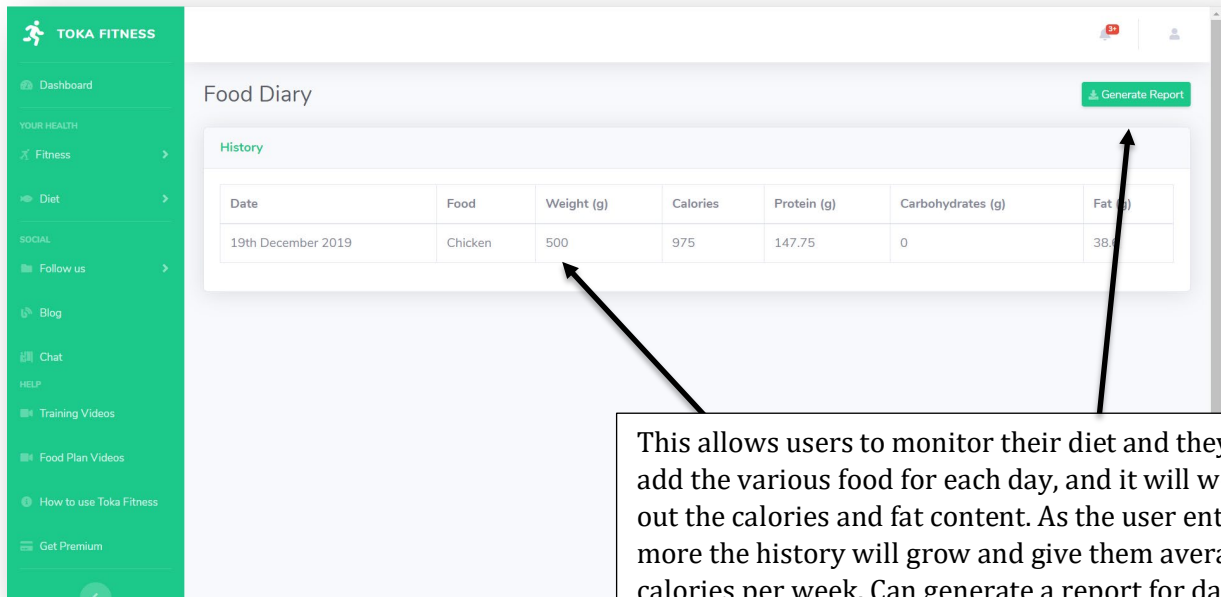
This allows users to monitor their diet and they can add the various food for each day, and it will work out the calories and fat content. As the user enters more the history will grow and give them average calories per week. Can generate a report for daily, monthly and yearly intake.

Food Diary

History

Date	Food	Weight (g)	Calories	Protein (g)	Carbohydrates (g)	Fat (g)
19th December 2019	Chicken	500	975	147.75	0	38.6

Food Videos

The runner's diet

The weight lifter's diet
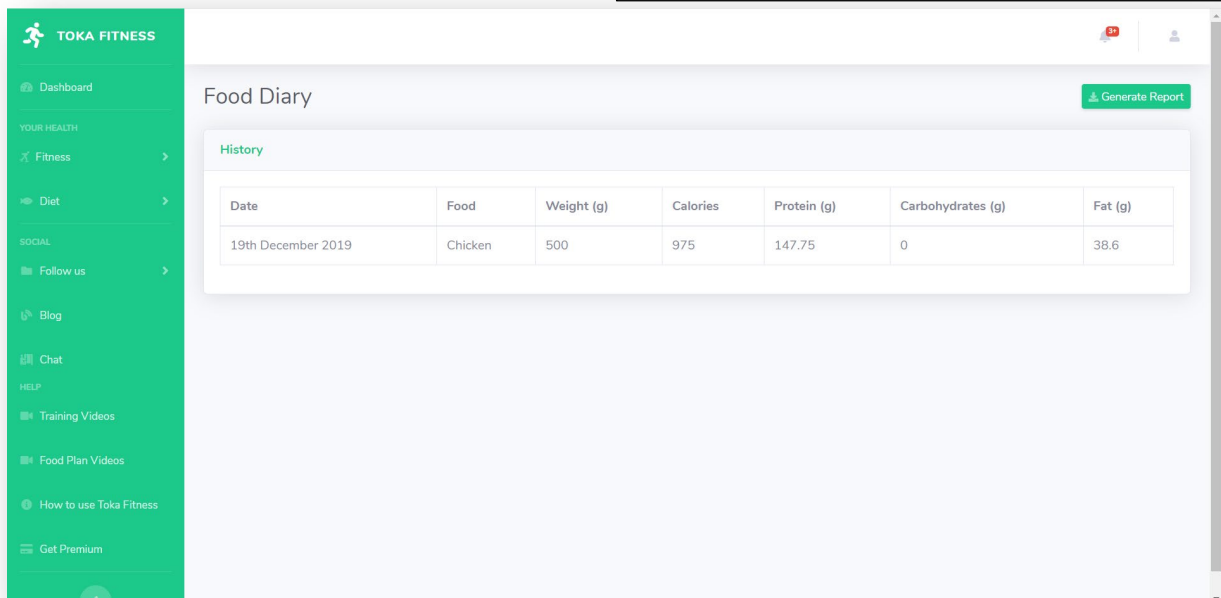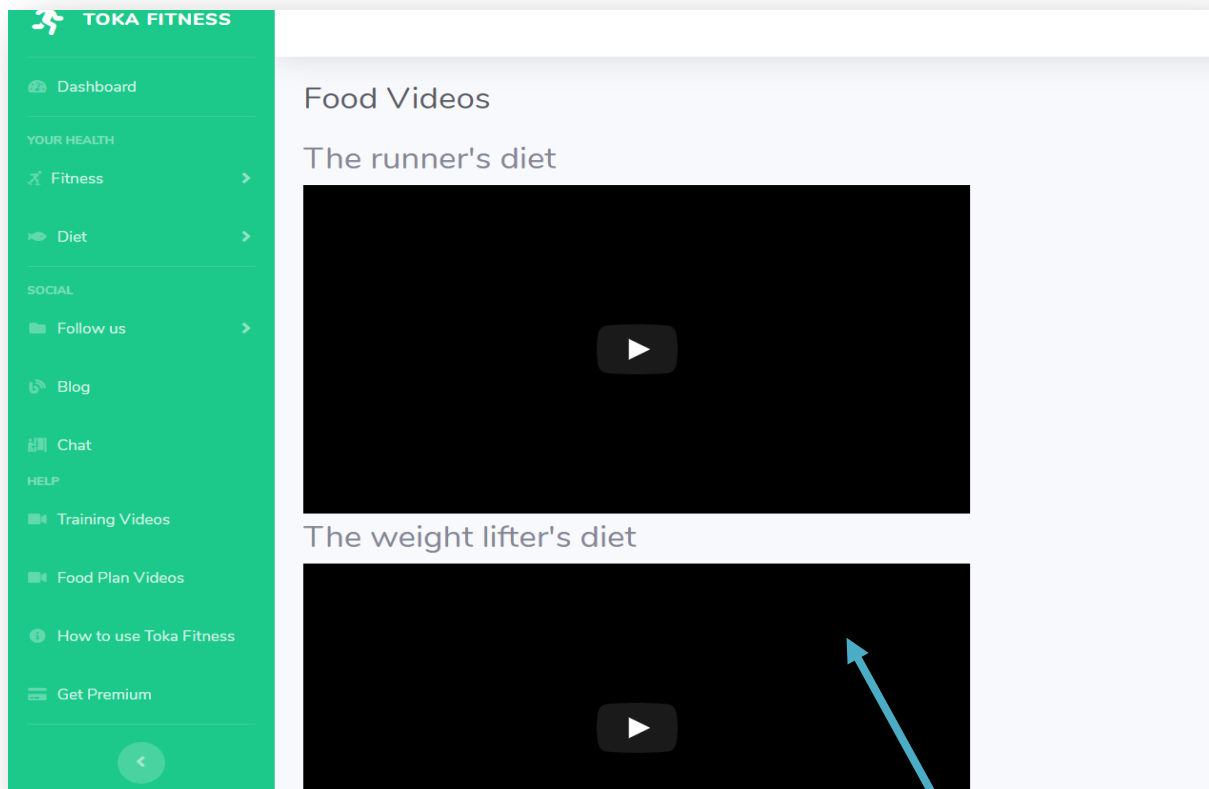
Above is a video that can be accessed by members only, below is the data that can be generated in a weekly or monthly report.
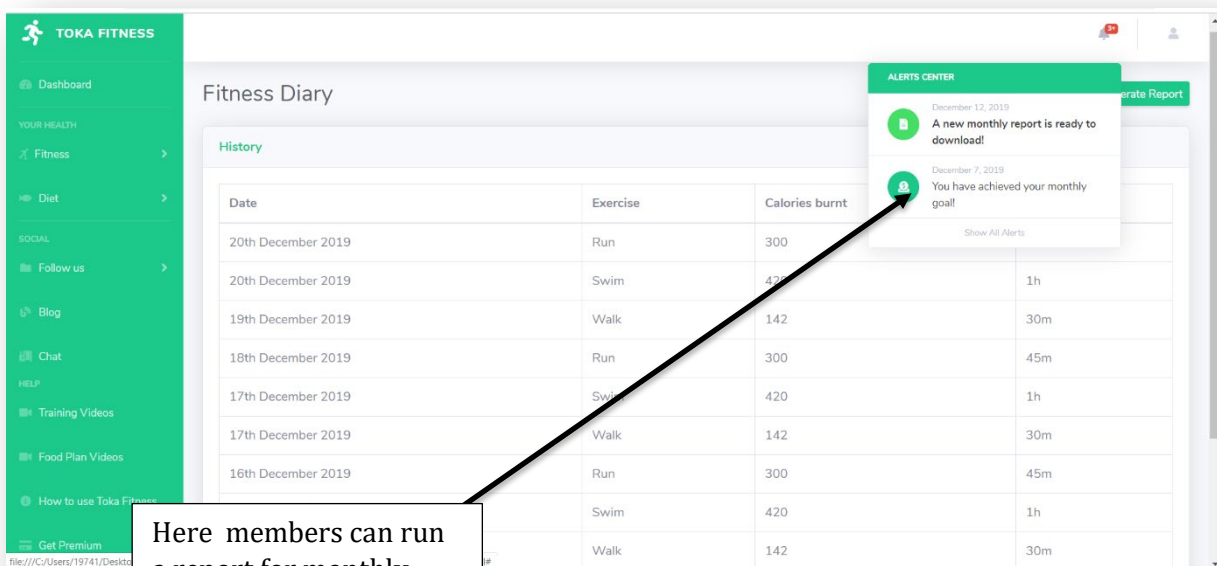
Here members can run a report for monthly stats that can be downloaded. Also have the option to check they have reached their goal for the month.

TOKA FITNESS

- Dashboard

YOUR HEALTH
- Fitness
- Diet

SOCIAL
- Follow us
- Blog
- Chat

HELP
- Training Videos
- Food Plan Videos
- How to use Toka Fitness
- Get Premium

Dashboard

Generate Report

DAILY CALORIE INTAKE
0/5.4

DAILY CARB INTAKE
7/10

DAILY FAT INTAKE
5/10

TODAY'S PROTEIN INTAKE
5/10

Weight overview

64kg
62kg
60kg
58kg
Jano   Mar   May   Jul   Sep

Daily Nutrition
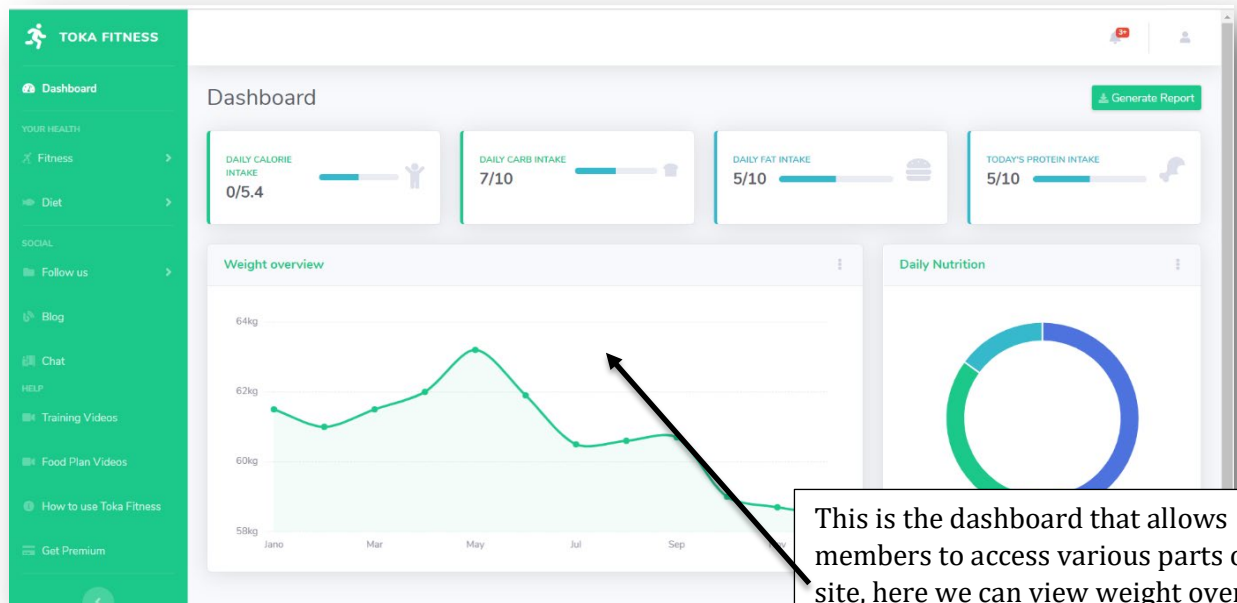
This is the dashboard that allows members to access various parts of the site, here we can view weight overview for the months. This was selected as it is better and more motivational when they can see a decline over time. If it was day to day it wouldn't show significant changes and, in some cases, may show weight had been added on.

Blog

ToKaFit reaches 1k members!
New record, Dec 20, 2019

Some text..

ToKaFit open to the public!
We are now in business, Dec 1, 201

About ToKaFit

Some text..

Popular Post

ToKaFit is open to the public!

ToKaFit open to the public!

Under construction!

Follow us
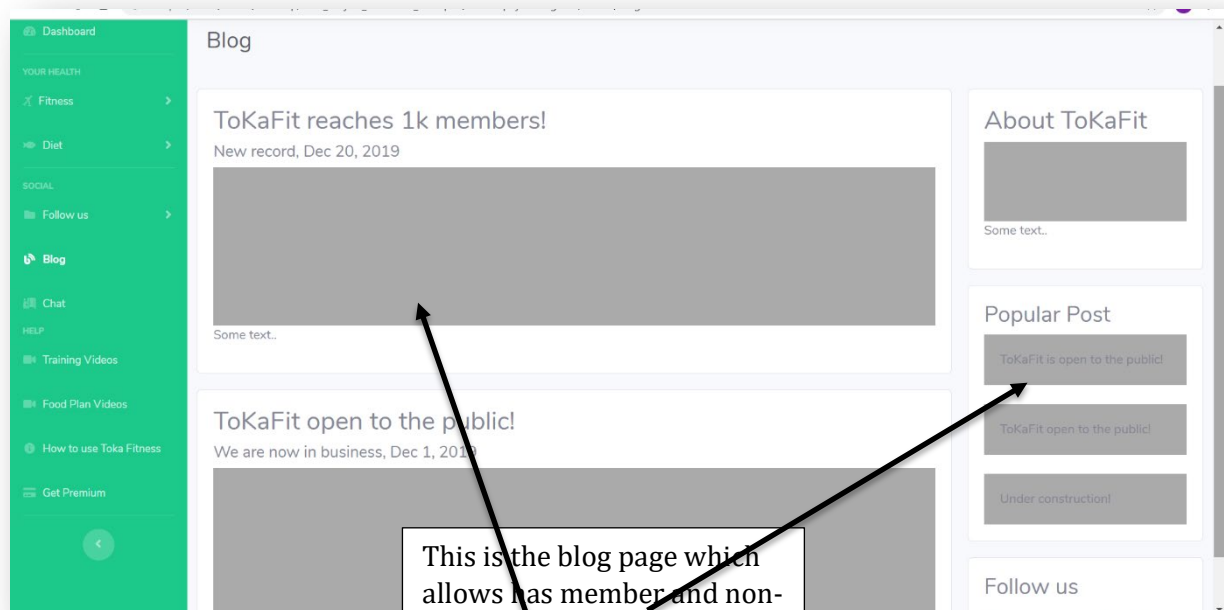
This is the blog page which allows has member and non-member access. The member can see both and return messages to other members.

Also includes popular posts and links to Facebook and Twitter accounts.

TOKA FITNESS

Dashboard

YOUR HEALTH

Fitness

Diet

YOUR DIET PAGES:
Food Diary
Statistics
Tracker

SOCIAL

Follow us

Blog

Chat

HELP

Training Videos

Diet Tracker

Add exercise data

Food:

Amount (grams):

Submit

ALERTS CENTER

December 12, 2019
A new monthly report is ready to download!

December 7, 2019
You have achieved your monthly goal!

Show All Alerts
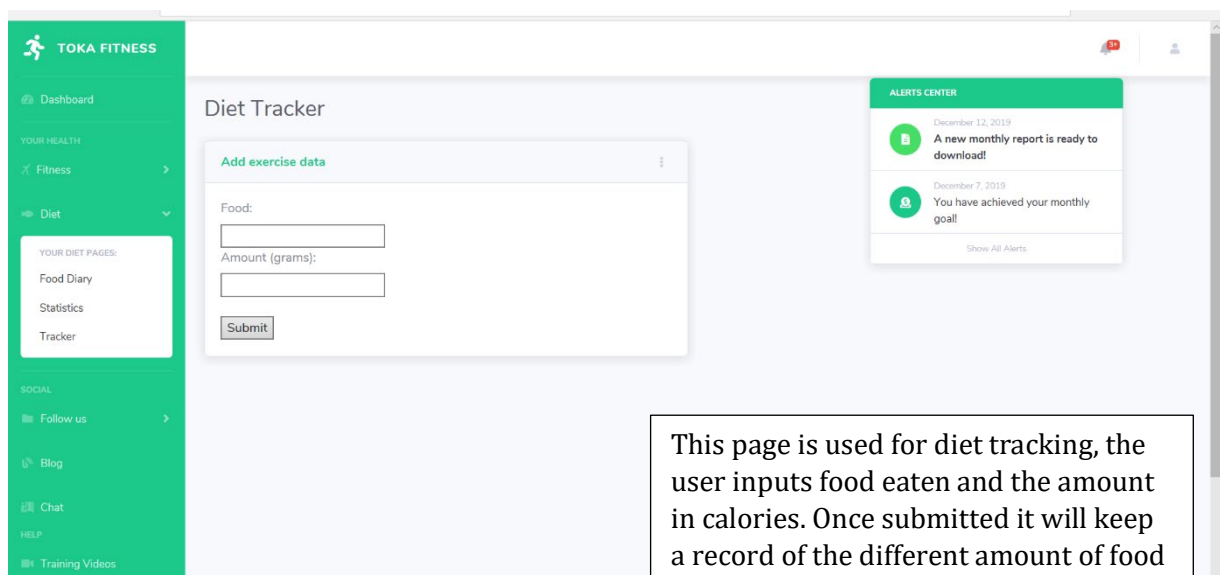
This page is used for diet tracking, the user inputs food eaten and the amount in calories. Once submitted it will keep a record of the different amount of food eaten each day. A monthly report is generated that then can be compared to various elements such a protein, carb intake and calories.

TOKA FITNESS

Dashboard

YOUR HEALTH

Fitness

Diet

SOCIAL

Follow us

Blog

Chat

HELP

Training Videos

Food Plan Videos

How to use Toka Fitness

Get Premium

Fitness Tracker

Import from fitness tracker

Add exercise data

Exercise:
○ Running
○ Walking
○ Swimming
○ Other

Duration (minutes):

Submit

Add current weight

Weight (kg):

Submit

The fitness tracker page relies on adding exercise data, this could be for the four most common options. The button at the top allows you to import the data from a fitness tracker.

Website code

PHP code for member page

```
C:\Users\Administrator\Desktop\ToKaFit\YoKaFit\login.php - Notepad++ [Administrator]
File  Edit  Search  View  Encoding  Language  Settings  Tools  Macro  Run  Plugins  Window  ?

index.php   login.php

 1    <?php
 2
 3    include('config.php');
 4    session_destroy();
 5    session_start();
 6    if (isset($_POST['login'])) {
 7        $email = $_POST['email'];
 8        $password = $_POST['password'];
 9        $query = $connection->prepare("SELECT * FROM users WHERE email
10        $query->bindParam("email", $email, PDO::PARAM_STR);
11        $query->execute();
12
13        $result = $query->fetch(PDO::FETCH_ASSOC);
14
15        if (!$result) {
16            echo '<script>alert("Invalid username and password combina
17        } else {
18            if (password_verify($password, $result['password'])) {
19                $_SESSION['user_id'] = $result['id'];
20                $_SESSION['first_name'] = $result['firstname'];
21                $_SESSION['last_name'] = $result['lastname'];
22                header("Location:index.php");
23                die();
24            } else {
25                echo '<script>alert("Invalid username and password com
26            }
27        }
28    }
29
30    ?>
```

This is the PHP code for the login. Links to include another page. Uses a nested if statement

Session set up to do the following:
- makes user data available across the whole website
- makes a temporary file in a server temporary directory that saves session data
- atomically destroys when user close the browser

Super global variable with session data after session started

Select the user details

Binds the parameter to PHP variable in SQL statement

Produces a message if password invalid

60

```php
<?php

include('config.php');
session_start();

if (isset($_POST['register'])) {

    $firstname = $_POST['firstname'];
    $lastname = $_POST['lastname'];
    $email = $_POST['email'];
    $password = $_POST['password'];
    $repeatpassword = $_POST['repeatpassword'];
    if($password !== $repeatpassword) {
        echo '<h1><font color="white"><center>Password and repeat password do not match!</center></font></h1>';
    } else {
        $password_hash = password_hash($password, PASSWORD_BCRYPT);

        $query = $connection->prepare("SELECT * FROM users WHERE EMAIL=:email");
        $query->bindParam("email", $email, PDO::PARAM_STR);
        $query->execute();

        if ($query->rowCount() > 0) {
            echo '<h1><font color="white"><center>The email address is already registered!</center></font></h1>';
        }

        if ($query->rowCount() == 0) {
            $query = $connection->prepare("INSERT INTO users(FIRSTNAME, LASTNAME,PASSWORD,EMAIL) VALUES (:firstname, :lastname,:password_hash,:email)");
            $query->bindParam("firstname", $firstname, PDO::PARAM_STR);
            $query->bindParam("lastname", $lastname, PDO::PARAM_STR);
            $query->bindParam("password_hash", $password_hash, PDO::PARAM_STR);
            $query->bindParam("email", $email, PDO::PARAM_STR);
            $result = $query->execute();

            if ($result) {
                echo '<h1><font color="white"><center>Your registration was successful!</center></font></h1>';
            } else {
                echo '<h1><font color="white"><center>Something went wrong!</font></center></h1>';
            }
        }
    }
}

?>
<!DOCTYPE html>
<html lang="en">
```

To collect the data from the form, use the PHP super global variable

Used bindParam with the SQL statement

```php
<?php
session_start();

if(!isset($_SESSION['user_id'])){
    header('Location: login.php');
    exit;
}


if(!$_SESSION['premium']){
    echo 'You need to be a premium member to access this part of the website!';
} else {
?>
```

Asset function is used to check whether there is a value entered. If there is no value, it echoes a message back to the user to go to the login in page. Then it checks if the value entered is equal to the value in the database in this case user_id.

If userID is valid it will allow the user to access the training video. In other words, they are a paying customer. Echo a message if they are not.

Used bootstrap JS with some of the functionality on the pages. Menu, graphs and login screen.

```
268        <!-- End of Page Wrapper -->
269
270        <!-- Scroll to Top Button-->
271        <a class="scroll-to-top rounded" href="#page-top">
272          <i class="fas fa-angle-up"></i>
273        </a>
274
275        <!-- Logout Modal-->
276        <div class="modal fade" id="logoutModal" tabindex="-1" role="dialog" aria-labelledby="exampleModalLabel" aria-hidden="true">
277          <div class="modal-dialog" role="document">
278            <div class="modal-content">
279              <div class="modal-header">
280                <h5 class="modal-title" id="exampleModalLabel">Ready to Leave?</h5>
281                <button class="close" type="button" data-dismiss="modal" aria-label="Close">
282                  <span aria-hidden="true">×</span>
283                </button>
284              </div>
285              <div class="modal-body">Select "Logout" below if you are ready to end your current session.</div>
286              <div class="modal-footer">
287                <button class="btn btn-secondary" type="button" data-dismiss="modal">Cancel</button>
288                <a class="btn btn-primary" href="login.php">Logout</a>
289              </div>
290            </div>
291          </div>
292        </div>
293
294        <!-- Bootstrap core JavaScript-->
295        <script src="vendor/jquery/jquery.min.js"></script>
296        <script src="vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
297
298        <!-- Core plugin JavaScript-->
299        <script src="vendor/jquery-easing/jquery.easing.min.js"></script>
300
301        <!-- Custom scripts for all pages-->
302        <script src="js/sb-admin-2.min.js"></script>
303
304        <!-- Page level plugins -->
305        <script src="vendor/chart.js/Chart.min.js"></script>
306
307        <!-- Page level custom scripts -->
308        <script src="js/demo/chart-area-demo.js"></script>
309        <script src="js/demo/chart-pie-demo.js"></script>
310
311      </body>
312
313    </html>
314
```



```
1    * {
2        margin: 0;
3        padding: 0;
4    }
5
6    html, body, #navbar {
7        min-height: 100%;
8        height: 100%;
9    }
10
11   body {
12       background: rgb(38,38,38);
13       font-family: 'Open Sans', sans-serif;
14       font-weight: 300;
15       margin: 0;
16   }
17
18   h1 {
19       font-family: 'Quicksand', sans-serif;
20       font-weight: 500;
21   }
22
23   ::-webkit-scrollbar {
24       width: 16px;
25   }
26
27   ::-webkit-scrollbar-thumb:hover {
28       background: rgb(0,176,240);
29   }
30
31   ::-webkit-scrollbar-track {
32       background: rgb(13,13,13);
33   }
34
35   ::-webkit-scrollbar-thumb {
36       border-radius: 25px;
37       border-style: solid;
38       border-color: rgb(13,13,13);
39       border-width: 4px;
40       background: rgb(0,112,192);
41   }
```

These styles apply to all elements (except h1 and scrollbar style).

The scrollbar styling only works on select browsers like Chrome.

The meta viewport tag lets me control the content on different sized screens.

Linked jQuery to the website, so it can be used in the JavaScript code (e.g. to style elements).

62

```php
<?php

/* === Clean input data === */
function testInput($data){
    $data=trim($data);
    $data=stripslashes($da
    $data=htmlspecialchars
    return $data;
}

/* === checks and validates the emai; passed === */
/* === Param 1: email to be checked  === */
/* === Param 2: bool - if we should check in DB for the email's existance === */
/* === Param 3: bool - if we should check in DB for a copy === */
/* === returns: bool - false on error, otherwise true === */

function validEmail($email, $checkInDbForExistance, $checkInDbForCopy) {

    $atIndex = strrpos($email, "@");

    if (is_bool($atIndex) && !$atIndex)
        return false;

    $domain = substr($email, $atIndex+1);
    $local = substr($email, 0, $atIndex);
    $localLen = strlen($local);
    $domainLen = strlen($domain);

    //If local part length exceeded
    if ($localLen < 1 || $localLen > 64)
        return false;

    //If domain part length exceeded
    if ($domainLen < 1 || $domainLen > 255)
        return false;

    //If local part starts or ends with '.'
    if ($local[0] == '.' || $local[$localLen-1] == '.')
        return false;

    //If local part has two consecutive dots
    if (preg_match('/\\.\\./', $local))
        return false;

    // character not valid in domain part
    if (!preg_match('/^[A-Za-z0-9\\-\\.]+$/', $domain))
        return false;

    // domain part has two consecutive dots
    if (preg_match('/\\.\\./', $domain))
        return false;
```

The function validates the email to ensure that the user enters the correct email address. The $email is the parameter that is passed into the function from the registration form.

Returns position of part of the string to determine the length and it checks to make sure the value is greater than 1 and less than 64. It also checks the domain is after the @ sign.

```php
118
119
120   /* === checks and validates the password passed === */
121   /* === Param 1: $password to be checked  === */
122   /* === returns: string on error, else null === */
123
124   function checkPwdErrors($password, $passwordVerification){
125
126       $password = testInput($password);
127       if (strlen($password) <= '6')
128           return "Your Password Must Contain At Least 6 Characters!";
129
130       // For security reasons we want the password to contain at least 1 number, t
131       // the password field to make sure their is a number in the password
132       if(!preg_match("#[0-9]+#",$password))
133           return "Your Password Must Contain At Least 1 Number!";
134
135       // For security reasons we want the password to contain at least 1 capital l
136       // through the password field to make sure their is a capital letter in the
137       if(!preg_match("#[A-Z]+#",$password))
138           return "Your Password Must Contain At Least 1 Capital Letter!";
139
140       // For security reasons we want the password to contain at least 1 lowercase
141       // through the password field to make sure their is a lowercase letter in th
142       if(!preg_match("#[a-z]+#",$password))
143           return "Your Password Must Contain At Least 1 Lowercase Letter!";
144
145       if($password !== $passwordVerification)
146           return "The entered password do not match/";
147
148       //No errors found, return null
149       return null;
150   }
151
```

Comments add above each statement. The purpose of this is to check when creating a new password it has the correct format. For security it was decided that it should be made up of uppercase, lowercase, and a number.

```php
1    <?php
2    session_start();
3
4    if(!isset($_SESSION['user_id'])){
5        header('Location: login.php');
6        exit;
7    }
8    ?>
```

```
12      */
13    (function( factory ){
14        if ( typeof define === 'function' && define.amd ) {
15            // AMD
16            define( ['jquery', 'datatables.net'], function ( $ ) {
17                return factory( $, window, document );
18            } );
19        }
20        else if ( typeof exports === 'object' ) {
21            // CommonJS
22            module.exports = function (root, $) {
23                if ( ! root ) {
24                    root = window;
25                }
26
27                if ( ! $ || ! $.fn.dataTable ) {
28                    // Require DataTables, which attaches to jQuery, including
29                    // jQuery if needed and have a $ property so we can access the
30                    // jQuery object that is used
31                    $ = require('datatables.net')(root, $).$;
32                }
33
34                return factory( $, root, root.document );
35            };
36        }
37        else {
38            // Browser
39            factory( jQuery, window, document );
40        }
41    }(function( $, window, document, undefined ) {
42    'use strict';
43    var DataTable = $.fn.dataTable;
44
45
```

```javascript
1   (function () {
2       Number.prototype.toHex = function () {
3           var ret = ((this<0?0x8:0)+((this >> 28) & 0x7)).toString(16) + (this & 0xfffffff).toString(16);
4           while (ret.length < 8) ret = '0'+ret;
5           return ret;
6       };
7       Object.hashCode = function hashCode(o, l) {
8           l = l || 2;
9           var i, c, r = [];
10          for (i=0; i<l; i++)
11              r.push(i*268803292);
12          function stringify(o) {
13              var i,r;
14              if (o === null) return 'n';
15              if (o === true) return 't';
16              if (o === false) return 'f';
17              if (o instanceof Date) return 'd:'+(0+o);
18              i=typeof o;
19              if (i === 'string') return 's:'+o.replace(/([\\\\;])/g,'\\$1');
20              if (i === 'number') return 'n:'+o;
21              if (o instanceof Function) return 'm:'+o.toString().replace(/([\\\\;])/g,'\\$1');
22              if (o instanceof Array) {
23                  r=[];
24                  for (i=0; i<o.length; i++)
25                      r.push(stringify(o[i]));
26                  return 'a:'+r.join(';');
27              }
28              r=[];
29              for (i in o) {
30                  r.push(i+':'+stringify(o[i]))
31              }
32              return 'o:'+r.join(';');
33          }
34          o = stringify(o);
35          for (i=0; i<o.length; i++) {
36              for (c=0; c<r.length; c++) {
37                  r[c] = (r[c] << 13)-(r[c] >> 19);
38                  r[c] += o.charCodeAt(i) << (r[c] % 24);
```

Hashing Function, using JS allows the password to scramble to increase security.

C:\Users\19741\Documents\Year 13 CS\Unit 3 Projects\Jack Male\Jack_Male\Project DB - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

main.py | inventory 2020.py | diet_statistics.php | package-lock.json | training_videos.php | blog.php | php.xml | workspace.xml | modules.xml | fitness_tracker.php | ESP_Task_V4_21-07-2020.py | Project DB

```sql
1   CREATE TABLE [import].[ExerciseLog]
2   (
3       [ExerciseLogID] INT NOT NULL CONSTRAINT PK_ExerciseLogID PRIMARY KEY,
4       [ExerciseID] SMALLINT NOT NULL,
5       [ActivityDate] DATETIME2 NOT NULL,
6       [ExerciseCount] TINYINT NOT NULL,
7       [GymUserId] INT NOT NULL,
8       [FirstInserted] DATETIME2 NOT NULL DEFAULT getdate(),
9       CONSTRAINT [FK_ExerciseLog_Exercise] FOREIGN KEY ([ExerciseId]) REFERENCES [import].[Exercise]([ExerciseId]),
10      CONSTRAINT [FK_ExerciseLog_GymUser] FOREIGN KEY ([GymUserId]) REFERENCES [import].[GymUser]([GymUserId])
11  )
12
```

```php
1    <?php
2    session_start();
3
4    require_once "setupDb.php";
5
6    $password = $passwordError = $oldPassword = $oldPasswordError = $confirmPass = $confirmPassError =
7
8    function filterInput($data) {
9        $data = trim($data);
10       $data = stripslashes($data);
11       $data = htmlspecialchars($data);
12       return $data;
13   }
14
15   if ($_SERVER["REQUEST_METHOD"] == "POST") {
16       $oldPassword = filterInput($_POST["oldPassword"]);
17       $password = filterInput($_POST["newPassword"]);
18       $confirmPass = filterInput($_POST["passConfirm"]);
19
20       if (empty($oldPassword)) {
21           $oldPasswordError = "Please enter your old password";
22           $_SESSION["passError"] = $oldPasswordError;
23       }
24       elseif(empty($password)) {
25           $passwordError = "Please enter your new password";
26           $_SESSION["passError"] = $passwordError;
27       }
28       elseif (empty($confirmPass)) {
29           $confirmPassError = "Please confirm your new password";
30           $_SESSION["passError"] = $confirmPassError;
31       }
32       else {
33           if ($password == $confirmPass) {
34               //SQL update statement to change user information
35               $sql = "SELECT passwordHash FROM userinfo WHERE email
36
37               if ($stmt = $connection->prepare($sql)) {
38                   //binds variables to parameters
39                   $stmt->bind_param("s", $param_email);
40
41                   //set parameters
42                   $param_email = $_SESSION["email"];
43
44                   if ($stmt->execute()) {
45                       $stmt->store_result();
46
47                       $stmt->bind_result($passwordHash);
48                       if ($stmt->fetch()) {
49                           if (password_verify($oldPassword, $passwordHash)) {
50                               //SQL statement below updates data on the database
51                               $sql = "UPDATE userinfo SET passwordHash = ? WHERE email = ?";
```

This function allows the user to reset their password, checks the person's existing email and binds the two together.

These 3 if statements check if the user entered a value in the input boxes.

This SQL statement selects the current password hash of the user from the database. This is done to compare to the user's old password input (if the input = password hash, then the program continues).

```php
                            if ($stmt = $connection->prepare($sql)) {
                                //binds variables to parameters
                                $stmt->bind_param("ss", $param_passwordHash, $param_email);

                                //parameters are set
                                //converts new password into hash
                                $param_passwordHash = password_hash($password, PASSWORD_DEFAULT);
                                $param_email = $_SESSION["email"];

                                if ($stmt->execute()) {
                                    //changes password characters into asterisks
                                    $password = str_repeat("*",strlen($password));
                                    $_SESSION["password"] = $password;
                                    $_SESSION["passError"] = "";
                                }
                            }
                            $stmt->close();
                        }
                        else {
                            $_SESSION["passError"] = "Old password is not correct";
                        }
                        $connection->close();
                    }
                }
                else {
                    //If the SQL statement didn't work, the resulting phrase will be outputted (in the profile page using session variable)
                    $_SESSION["passError"] = "Sorry, something went wrong, please try again";
                }
            }
            $stmt->close();
        }
        else {
            $confirmPassError = "Passwords do not match";
            $_SESSION["passError"] = $confirmPassError;
        }
    }
    $connection->close();
}

//returns to profile page
header("location: profile.php");
exit;
?>
```

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Testing

Test data	Expected outcome	Reasons for test	Actual outcom
email: a@a password: a	Login normally	Check if valid inputs work	As expected, the user is logged in
Test data Empty inputs	No login	Check if erroneous inputs not in database won't work	As expected, user is not logged in
Email: ab@abc Password: 1111	No login	Check if valid inputs won't work if not in existing database	As expected, user is not logged in
Empty inputs	No login	Check if invalid inputs won't work	As expected, user is not logged in due to lack of inputs

Sign up

Password: 4444 confirm password: 4444			
Title: Mr First name: qqq Last name: sss Email: oooo@a Phone no: abc Password: sss	Account is not made	To check if website recognises invalid phone number (not only being numbers)	As expected, no account is made

Title: Mr First name: qqq Last name: sss Email: oooo@a Phone no: abc Password: sss Confirm password: sss2	Account is not made	To check if website checks if password = confirmed password	As expected, no account is made
Title: Mr First name: qqq Last name: sss Email: oooa Password: sss Confirm password: sss2	Account is not made	To check if website checks validity of email (syntax)	As expected, account is not made

Dashboard

Element to be tested	Expected result	Test data	Expected result from test data	Actual result
Header tab navigation system	When user clicks on Butto#ns system directs user to right webpage.	n/a	n/a	System successfully directs user to requested webpage.

Sign up validation	When user inputs data, the system checks the data and outputs an error if the input isn't inappropriate for the field. First name and last name must only contain letters and not numbers or special characters. The email field must contain the "@" and "." There must be at	First name: Chris 555 Last name: Jones Email: ChrisJones @gmail.com (email already registered)	Error pop-up and form cannot be submitted	System directs user to an error page if the email is not unique. However, doesn't validate other values such as first name, last name, email syntax, postcode and password and submits the data into the database.
Dashboard	View dashboard	Imported data from user input	Viewed dashboard and all graphs	No issues and all graphs could be seen.
Graphs	View graphs, bar, pie charts	Imported data	Viewed graphs with relevant statistics	No issues

Video	View video	YouTube videos	Select and view video for fitness and diet	No issues
Fitness diary	View tabular data	Date: December Exercise: run, swim and walk Calories: range Distance:	View data in tabular format with range of dates, exercises, calories	No issues
Diet tracker	Inputs various food and weight in grams	Chicken 400 grams	Submit data for tracking	No issues

Test Results

Outcome for dashboard

The outcome was a successful display of the dashboard and graphs displaying the correct data as per design.
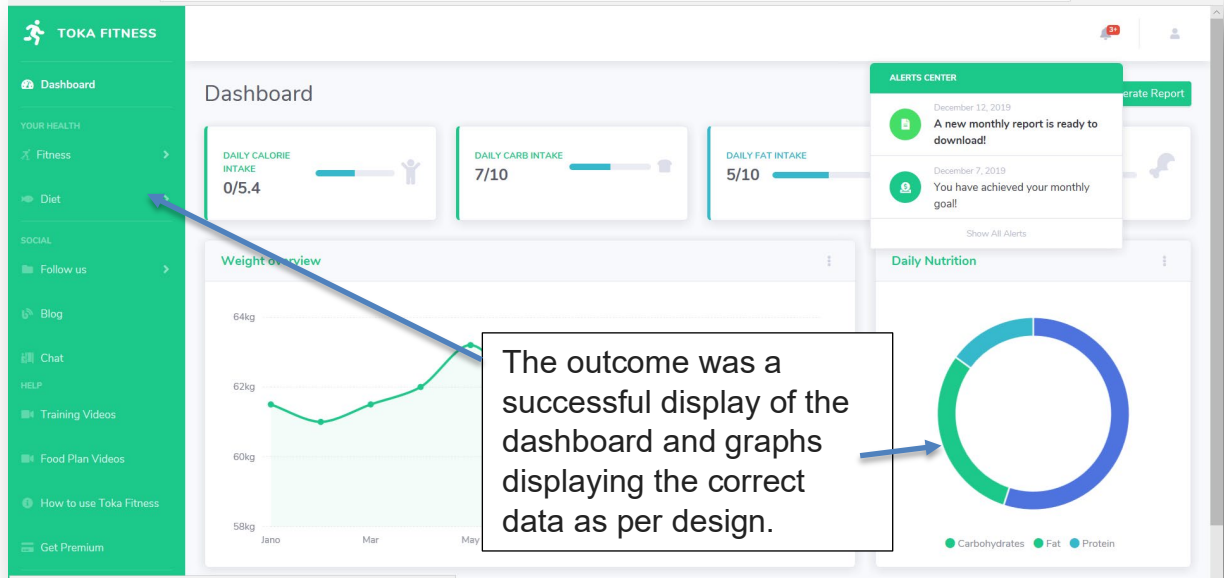
Test outcome fitness diary

Test successful the fitness diary for days of December were displayed in tabular format and provided the correct data for calories burnt.

Please check the wording

The user can select the monthly report; this can be printed out, based on the data seen in the history above.

Test outcome diet tracker

Diet tracker has worked as user may eat various foods and it was better to enter the food and weight.

Test outcome training video

The training videos displayed correctly and worked, though the user could select the option to view it in YouTube.

Test outcome diet videos

The diet videos displayed correctly and worked, though the user could select the option to view it in YouTube.

Profile info editing

Test data	Expected outcome	Reasons for test	Actual outcome
No inputs	Website asks for inputs	Check if lack of inputs is detected	As expected, error message is displayed
Valid inputs (e.g. abc for first name)	Website accepts input and info is	Check if valid inputs are accepted	As expected, error message is displayed
Old password is incorrect	Website tells user the input is wrong	Check if incorrect data is detected	As expected, error message is displayed

Old password is correct New password = ccc Confirm password = asdf	Website tells user passwords don't match	Check if code works as it should	As expected, the user is notified of the exact problem

Unit to test sign-in assumption

Unit to test   Sign-in

Assumption   The webpage displayed the sign-in input screen and waited for user's
action.

Input   user ID, user password, user information

Expect output

Register successfully with proper input, register unsuccessfully with improper input, and make alter the same time.

Pass   Function fits the requirement.

Fail and probable error

(1) Register still success with improper input. Error related to input checking.

(2) Register success with proper input but no related data shown in database. Error related to connection with database.

Syntax Issues

```php
1   <?php
2
3   include('config.php');
4   session_start();
5
6   if (isset($_POST['register'])) {
7
8       $firstname = $_POST['firstname'];
9       $lastname = $_POST['lastname'];
10      $email = $_POST['email'];
11      $password = $_POST['password'];
12      $repeatpassword = $_POST['repeatpassword'];
13      if($password !== $repeatpassword) {
14          echo '<h1><font color="white"><center>Password and repeat password do
    </h1>';
15      } else {
16          $password_hash = password_hash($password, PASSWORD_BCRYPT);
17
18          $query = $connection->prepare("SELECT * FROM users WHERE EMAIL=:email
19          $query->bindParam(:email , $email, PDO::PARAM_STR);
20          $query->execute();
21
22          $if ($query->rowCount() > 0) {
23              echo '<h1><font color="white"><center>The email address is alread
    </h1>';
24          }
25
26          if ($query->rowCount() == 0) {
27              $query = $connection->prepare("INSERT INTO users(FIRSTNAME, LASTNAME,PASSWORD,EMAIL) VALUES
    (:firstname, :lastname,:password_hash,:email)");
28              $query->bindParam("firstname", $firstname, PDO::PARAM_STR);
29              $query->bindParam("lastname", $lastname, PDO::PARAM_STR);
30              $query->bindParam("password_hash", $password_hash, PDO::PARAM_STR);
31              $query->bindParam("email", $email, PDO::PARAM_STR);
32              $result = $query->execute();
33
34              if ($result) {
35                  echo '<h1><font color="white"><center>Your registration was successful!</center></font>
    </h1>';
36              } else {
37                  echo '<h1><font color="white"><center>Something went wrong!</font></center></h1>';
38              }
39          }
40      }
41  }
```

Few issues when trying to run the code, added a $ to the if which made it variable, removed this and program worked.

```php
21
22          if ($query->rowCount() > 0) {
23              echo '<h1><font color="white"><center>The email address is already registered!</center></font>
    </h1>';
24          }
```

```php
<?php

include('config.php');
session_start();

if (isset($_POST['register'])) {

    $firstname = $_POST['firstname'];
    $lastname = $_POST['lastname'];
    $email = $_POST['email'];
    $password = $_POST['password'];
    $repeatpassword = $_POST['repeatpassword'];
    if($password !== $repeatpassword) {
        echo '<h1><font color="white"><center>Password and repeat passwor
</h1>';
    } else {
        $password_hash = password_hash($password, PASSWORD_BCRYPT);

        $query = $connection->prepare("SELECT * FROM users WHERE EMAIL=:emai
        $query->bindParam("email", $email, PDO::PARAM_STR);
        $query->execute();

        if ($query->rowCount() > 0) {
            echo '<h1><font color="white"><center>The email address is al
</h1>';
        }

        if ($query->rowCount() == 0)
            $query = $connection->prepare("INSERT INTO users(FIRSTNAME, LAST
(:firstname, :lastname,:password_hash,:email)");
            $query->bindParam("firstname", $firstname, PDO::PARAM_STR);
            $query->bindParam("lastname", $lastname, PDO::PARAM_STR);
            $query->bindParam("password_hash", $password_hash, PDO::PARAM_STR);
            $query->bindParam("email", $email, PDO::PARAM_STR);
            $result = $query->execute();

            if ($result) {
                echo '<h1><font color="white"><center>Your registration was successful!</center></font>
</h1>';
            } else {
                echo '<h1><font color="white"><center>Something went wrong!</font></center></h1>';

            }
        }
```

Another problem was the semicolon at the end of the statement. This was corrected and loaded the login page.

Another problem that was hard to detect was missed curly brackets. Added the missing brackets and the code interpreted fine.

```php
</h1>';
        }

        if ($query->rowCount() == 0) {
            $query = $connection->prepare("INSERT INTO users(FIRSTNAME, LASTNAME,PASSWORD,EMAIL) VALUES
(:firstname, :lastname,:password_hash:email)");
            $query->bindParam("firstname", $firstname, PDO::PARAM_STR);
            $query->bindParam("lastname", $lastname, PDO::PARAM_STR);
            $query->bindParam("password_hash", $password_hash, PDO::PARAM_STR);
            $query->bindParam("email", $email, PDO::PARAM_STR);
            $result = $query->execute();

            if ($result) {
                echo '<h1><font color="white"><center>Your registration was successful!</center></font>
</h1>';
            } else {
                echo '<h1><font color="white"><center>Something went wrong!</font></center></h1>';
            }
        }
    }
}

?>
```

Task 3 Part A- Gathering and evaluating feedback

What's your name? Bill	Please respond to the question here
Did the prototype allow you to sign in?	Yes, it was easy to sign in
Did you get a confirmation email?	Yes, but it did not have much information
Did the prototype allow you to login?	Yes, I was able to login
Were you able to navigate around the page?	Yes, all of the links work
Was your name clear?	Yes
Was today's data clear?	Yes, but it was very small
On your food diary were you able to view your food intake?	The quick tools worked, and I was able to scan and add food to the table
Were the calories, carbs, fat and sugar value of your food displayed?	Yes
Were you able to access the two available video?	Yes, great to see had option of viewing within the page and if wanted can view full screen, one problem, it would be nice to select various videos which maybe suited to my workouts
Were you able to access my fitness training page?	Yes
Were you able to add a type of exercise from the drop-down list?	Yes, but the choice was basic
Was the output of the exercise calculated and clearly displayed?	Yes
Was the output of the weight exercise calculated and clearly displayed?	Yes

Was the weight difference displayed if you were under your target?	Yes
Were you able to access my reports page?	Yes
Was your report clearly displayed on the screen for today?	Yes
Were you able to access a blog and make a post?	Different blogs available to use
Overall were you able to navigate around the system and select the different options?	Yes
Were you able to change the settings to make the text bigger?	Yes
Could you use the website on the computer, and did you have any problems?	Yes could be used and no problems

Can the Website be developed or improved further?
I liked the simple navigation bar at the top of the page.
The confirmation email could have more information such as terms and conditions.
The types of exercise from the drop-down list needs more options.
The types of exercise from the quick list option needs more options.
I was able to link to my iPhone health website, but the data was not imported and calculated into my daily total.
The search for a fish recipe did not work. I had lots of different recipes.

I did not like the sound effect I had to turn off the volume.

Thank you for your help

TokaFitness

What's your name? Paul	Please respond to the question here
Did the prototype allow you to sign in?	I was able to sign in
Did you get a confirmation email?	No, I entered the wrong email address
Did the prototype allow you to login?	Yes
Were you able to navigate around the page?	Did not read it
Was your name clear?	Links work
Was today's data clear?	Yes
On your food diary were you able to view your food intake?	Yes
Were the calories, carbs, fat and sugar value of your food displayed?	Yes, I like this
Were you able to access the video?	Yes

Were you able to access my fitness training page?	Yes
Were you able to add a type of exercise from the drop-down list?	Yes
Was the output of the exercise calculated and clearly displayed ?	Yes
Was the output of the weight exercise calculated and clearly displayed?	Yes
Was the weight difference displayed if you were under your target?	Yes
Was the weight difference displayed if you were over your target?	Yes
Was the data imported clear?	Yes
Were you able to access my reports page?	Yes
Was your report clearly displayed on the screen for today?	Yes
Were you able to access a blog and make a post?	Yes
Overall were you able to navigate around the system and select the different options?	Yes
Were you able to change the settings to make the text bigger?	Yes
Could you use the website on the computer, and did you have any problems?	No
Did the prototype allow you to sign in?	Yes
Did you get a confirmation email?	Yes

Were you able to view a fitness training video?	Yes
Were you able to access my reports page?	Yes
Was your report clearly displayed on the screen for today?	Yes
Were you able to access a blog and make a post?	Yes
Were you able to link to the Instagram website?	Yes
Were you able to access Twitter from the website?	Yes
Overall were you able to navigate around the system and select the different options?	Yes
Could you use the website on the computer, and did you have any problems?	No problems

Can the website be developed or improved further?

I like this website, I think it would be very useful if you were on a health kick. I was able to navigate the system, each of the options worked and I was able to add foot to my list.

I like my reports as I could plan my food for the day by entering food items for each of the meals.

If you could get the website to link to my iPhone that would be a very useful function.

The website was very professional looking, and I would recommend this website to my friends.

It gave lots of information and advice about fitness training and healthy living so it will help me.

Like all of the videos and but could have personal trainer advice.

I could not link my iPhone, some help files would help.

A link to the ToKa Fitness Facebook page would also help.

Some of the layout and use of text should be looked at to make the information stand out clearer. Some of the screen instruction was unclear.

I did not pay for full membership but access to the free service was easy and had lots of useful information, I would think about the full membership if I knew more about the full membership services offered. I was able to access the website on my iPhone and on a computer.

Thank you for your help

This is the report on the analyses of the feedback gathered from the previous task.

I asked 3 of my colleagues to review the prototype. I asked them to consider the following points and to share their thoughts:

- the prototype did well

- could be developed or improved.

Consolidated summary findings from the testers

I liked the simple side navigation bar on the page.

The confirmation email could have more information, such as terms and conditions.

I was able to view on mobile phone, but the data was not imported and calculated into my daily total.

It was easy to use but I could not see some of the text and links. I only do one type of exercise so that was ok, but you need more options.

I like this website, I think it would be very useful for motivational purposes. I was able to navigate the system and each of the options worked.

I like my reports as I could plan my food for the day by entering food items for each of the meals.

I like the graphs, which made it easier to view the information statistics.

If you could get the website to link to my smartphone that would be a very useful function.

The website was very professional looking, and I would recommend this website to my friends.

It gave lots of information and advice about fitness training.

Like all the videos but more options would be useful.

I could not link my phone, some help files would help.

A link to ToKa Fitness Facebook page would also help

Some of the layout and use of text should be looked at to make the information stand out clearer. Some of the screen instruction was unclear.

My observation summary notes

Might need further on-screen guidance notes.

Good navigation options, all navigation links worked.

Testers able to change interface to make the text larger.

Testers liked the use of quick tools to enter an item.

Further options required for the video choices.

Linking to other technologies to be reviewed and linked to help files for technical problems.

Testers were able to access the website through a mobile device, tablet and computer.

Overall, the website performed well, the system was responsive and user navigation worked well, accessibility features for users with sight loss also available.

Overall, the website performed well, the navigation performed well, and it was easy to use.

Testers liked the information and advice about fitness training and healthy living and the links to the videos worked well. The information and guidance in the verified links should reduce health issues or injuries.

The quick tools and add food facility worked, and the user was able to add food items and the overall daily reporting function helped with the planning. Testers were able to add food items such as breakfast, lunch, dinner, and snacks, copy set meal data, copy yesterday's meal data, and create own meal calorie counter/analysis. However, they do have the option to add other exercise options manually. Therefore, testers had the ability to customise some workout and eating plans.

The type of exercise from the quick list option requires more options, but the tester liked all the videos. Testers liked the option of using the website to download social media websites, and link to specific health and nutrition websites. One of ToKa Fitness's user requirements was that it would promote ToKa Fitness, one of the testers reported that "The website was very professional looking, and I would recommend this website to my friends". Therefore, it meets the users' functional and non-functional requirements. Testers were able to access the website through a mobile device and a computer after some modifications to the CSS files.

Services and functions to develop further are the content of the email confirmation, to include information about full membership and the terms and conditions. The tester like the graphs, which were easy to understand and showed a visual representation of the data. Making it easier to follow progress.

They also reported that linking to other technologies was not a stable option. Some technologies linked and the data was imported and calculated in the website but not all technologies. This needs to be investigated further and help files or links added to the website.

Changes required:

Issue	Solution
Confirmation email required further information	Information about terms and conditions, information about paid content for full services to be added to the email content. So that users are informed of the services offered and cover the requirements of professional privacy and security of user data.
Insufficient options on exercise list	Provide further exercise options to allow users to customisable workout plans. This will improve the level of detail of options and instructions in the fitness training plan.
The interface needs to be reviewed	Text size and colours and use of white space to be reviewed, use of green text to be changed to purple text so that visually impaired users can see the information.
Interface guidance	On screen guidance notes to be added so that the user can navigate the website easier. This will promote user experience and company image through visual assets and content.
Link to social media	Testers were able to download social media websites. Providing a link to link to the ToKa Fitness Facebook page would provide further information on services and terms and conditions.

Legal Services

All legal requirements supported by ToKa Fitness in regard to EU & UK Data Protection.

Social Networking Services

You may enable or login to the services via various online third-party services, such as social media and social networking services. To take advantage of these features and capabilities, we may ask you to authenticate, register for, or log into social networking services on the websites of their respective providers.

Task 3 Part B – Assessing project outcomes

ToKa Fitness wanted a website that offers personal training sessions and advice on fitness training and healthy living to its customers and requested that following functional requirements.

ToKa Fitness key performance indicators for the proposed solution were:

- has free access with some accessibility to services
- accessibility features for customers with sight loss
- link to 'social media' features
- ability to view workout.

The owner wanted to develop a digital system that:

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

I believe that the website developed meets ToKa Fitness and their customers' needs, and the majority of the customer acceptance criteria for the proposed system conditions have been met.

The website is suitable for the target customer group of adults, males and females, and complies with age restrictions and guidelines. Clear advice will be given to reduce health issues or injuries and this complies with the industry's legal and ethical requirements. The customer area is secured and accessed via password and payment made in a secure platform. This complies with legal requirements. The privacy and security of customer data is important and each member will have access to their area via secure login. This will ensure that ToKa Fitness is perceived as a reputable company and encourage existing customers who have access to digital devices to use more of the services provided by ToKa Fitness. This will hopefully also encourage new customers to use the website and services.

One of the many key requirements of the website that was met was that customers were to be given two options, free access with some accessibility to services or full access where the customer would pay for further functionality and analysis. This function was made available to the customer. They were guided through the process with on screen tips on how to complete the website to become a full member.

- Please enter your full name
- Enter long card number

- Enter security code

The email sent to the customer after they made the payment provided membership information and how to access the service and covered the industry's legal and ethical requirements.

The website can be accessed via mobile devices and a computer and has compatibility across different devices Android and iOS, as requested, providing the customer with further options and flexibility of use especially accessibility features for customers with sight loss. During the testing process, it was identified that the summary of food and fitness training reports was displayed. The remaining calorie and fitness training targets were displayed in coloured text. This is a summary of daily calculations.

During the customer testing process, it was evident that the website was easy to use with on screen guidance and prompts to enhance the customer experience in all areas of the website and used website high-quality visual assets and content to provide a better customer experience.

Customers were able to access the system as a full customer with payment or free with limited access to the resources. The payment service offered a secure environment for these transactions and complied with the legal requirements.

For a customer's eating plan, the website allowed the customer to customise their eating plan through the use of quick tools and add food options for each of the meals. Customers could select from a pre-defined list of food, adding the item via the input form. The option to copy yesterday's meal was also offered to the customer. This allowed the customer the opportunity to create a customised eating plan.

During the testing process, it was identified that further types of exercise needed to be added to the list, to allow the customer to provide an accurate record of their exercise. The exercise minutes and the type of exercise were calculated by the system to produce the fitness output, and this was compared to the customer's goal, and a difference was displayed.

Output	Goal output data	Difference
30 min	30 min	0

Each customer's fitness training plan allow the customer to meet their identified goal.

Providing links to the fitness training video and healthy living and eating video was another key requirement of the system. This provided access to digital content to support customers with their training and healthy lifestyle and to information and advice about fitness training and healthy living to help customers improve their own health and fitness.

All links to external sources took consideration of copyright and intellectual property and licensing requirements. All of the links were also verified before linking to the website.

A key requirement was that the website linked to 'social media'. The links on the website also encouraged customers who have access to digital devices to use more of the services provided by ToKa Fitness and other blogs and forums. These links provided further information and advice about fitness training and healthy living to help customers improve their own health and fitness. All of the main social media services were represented on the website.
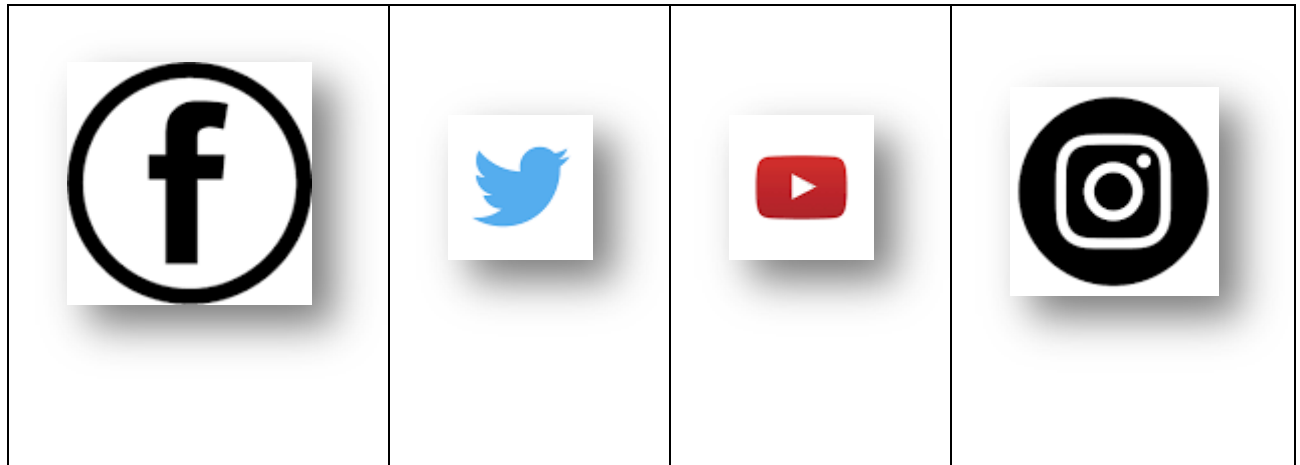
The customers were also able to download the website function and were provided with help files if they experienced any problems.

The website was tested, the feedback was analysed, and action taken to enhance the customer experience. A video was also developed that guided the customer on how to fully utilise the website functions and understand the report so that they could improve their own health and fitness. Testers liked the option of using the website to download social media websites, and link to specific health and nutrition websites as well as the recipe option. Providing access to digital content to support customers with their training and healthy lifestyle through direct links and to information and advice about fitness training and healthy living was achieved, as the customer was given access to specific verified fitness training videos to help improve their own health and fitness.

One of ToKa Fitness's user requirements was that it would promote ToKa Fitness, and feedback from testers reported that "The website was very professional looking and I would recommend this website to my friends". It meets the user's functional and non-functional requirements.

I believe that the majority of the functional and non-functional requirements of the system and legal requirements were met as the website provides customised information and advice about fitness training and healthy living to help customers improve their own health and fitness. Overall, the website performed well, the system was responsive and user navigation worked well. Accessibility features for users with sight loss also available.

My proposed solution provides ToKa Fitness with a professional and easy to use system that promotes their business and encourage customers to use it.

The potential future improvements identified throughout the development and testing process are that further types of exercise need to be added to the list. Testers reported the opportunity to select various common exercises was not available. To provide a list that would allow the customer to provide an accurate record of their exercise. The exercise minutes and the type of exercise would then be calculated by the system to produce a customised fitness plan for the customer.

Further development of the option to link to other technologies is also required. Testers were frustrated that they could not link to their technology; therefore this will be the next stage of development. Providing the customer with the option to link into other technologies would allow the website to record other data such as steps, blood pressure, posture etc.

Web interface usage: On accessing the website the user lands on the website's homepage. The user can access the website under two different profile categories: a visitor, a registered user. The homepage contains a side navigation bar that allows easy access to different sections of the website. As a visitor the user can access the following sections of the website.

1. About: The user can view details about the developers, what the product is and contact information of the development team.

2. Food: General and specific food-related information that can be helpful while following a particular regimen and links to websites for more specific and relevant information.

3. Forum: The user can access the forum and read threads from existing users, however they cannot post new threads or reply to them as a visitor.

4. Community: The user, as a visitor, can access the details of existing users and filter them based on specifications like weight range, gender, workout being followed etc.

5. Generate reports for various activities.

DRAFT **T-LEVELS**

Exemplification Materials

Technical Qualification in Digital Production, Design and Development

Occupational Specialism: Digital Production, Design and Development

Project 1 - commentary

Task 1 – commentary

Activity A

The student has provided a comprehensive identification of the problem to be solved and demonstrated complete decomposition of the problem. The solution is of sufficient scope to meet the needs of the client and its users.

The proposal provides a thorough justification that the solution meets the needs of the client and users, potential risks are discussed, and steps taken to reduce the adverse effects. The student has considered the relevant guidelines and legal requirements concerning the development of their product and its application.

The student has provided comprehensive explanations of functional and non-functional requirements, key performance indicators and acceptable user criteria and has shown a thorough process of computational thinking.

Task 1 – commentary

Activity B

The student has provided designs that are fit for purpose. They have shown the use of each object and that does not diminish other information that is relevant to the product. The student has designs that are consistent in layout and the use of white space and have consistent elements within each page. Hierarchy navigation shows where it starts, the index page and allows the users to navigate down the website, illustrating the direction the user would take to navigate around the site.

Algorithms

The student has included a model case diagram using UML to get an overview of the system and state diagrams for individual components. The algorithms demonstrate understanding, precise logic and efficient structure. They have inputs, processes and outputs that have been tested using a trace table. Each step is defined, uses sensible names for variables, indention is provided and comments written underneath explaining how they work, which is the appropriate and consistent use of accepted conventions.

Data requirements

The student has provided comprehensive coverage of the variables, data types and an explanation. They have included entity-relationship diagrams and applied appropriate and consistent naming conventions. Data dictionaries are shown identifying the most relevant fields for this project.

Test strategy

The student has shown excellent progression from the abstraction model to the algorithms. The test strategy is comprehensive and shows how components interrelate, the order in which the parts are tested and the testing that is required.

Task 2 – commentary

Prototype

The student has created a functional prototype using more than two different programming languages PHP, JavaScript, SQL, and JSON. The prototype has been well planned.

Techniques and technical skill are good with the use of an API for the data table. The structure is modular and code is well organised, using precise logic and appropriate programming structures throughout, which consistently shows the correct outcome. There are informative comments, especially in the validation Indentation has been used throughout and the student has demonstrated the proper use of local variables and where necessary the use of global variables. It is a well-defined interface that is consistent throughout and has more than adequate use of fonts and colours. The product is robust and handles common and unexpected errors.

The code is easily maintainable by a third party as it consistently uses appropriate naming conventions as well as logical, organised and informative commenting.

There is consistent and practical application of standards and guidelines that show considerable thought has been put into accessibility, compatibility and legal and ethical considerations.

Task 2 Testing

The student has shown a thorough and detailed understanding of how to test inputs, calculations, validation checks and processes. They have provided tests that cover normal, erroneous and extreme data. Comments show a comprehensive understanding

of how errors/problems have been identified and also how they been rectified. Testing shows evidence of an excellent iterative development process.

Task 2 Documentation

The practical development process includes a detailed recording of changes made, reasons for change and use of different version. There is a detailed description of the data that will suit user requirements so that both high- and low-level properties of data and their use are dealt with. The design and development process included confirmation that the actual physical prototype is in good standing, as well as the implementation of changes and solutions for any problems that might arise.

Task 3 – commentary

Part A

There is an effectiveness in the materials that the student has provided shows that they can support the feedback process and the documents would allow for the gathering of good-quality feedback for different aspects of the developed prototype. The feedback was consistent and provided evidence of further iteration.

The quality of communication is sufficient for both technical and non-technical audiences as a result of the consistent use of appropriate techniques, methods and formats.

Part B

The assets used are appropriate for this product. The student has considered legal and ethical issues, especially a consideration for people who are struggling with weight problems and a consideration of how this may affect them. Sources are reliable and valid.

There is a detailed evaluation of the functional and non-functional requirements of the system. They have discussed the KPIs3. They have also included how each webpage meets user needs.