Software Development 4th Year Project

Fitness Application and Website

Research Document

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Research

Section 1.1

Similar Ideas

Section 1.1.1
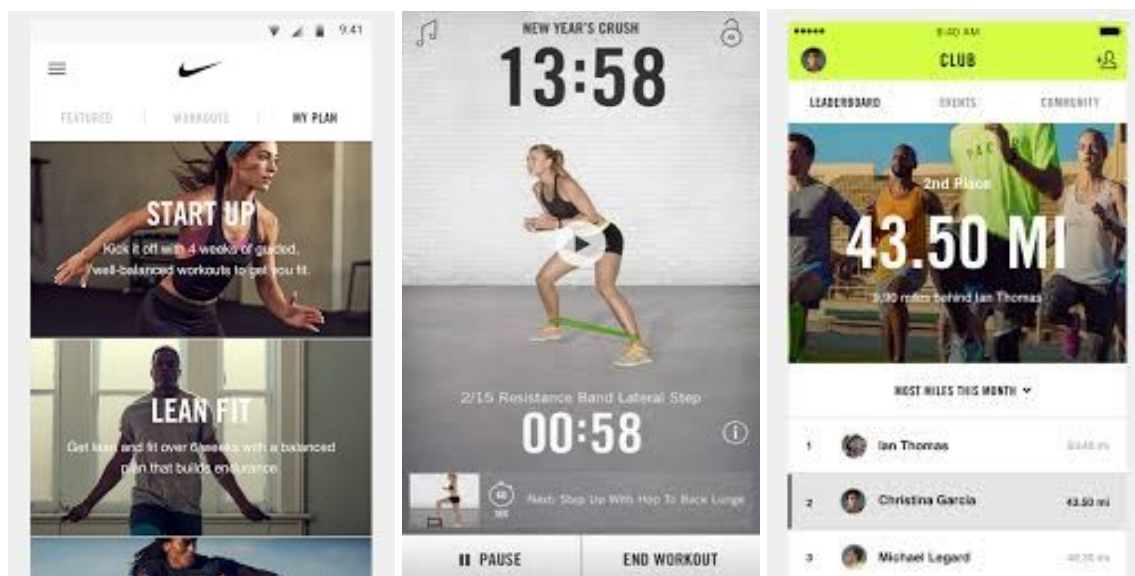
Nike Training Club

(Free)
Over 160+ workouts for different areas of fitness. Allows user to create a plan for themselves given some details. Allows for all levels of fitness (Beginner to Expert). However, I feel these details aren't specific enough and the user needs to give more details in order to get a more accurate plan for their needs. Also, the app does not include diet plans for their users which I intend to implement into my app as I feel they are essential along with a good workout regime in order for the users of the app to achieve their goals. As it is a Nike app there is a lot of self-advertisement of their products in their app which may not appeal to some users as they are feeling pushed towards Nike products. I will not have advertising in my app as my goal is solely to help improve their personal health by using my app and not to make a profit. Nike Training Club does not have a web application which I plan to have for my project. The web app will contain most things that the phone app will contain while also having extra elements such as in depth stats and progress reports.

There are a lot of elements of this app that I really do like, obviously with the funding this app would be given from Nike, the developers were able to implement a lot of very good features that I feel will make it the strongest competitor against my application. You can also see that a lot of knowledge for this app came from professional personal trainers and celebrities that Nike can afford to bring in to make their application more desirable to users as they may feel that professional personal trainers will give them more beneficial workouts to do or that they will be able to look like their favourite celebrity if they do their workout. A problem here that I will encounter is the fact that I do not have the funding or the contacts to hire a professional personal trainer or celebrity to help me make my programs. For this reason I will have to use my current knowledge on fitness and dieting and do extensive research on the topic also in order to make my app compete with this app.

One flaw with using these celebrities however is that the users will expect to look like these celebrities through working out alone, as Nike Training Club has not included a diet plan, therefore forcing users to look elsewhere for a diet plan to suit their needs.

This will be the main advantage my app will have as users will access to personalised diet plans in the app and on the website, meaning they will have access to both their workout and diet plan all in one place. It is an Editor's Choice application on the Apple Store which is another big plus for the app as it is very easy to find on the market.

The application is available on IOS and Android stores and its URL is https://www.nike.com/ie/en_gb/c/training/nike-training-club

Section 1.1.2

Sweat:Kayla Itsines

(Free)
Like the Nike Training Club it uses a famous person/people to endorse its app which is an advantage that they will have over me as I do not know any famous people to endorse my app and am also not willing to pay someone to endorse it. However, this app is specifically aimed towards women therefore leaving out a large part of the fitness and health market. Therefore I feel it offers little to no competition to my app as it will work for both women and men.

This app does have the strong element in that it includes a diet plan for its user. I feel for this reason it will be the most similar to my application, in that it offers workouts

and diet plans, but these plans are not specific to the user, therefore having the weakness of very little personalisation.

The application uses apple watch technology also which really interests me as I want to implement this technology and can use this app to see how it works.

Now for the worst part of the application, which I can imagine unappealing to a large amount of users and that is that after a week of using the app the user will be charged €3.97/week to use from then on. This is also quite slyly implemented as the app is free on the store but says it has in app purchases and the subscription pricing and terms are listed at the bottom of the description paragraph on the IOS store. My app will not have this element as I feel it is very important to be open to with the apps users as if you upset them with sneaky tactics like this the app may lose a lot of users. My app's purpose is not to trick people into paying money, its sole purpose is to get the user to live a healthy lifestyle.

The application is available on IOS and Android. It ranks very lowly on Android with 2.9 stars and 5,409 one star reviews out of 12,751 and from what I have seen this is mainly down to the sneaky charge after one week. This clearly shows people do not like being tricked into paying money no matter the cost and is a very good example not to try anything like they have done in this application when developing your own application. Kayla Itsines also has a website where she sells very expensive personal plans. The URL is https://www.kaylaitsines.com/
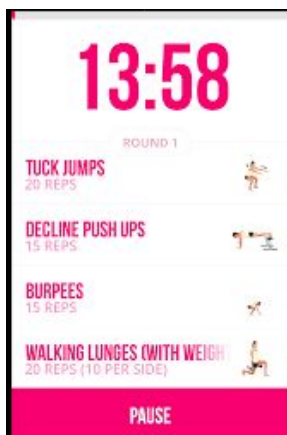
Section 1.1.3

6 Pack Promise-Ultimate Abs

(€3.49)
 Offers a weekly ab workout to achieve "Ultimate abs". The advantages my app will have over this is that this app only works on the core and no other regions and doesn't help with cardio and fitness either. I also found that the workouts assumed a high level of fitness as even the very early workout sessions were very difficult to perform. It also has the disadvantage in that it is a paid app that some users might not be interested in spending money on.

This is one of the apps I have actually used quite frequently and as I have mentioned above and it is not an ab for beginners. It assumes quite a high standard of fitness. Even the early workouts would have you in pain and I can imagine if a beginner started using this app they would quickly find another hobby. My app will account for all levels of fitness, young and old, male and female, meaning anyone can use my app and a plan will be available for their needs.

I also was not impressed by the apps layout, It just looked a bit thrown together and the focus was primarily on users just doing the workout and then not using it until the next workout, therefore I can understand why the UI doesn't look all that appealing. That is not something I can do with my application as users will hopefully be using my application throughout the day to view their diet plans and their workouts.

It also makes a user pay for a pro version after a weeks workout for €2.52. I'm finding that in-app purchases like these are an all too common occurrence among apps nowadays and is having the negative effect of customers not trusting apps as much anymore. This application is actually rated quite well on the IOS store and Android store but where the negative reviews come from, is again, from unexpected in app purchases. It doesn't even say at any point during the description of the app that there will be a purchase for the full version after a week.

The app provides the services of a professional personal trainer providing the plans but there is only one fixed plan that you can do. You also require more and more equipment as the weeks progress, making it more difficult to keep working with the plan if you don't have access to the equipment. There is a randomize workout option where the app will provide a workout for a user but without any knowledge of the users details, the workout will more than likely not be accurate to its user's needs.

The URL for this app is http://www.6packpromise.com/
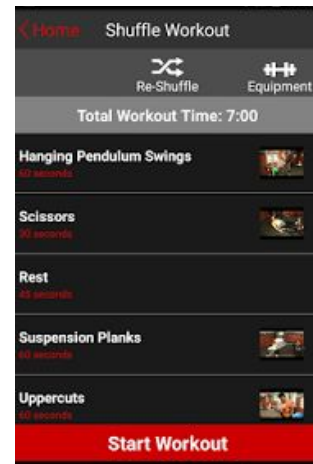
Section 1.1.4

Couch to 5k Runner pro

(€5.49)
A good app if you want to improve your cardio. However, it is entirely cardio based and offers no other forms of workout as well as no diet plan for the runner. As most people know you can not run 5k if you are not on a good diet plan. My app will allow someone who wants to improve their fitness level by offering a workout plan as well as a diet plan.

The price is also quite expensive in app terms, which may have users looking for an alternative application that provides a similar service but the reviews for this application are very positive which looks to be a good counter to the high price as it seems for this particular application what you pay for is what you get and the fact that there are no sneaky extra charges is something that I'm sure most users will appreciate. For this reason, I think this application shows perfectly how you should sell a paid application, which I can consider if I want to make my application a paid for application.

The app also have some other clever elements implemented into its system such as, built in GPS and distance tracking, which is a very useful feature when it comes to cardio apps. My app will have elements of cardio so a feature like this could be a very beneficial in my application. Also, the app has integrated the use of the Apple Health application for calorie counting along with other elements of fitness available in the Apple Health app. This could be a similar way to how I store user statistics for my application.

I am also a fan of the achievements and badge set-up in this application as it offers a good incentive for users to get up and go in order to achieve these awards. There

are a host of possibilities with some sort of reward function implemented in my application that could offer strong incentives for the user to continue to use my application. I've also seen, like I have seen with most fitness applications, the ability to allow the user to connect to their facebook or twitter account. I suppose this is to allow users to update their friends/followers on their progress within the application. Now personally I do not like this feature as I feel it's a distraction and are only using the application to boast about your progress. I do not think I want to involve that in my application but I may have to as it is become ever more common in most applications.

The application is available on IOS and Android and It does not seem to have a URL associated with it.
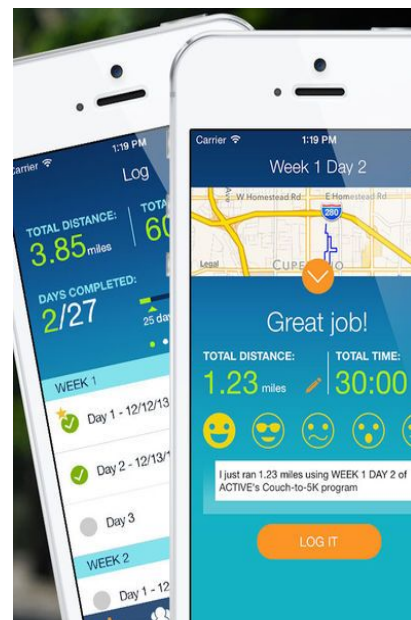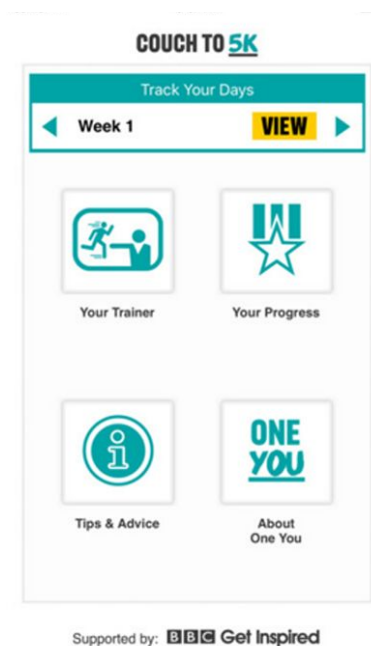
<u>Section 1.1.5</u>

Full Fitness: Exercise Workout Trainer

(€3.49)
Offers a great deal of area specific exercises (Back,Arms,Chest etc) along with the ability for the user to input and track their progress. However, with the progress tracker I did not feel it looked well on the phone and was hard to follow. I think it would be more beneficial on a web app which is what I plan to do for my project. The workouts also aren't specific to a user thus the user has to dig through the exercises to find one they would like to do. It does offer video and text instructions on workouts which is also what I intend to do with my application.

As mentioned above, what this app does well is the variety of workouts and how they display how these workouts out through their clear and concise video tutorials, making it very easy for a beginner to pick it up and give it a go. They also offer visuals on the areas of the body that you are exercising. For these reasons, this application looks like one of the better in its field for taking on beginners and getting them interested in fitness, the instructions and tutorials are implemented very well.

The application rates very well on the market for its simple and straightforward approach. Users seem to appreciate the fact that the app sets out to help the user improve themselves with no additional charges after purchase and the fact that users now have access to 100s of workouts that are well demonstrated.

The application is only available on the IOS and does not supply its service to the Android market, which may save it on development costs but does take away a large section of potential users.

I have also noticed that the on the IOS market in its description it says "24hr sale! Only a day!" Yet it has been the same price for the last 2 weeks since I have been doing research on it. I'm not sure if this is entirely legal and will not be taking a risk trying this technique!
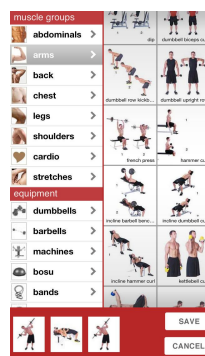
Section 1.1.6

Cronometer

(€3.49)
 A food diary to track your diet yet it does not offer the user a diet plan for them to follow. My website will have some features similar to the Cronometer app in that it will contain a food diary for the user to track their diet. Perhaps the user can tick a box to say they ate their breakfast on a certain day and that will save the data to their food diary in the web application.

This application also utilizes the Apple Health App which seems to be a common theme amongst the applications in the health and fitness category in the IOS market.

The reason I have included this application in the research category, even though it has nothing to do with working out or fitness, is because it is something I could take notes on in relation to the diet plan portion of my application. The statistics of food are implemented well in this application and gives users a large amount of information on what they are eating and what it is doing for them. I will use information similar to this in my application. This application also allows users to create their own food diary and diet plan, which is something I could allow my users to do or I could just generate them a diet plan based on the information they have given me.

The application also counts calories from food and allows users to enter data involving exercise they have done, comparing calories gained through consumption of food and calories burned from exercise, another statistic that I can consider for my application. They also provide a very specific calorie breakdown in their app, providing information on the amount of protein, energy, net carbs and fat gained from a food. This is another nice element I could consider putting into my application, however it is very specific and may not necessarily serve a strong enough purpose for the amount of work put into implementing it in my application. There is the potential that statistics like these could be set up on my website for users to view.

Along with the application being €3.49 to purchase the ad free version, there is also a monthly subscription service of €5.15 for additional services provided in the application, making this quite an expense for some users.

The application is available on IOS and Android and its URL is https://cronometer.com/ . This website allows a user to log in and few their statistics, which is quite similar to how I want to display my users statistics as I feel they will be easier to view on a web page, especially if I want to display this information on an in-depth graph.
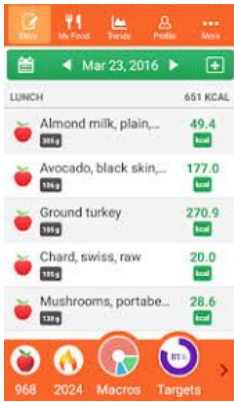
Section 1.1.7

Fitbit

(Free)

A very good app for tracking activity and progress as well as offering some workouts for the user. However, even though the app is free in order for it to workout to its full potential you do need to purchase some fitbit merchandise, which can range anywhere from €30 to €200. People looking to improve their personal health on a budget may be turned off by these prices.

If a user can afford these expensive add-ons for the application, there are a good amount of services the fitbit application can provide. Along with tracking your steps and distance using your phone's ability to track steps taken and distance travelled, with the fitbit equipment the user has purchased, they can also track additional stats like calories burned, active minutes and time spent asleep along with many other stats being tracked by the application.

The user can use the application while they run to track their pace, time and distance travelled and use this information to improve and enhance their running time. However there are no real tips from the application on how the user can improve their running speed or running distance. All it really does is display the progress or lack of progress the user is making.

The application is another that allows the use of GPS in its app, to set out a route for the user. GPS only seems to be implemented in apps fully focused on cardio, more specifically running or walking. My app will have elements like this but will not be the full focus of the application, therefore I will have to make the decision whether or not implementing a GPS system will be worth the time and effort if it is not going to play a large part in the application.

This app is available on IOS and Android and the URL for its URL is https://www.fitbit.com/ie/home where they sell their merchandise.
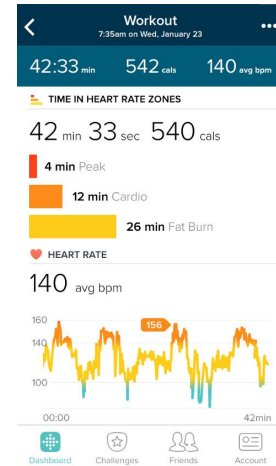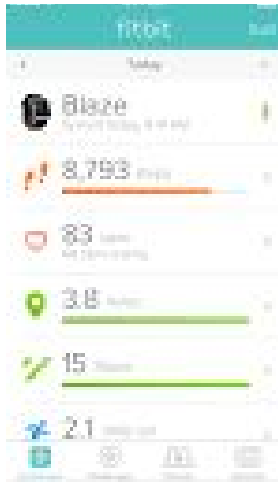
There are many other fitness and health apps out there. The marketplace is full of weight-loss apps, workout apps, fitness apps, progress tracker and food diary plan apps, yoga apps etc. What makes my app stand out from the crowd is the fact that it will merge all these aspects together and allow a user to go to one place for all their fitness needs. As well as having the web application and potential smartwatch capabilities which will also give it leverage over competition. It is an ambitious project and with competition with the likes of Nike it will be difficult to make this app a success. Nonetheless, if this app is implemented well it will have more than enough to have the upper hand over its competition. I have benefitted in my research of other apps similar to my idea as it gives me a good idea of what is out there already and what I need to do in order to elevate my app over the rest of the competition. There is also aspects of other apps that I did not think about before and I feel I can carry out actions similar to these aspects, improving on them and using them in my application.

Section 2

Phone Application

Section 2.1

IOS vs Android

Section 2.1.1

IOS(Apple)

Ideally for this project I would like to develop my phone app on IOS as I already have experience in developing Android applications.. The only problem is the expenses involved with doing this. In order to develop an IOS application I would need to acquire a Macbook and as most people know Macbooks are not cheap, with a student discount the price of the cheapest Macbook air is €1,061.49. Even with their 'generous' student discount this is still not feasible for me to do my project on IOS. I feel this is a slight disadvantage as in my opinion the IOS market is a much better place for an app to be. Apple will not accept all apps published to the store, therefore Apple customers know they are getting an app that works. The same can not be said for Android but I will cover that under the android section. I would also liked to have used Apple's Xcode software development tool as I have heard good things about it and would like to try it for myself. I was especially interested in the fact that you can code your app using numerous different programming languages.   Another advantage of building on IOS is that apple phones tend to have more built in memory into the phone allowing the user to store more and bigger apps. Also to consider is how popular Apple products are against other mobile operating systems. IOS is more popular in Europe and North America than any other operating system therefore the market is larger and more people will have access to my application if I was to build it for IOS. That does not mean I would not have a large market if I developed the application for a different operating system. After much research I have found that there are a lot of strong positive reasons to develop the app for IOS and not that many negatives. The main difficulty in developing for IOS will be actually getting the app onto the market as , like I stated above , Apple have a process and will only allow applications that pass this process onto their store. This makes it more difficult to get my app up on the Apple store than it would be to get it on the Android.

However, if I was able to get it on the Apple store, users would know it was a trustworthy application, so it would have that benefit. All things considered the positives strongly outweigh the negatives of developing an app for the IOS store, however it is hard to look past the expenses of this option. If I were to discover a cheaper method of developing an app for IOS it would probably tip the balance for IOS app development. I will take this into consideration when I look at potential application development tools.

Section 2.1.2

Android

The main advantage of programming my phone app in android is that I already have experience with it in having done a previous project, using android studio, on a soccer skills application. The application turned out good but I felt I could've done better with it and now I will have a chance to improve on my android programming skills. The main advantage of Android and its market is it is much easier to get your application on the market than it is on IOS. However, this can have its downfall as a lot of android users will not download unknown apps that aren't on the charts or proven to have beneficial function. This can make it difficult to get an Android up and successful. More marketing and advertising generally has to be done to give your android app an opportunity to take off on the market. This can lead to more cost for me to build my application. Another problem I encountered when building my app last time was that storage became a big issue as Android phones do not have as much storage as IOS. I fear I will run into this problem again when building my fitness app. Yet another issue is the smartwatch capability I want my application to have. It would be much easier to program in IOS and use Apple's smartwatch but it is still possible to do this using Android. Developing an Android app may not have as many positives as developing an IOS app, nonetheless, that does not mean there are no advantages to developing in Android. As I have explained above I am quite familiar with developing an Android app and using its technologies which will serve well for me if I decide to build this app for Android.

Section 2.1.3

Both

Initially I was looking at there only being one victor in my choice of developing an application for use on either IOS or Android but I must also consider the possibility that I could potential have the application available on both platforms. With more application development tools available than ever before there are a lot more possibilities for application development. When I built an application two years ago for a project, I had fewer options and alternatives than I do now. There is potentially

software out there that may allow me to develop for both these platforms and will allow me to access a much larger market if they were available on both platforms. However, I will have to consider the potential costs and workload this will involve. Perhaps it would be better to get the application running successfully on one market as opposed to the application half running on the two markets. To really help with my decision I will look into softwares that will help me carry out this process.
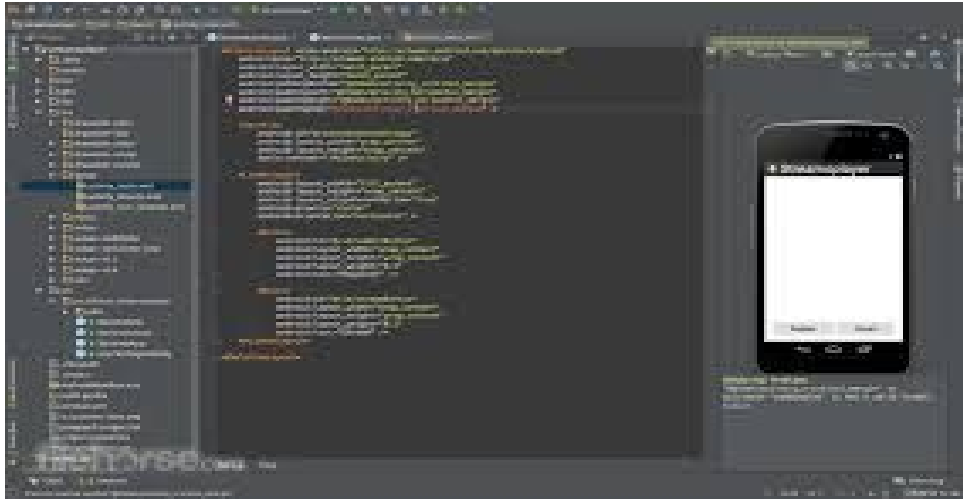
Section 2.2

Development Technologies

Section 2.2.1

Android Studio

As the official IDE of Android, Android studio feels like the right software tool to build my application. I also have experience with it so instead of learning how to use Android Studio and building an app I can learn more advanced techniques that will improve my app. This is a big advantage for me using Android studio. Alas, there is always a but and in this case it is because I had a hard time connecting the android app to my SQL database and had to change the outcome of my app as a result of that, Knowing this I will either do more research in connecting to the database before I jump into building the app with Android Studio or I will instead build the app using a different software development tool. I will have to develop the app in Java which is the programming language Android Studio uses. A feature I liked when using Android Studio was the fact that you could run the application on an emulator and see how it looks on different phones. Also, If you have an Android phone you can run the application on the phone and test it. This is a very helpful feature when you are trying to develop as you can easily pick out any flaws in the application. There are a lot of positive reasons for me to develop my application using Android Studio but I would rather program the app in a different language like C++ to test my programming ability in that language or even dive into a new language that I have never used before and that I've been looking for an excuse to try, such as Python.
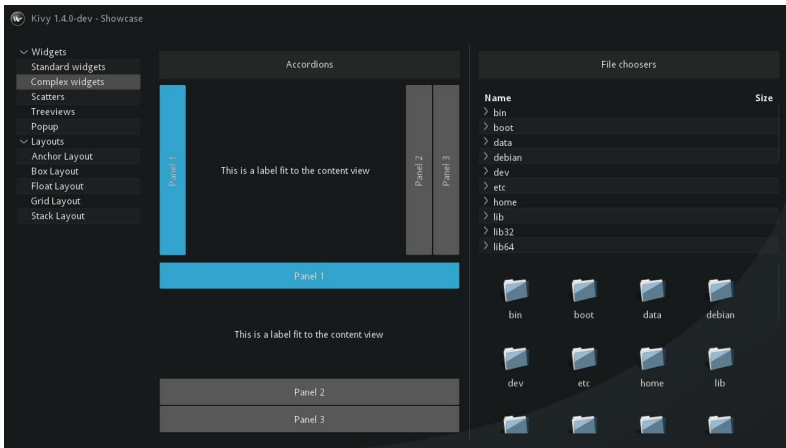
Section 2.2.2

Apache Cordova

Formerly known as phonegap, finding this mobile application development framework could be a game changer for the entire project. It allows the developer to program in C#,C++, HTML,CSS and javascript. This could make it considerably easier to connect my phone app to the database where I want to store user input. It may also allow me to develop the application for IOS which is the platform I would rather develop my application for. The fact that Cordova uses web developer languages is a huge asset for me as I am very comfortable in writing in HTML and CSS. The only problem is that this is a completely new software for me, hence I will have the difficulty of learning how to use it, but with a few tutorials I should be able to adapt pretty quickly to how it works. The installation process is also a bit more complicated than other alternatives but I'm sure this can be overcome. The fact that I am not familiar with this tool is not really a problem for me as I would rather test myself and improve my knowledge of different softwares as I feel it will be beneficial for me in the future For me Apache Cordova looks like a very good software to use for my application and I will strongly consider using it when the time comes.

Section 2.2.3

Kivy

If I really wanted to challenge myself I could develop my app using Kivy, which is an open source python library. This would be of benefit to me as I would be able to learn and use python, a language I have always wanted to learn but have never had the chance to do. Using Kivy I would have no other option but to learn python. Sadly, as the project is already difficult enough I think learning a new language may make it too difficult a task for me as the sole purpose of this project is to develop a phone app of very high standards and learning a new language will not benefit me in terms of this project. Therefore I am ruling out using Kivy but may get back to it at some point in the future.

Section 2.2.4

Ionic Framework

I also had an in depth look at ionic framework and how it works after coming across it while researching Apache Cordova. It is a HTML5 mobile app development framework targeted at building hybrid mobile apps. As it is a framework it needs a native wrapper in order to run as a native app. Cordova would work efficiently as said wrapper. The installation process is also very similar to the Cordova installation process. Additional installations for the framework can also be done through the command line. The process of setting up Ionic and Cordova looks to be a simple and rewarding one. It is also easy to view your progress with the app through ionic serve, which shows the app in a browser along with a console for error and log checks. It is clear to see why this framework is so popular since its release.
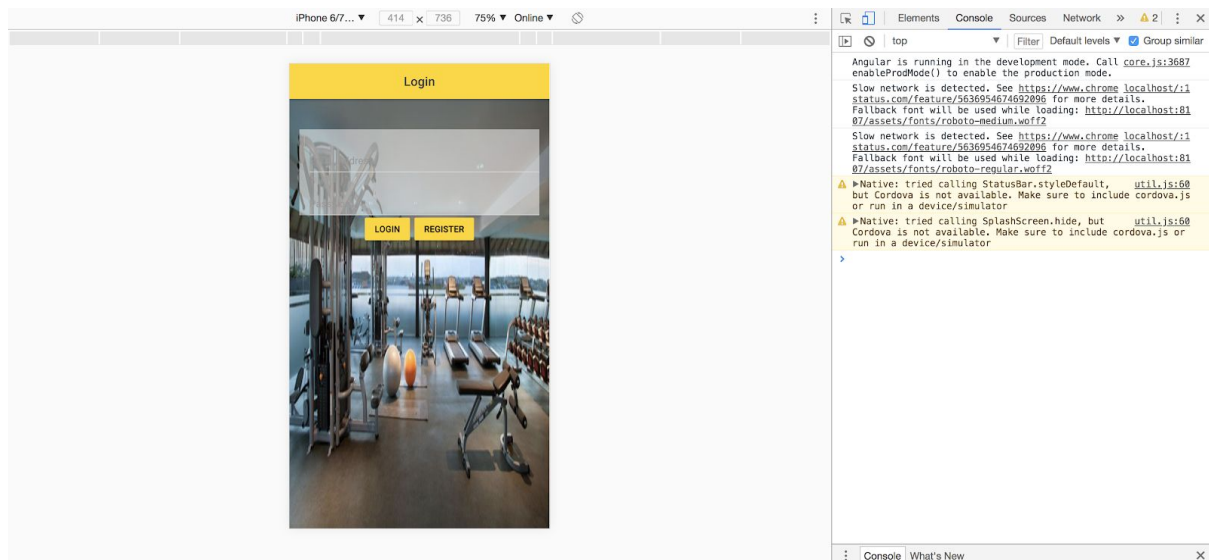
Section 3

Web Application

Section 3.1

Technologies

Section 3.1.1

Notepad++
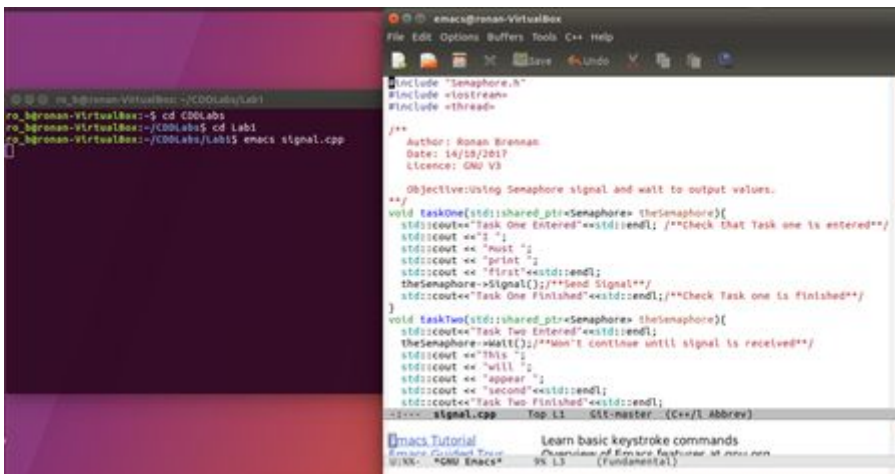
For me, when it comes to website development Notepad++ can do no wrong. It has a simple easy to use layout and as it is a source code editor it is very useful for coding in HTML,PHP and CSS, which are my desired languages. However, I am strongly considering doing this project using the Ubuntu OS as I really like its layout for coding and how its terminal works. This will make it difficult to use Notepad++ as it is works for Windows OS only. If I decide to use Windows OS then this will be my source code editor I use for the project.
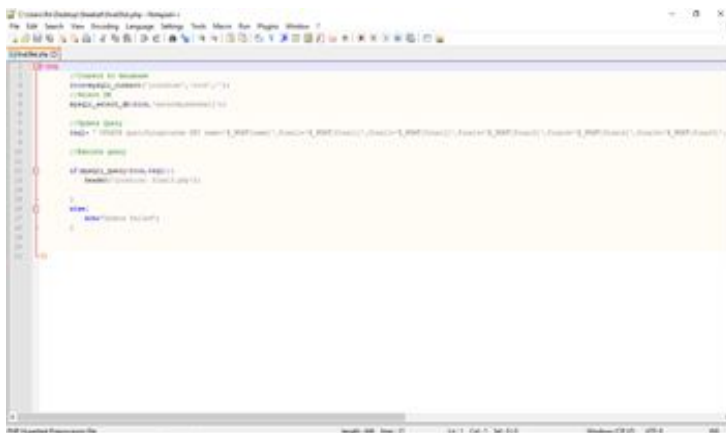
Section 3.1.2

Gedit and Emacs

Very similar to Notepad++, but I can use them on the Ubuntu OS. I am not very familiar with how Gedit works but I'm sure it will be easy to pick up if i start using it. I am more familiar with Emacs as I have been using it this year when developing with C++ language. It does support the use of HTML and CSS so if I was to choose a software to use I would pick emacs as I am more familiar with it.

Section 3.1.2

Sublime Text

This Text editor describes itself as "a sophisticated text editor for code, markup and prose" and from the research I have done on it, i believe that is a very accurate representation of how it is. The text editor has a very slick and user friendly design. It also has many other features that other text editors do not have, such as the ability to easily install plugins. One of the main features that I like is the fact it allows you to pull a file into the sidebar , making it is to find the file you are looking for. It can be used for free but every so often it will ask the user to purchase a license. This can be gotten rid of by clicking cancel and the user can carry on with their work. The license does cost $80 dollars if the user was willing to splash the cash.
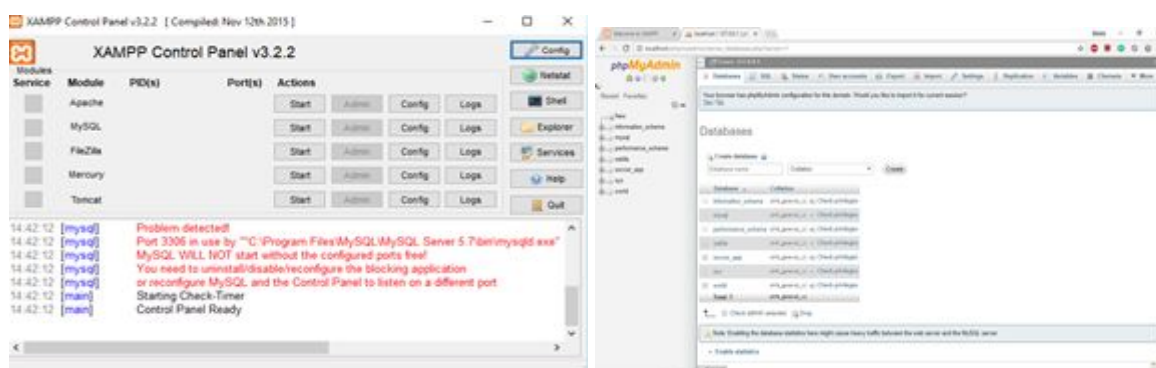
Section 3.2

Web Server and Databases

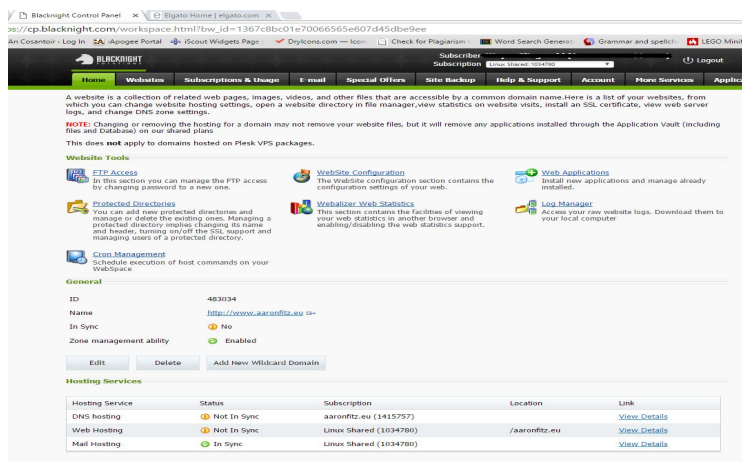### Section 3.2.1

Xampp Control Panel

I have experience using Xampp control panel as a web server and database and a very pleasant one at that. It set up as a local host on my laptop and made connecting to the database and web server very simple. It was easy to make changes to the database and web servers through the control panel. There is one flaw with this excellent piece of software however, and that is the fact that it can only be used as a local host as far as I know. I would like to be able to put my app on the market and therefore I feel this will not be sufficient enough for that function. I may still use it for testing as it is free to download and use.

Section 3.2.2

Blacknight

Ideally I would use Blacknight as my webserver and database host. It would be much more efficient in hosting my app as it will not be on a localhost. The main downfall here however, is that it costs money to actually set up a web server and database for blacknight.

Section 3.2.2

Firebase

Firebase is a mobile app development company owned by google. It allows for hosting, storing in databases, has its own authentication feature that can be used in apps along with many other features. It is also very easy to implement into your app and is approved and used by many top apps. It is also free to use with the potential to upgrade to a paid service, all you need is a google account to start using it. The hosting service also allows the user to host their app live on the web. Firebase offers a lot of services that most others would charge the user to use. However their new Database feature, Firestore, still in Beta meaning there could be some problems encountered with it.

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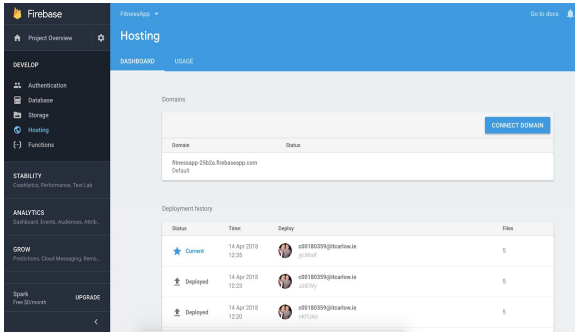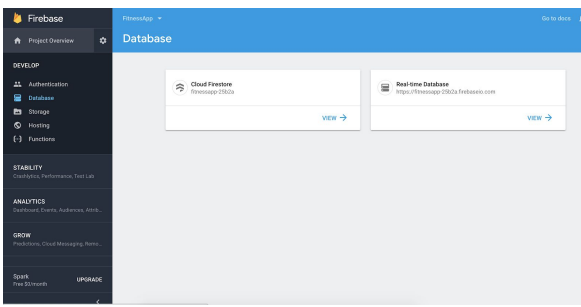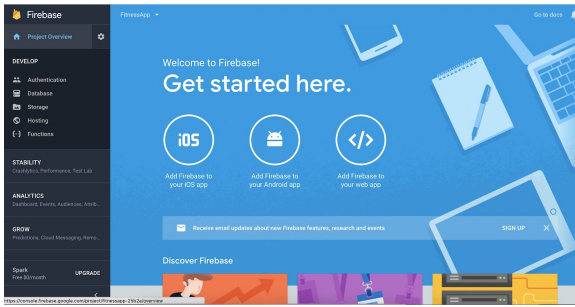
Section 4

Conclusion

After much research I have come to the conclusion that my app idea, if implemented correctly will be more than a match for its competition and with the right marketing would become one of the top fitness apps on the market. Initially I thought I would not be able to program my app for IOS as I thought I would need a Macbook in order to use Apple's xcode software but I have come to the conclusion that there are other ways to program an app for IOS. One way being Apache Cordova, which will allow me program in many different languages I am comfortable with and may even allow me to program my app for IOS. I still have a software I'm comfortable using, Android Studio, to develop the app. Or if I'm feeling really brave I could even try Kivy, however, as I have little to no experience with Python language I'm afraid I will probably have to give it a miss for now. I could purchase a Macbook as an investment for the future as well as helping me with this project

For the web application the debate is whether I want to develop it using an Ubuntu OS or a Windows OS or Mac OS, if I purchase a Macbook . I am much more comfortable with Windows and Notepad++ as I have been using them for years but I have started using Ubuntu and Emacs this year and am really enjoying its layout. I find I get much more work done when I am using Ubuntu. I also liked the looks and functionality of Sublime Text, which works on both Mac OS and Windows OS

Finally, we come to the web server and database. As much as I loved using Xampp I feel that in order for this project to be a real success I will need to invest in a server that will showcase my web app live on the internet, meaning the choice is between Blacknight and Firebase
After much research, I feel a lot more confident in what I will be doing for my project and am very optimistic about the outcome of this project.