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540108 | 10.05.2019

The Power House Gym

Evaluation

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# How the solution met the requirements of the project

In this section I will try to analyse the requirements identified in the inception phase of the project and summarise if the requirements were met and to what extend implemented.

### 1.1 Allow the Personal Trainer to log in

This requirement was covered in fully and with a solid security implemented behind it, personal trainer is logging in using the email as a login and a password set up by the administrator. Personal trainer is logging in through the log in page, and the username is stored in the session cookie. Username and password is validated on the server side, the username and the alerts if any are stored in the session cookie variables and displayed if the user encounter an error and is redirected back to index page. Also the personal trainers are presented with different menu than admin.

### 1.2 View the client account details from the remote database and view the client data (client input) from the remote database

Client account details are displayed in the Management Centre page, data includes the name, second name , phone number, email , address, zip code and city. Logged in user also can see which class the customer is signed up for. Every users’ additional data about the classes, exercises and date can be previewed by clicking the More button in the Management Centre located in the table along with all the previous details. Website was supposed to display additional details, like customer results and measurements but I have never populated those fields in the database, leaving this problem for the later date which unfortunately didn’t happen due to the issues I will discuss in the later sections of this document.

### 1.3 Generate reports based on the data stored , add feedback to the client report and send them through the email.

For the reports I had planned to use the jsPDF library (Hall, 2019) to print the HTML page to the PFD and attach it to the email using the technique I found on the w3schools (w3schools, 2019), using the Outlook. I had this use case semi working, populating the HTML page with the data from the database and generating the PDF with this data, but unfortunately the my usb stick problem(which I will describe in section 4) forced me to roll back to the previous version of the website without those features. Later on I have focused on other lost functionality of the website, and never added this particular use case back before the deadline.

### 1.4 Allow the Admin to log in, view, edit, create and delete Personal Trainers and Client details

Admin have access to the management centre just like the personal trainer does, the difference is that admin also have access to the list of all the personal trainers which allows to modify their data just as the client management page. Logging in also uses secure session variables and is validated on the server side.

### 1.5 All the input and changes should be validated before the changes are saved to the database

User input from the form is validated through the Java Script, and CSS that not allows to process the empty fields. JS is using the regular expressions to validate the input. The system lacks the server side validation for some of the input forms. I was planning to use the regular expressions on the server side as well, but again I was planning to implement this in the end of the development as it wasn’t the priority and didn’t make it for the deadline.

### 1.6 In case there are problems with accessing, saving, displaying the data- proper error message should be displayed.

The error messages were properly implemented into the backend code during the submission, not for all of the use cases I can think of, bot for example when the connection to the database is unavailable, or when number of rows pulled from the database was equal to 0, errorMsg variable from the Session php script was update properly so in case of the error the system would redirect to the index page and was supposed to display the proper error message. The problem was that I didn’t implement the Java Script part of system on the index page, so the message was not displayed. This issue is already fixed at the time of submitting this document.

### 1.7 Personal Trainers should log in using their employee number and password

Personal trainers are logging in to the system using their email, which was one of the unique keys in their table in the database. I have used email and planned to add the employee number to the database on the later date, but unfortunately it never happened, as I have focused on the more important use cases of the system first.

### 1.8 Log in system should be secure, input should be validated before the data is sent to the database

The data input into the email and password form, on the login page is validated via the Java Script validation using the regular expressions, via the backend validation contained in the processSignIn.php script and using the CSS ‘required’ field to prevent the empty input. Unfortunately the PHP script is unfinished leaving out the regular expression validation on the server side. I had an issue with preg\_match function validation, it was either spelling mistake or something alike, I have left this issue to resolve on the later date and never solved this problem, focusing on more important issues.

### 1.9 Personal Trainer should have possibility to search the client via name, second name or email

This use case as a low priority use case was left out for the end of the development. The plan to implement it was to create the search bar on the manageUser.php page allowing to input the name, second name or email and displaying only the data for searched user or the error message if the input was incorrect. Unfortunately as a low priority use case, this feature was not implemented at all due to the time restrictions.

### 1.10 Website should also allow the Personal Trainer to access the users data through drop down list of all users.

This use case evolved into the page manageUser.php which displays the data of all the users using the table instead of the drop down list.

### 1.11 User account details displayed by personal trainers should include name, second name, email, address.

Data displayed by the manageUser.php page displays all the data mentioned in the heading, this requirement was met.

### 1.12 User data displayed by personal trainers should include users progress data, user measurements, user progress over time

This data is displayed using the additionalData.php page, which can be accessed using the button – More… from the table with user data in the Management Centre. This page displays only the class and exercises for the user. This page was a low priority use case, and is unfortunately unfinished.

### 1.13 Generating the report should also offer the option to save it into the text file

As mentioned in section 1.3 I used the jsPDF library to generate the PDF version of one of the pages, containing the data I wanted to use in the report. Saldy the USB stick problems happened and I lost this functionality and couldn’t recreate it before the deadline.

### 1.14 Admin log in should be secure, validated before the input is sent to the database and admin should have access to all the features that Personal Trainers have access to

Administrator of the system is logging in using the login page, just like personal trainer does. The difference is that the admin have access to additional features of the management centre after logging in. The page is validated using methods mentioned in section 1.1. This use case was implemented not fully because of the server side validation but it’s mostly covered.

### 1.15 Website should also allow the Admin to access the Personal Trainer data through drop down list of all Personal Trainers.

Admin have access to the manage personal trainers tab while logged in. ManagePT.php script displays the data of the personal trainers using the table instead of the dropdown list.

### 1.16 Android application

At the inception stage of the project I figured that the customers of the gym could use the android application to input their data that could be viewed on the website and used later by the personal trainers to generate reports for them. I still believe that it is a good idea, and a cool concept for a small gym. If the gym didn’t have to many customers it would be great to receive personalized feedback on the progress and know the exact information on it. With this kind of system personal trainers would have to manage the data personally and that’s why I think it could work really well in a smaller gym. Unfortunately in my project I didn’t progress much with the android app idea. I have been researching and testing some possibilities but got stuck on the database connection and storing the input properly in order to display it in the website. Additionally I have underestimated how much time it would take me to develop the website part of the project, assuming that it will take only few weeks, leaving me time for the app in the later date. I couldn’t be more wrong! In conclusion, after few weeks of development stage I decided to fully focus on the website interface part of the system and see how things go. In the end I didn’t progress with android part of the system due to the problems with the website implementation and other issues.

# Strengths and weaknesses of the practical assignment

### 2.1 Prototype application

#### Strengths

Prototype application submitted with the development stage deadline, included the website and the database script. I believe that the structure of the code and the layout of the folders and scripts were ok. I have stored the CSS, images and js files in the separate folders, leaving the hp files in the main folder. It allowed me to navigate through the structure of the system easily.

I was happy with the functions displaying the data and populating the tables, I have never done it before and it was satisfying to figure it out.

Functionality of the site is locked behind the login page, I believe that the session script I have implemented in the logging system was done well, and worked as intended, allowing secure logging in and out and storing the alert and username data.

I have used a lot of functions contained in the pageElements.php script that worked well and kept the rest of the pages clean of scripts and uncluttered.

#### Weaknesses

CSS used to stylise the website is unstructured and unfinished. I have implemented basic CSS to add the structure for the site and some colors. I have never finished the CSS part of the project and wanted to add a lot of other style rules into the website but it was not a critical part of the project therefore didn’t finish it in time. Some parts of the CSS also lack comments.

Updating the user information form on the pages that edit the personal trainer and the customer should populate the fields with the original data, it makes sense and without it those pages look weird and unfinished. It was never finished for the same reasons as the CSS rules.

Tables are not responsive, they should change their appearance with the change of the screen size but again the CSS was unfinished and sadly the tables stayed unresponsive with the submission.

Server side validation is an important part of the system and in this case could be done better, it is not covering the regular expressions for example.

I am using the GET parameters to retrieve some of the data from the tables, which is not the most secure way of doing it.

While updating the customer or personal trainer data, the form should be prepopulated with the old data, to make the process less tedious and easier.

### 2.2 User documentation

#### Strengths

With the development submission I have included the installation guide, I believe that it covers all the aspects of the installation of the necessary components required to run the project.

I have included the screenshots that clearly show which element should be clicked or which file should be imported where.

#### Weaknesses

The user documentation lacks the actual guide of how to use the application (the guide was attached with this document.)

The website should have been done on the remote server from the beginning instead of using the local server. It would make the installation guide irrelevant.

### 2.3 Technical documentation

#### Strengths

Test plan and test data are structured in a clear to read way and cross referenced with expected results included in the tables as well. It is easy to read and connect the data with the test plan.

#### Weaknesses

Regular expression tests and the rest of the testing are logged in two different files. I should have included the regular expression tests in the main test log for the sake of clarity of the documentation, they were done on different dates I should have structured them better.

# Recommendations for any future development of the solution

Main problem with the project is the lack of the android application and unfinished website. That would be a number 1 priority for the future development. Mainly focusing on generating the reports, with the dummy data from the database, cleaning up the CSS and stylising the website properly. Maybe removing the GET parameters to manipulate the data and using the session variables for it. Later on next step would be to progress with android application with the main focus on the input forms and connecting the app with the database. Adding the use case functionality of the project would be a main priority of the future development of this project.

Another important thing is to apply the style rules to the tables so the pages are responsive and can be displayed on the range of devices. Also displaying a limited amount of the entries on the page would be useful, for example max 25 entries in the table with a little button in the bottom allowing to preview another 25 on click. Right now the table displays all the data from the database without restricting the size of the table.

I have developed the prototype website using the uWamp local server, but I should have been using the remote server from the start, as I lost some of the data due to the USB stick malfunction. I would recommend using the remote server for the future changes and implementations for the safety reasons and it will have to go the remote server at some point then why not from the start.

After the website and android app would be in the perfect form and finished, next step would be to implement and release the same app on Apple devices. Many customers use iPhones and the gym data and personal trainer- customer relations would be hindered if those customers couldn’t use the features of the gym.

The system could possibly in the future send the automatic newsletter to the customers with the information about the new classes, products, or events. This data would be personalized based on the data stored from the database.

Another idea for the future development could be a login cards, that would be used to enter the gym. Clients would get the cards that will allow them to swipe in while entering the gym, and swiping out on exit. The date and times of the enter and exit could be stored in the database, which would allow the owners to view them if necessary. This data could be useful for the gym owners.

After the release of the app it would be useful to collect the feedback from the users, see if they like and understand the functionality and if they would change anything about the colours or the style of the app, website.

# Modifications to the project plan and solution design

### 4.1 Unforseen Event

The weekend before the development stage submission date, my USB stick died without any chance to recover the data stored on it. I have tried to recover the data on many different PCs, using Windows and Linux systems, because I know that sometimes Windows just refuses to access the external dives for no reason but it works on Linux. I have also tried to recover the data using the Autopsy software (sleuthkit, 2019) but to no success. I should have backed up the progress I made more often, because I lost about 2 weeks of work, which included the report functionality of the website, database relations and entries and some additional validation and changes in the style of the pages+ testing documentation. There is no excuse, I should have been using the remote server for the website or backing up the data more often. uWamp is a useful piece of software but I wouldn’t have this kind of problem on the proper server.

### 4.2 The database

Originally the database script was supposed to be generated by the Data Modeler application and I have spent quite some time modelling the database using the ERD provided in the Inception documentation of the project. Database structure and relationships were easy enough to implement and design, but exporting the database and using it in mysql server was another story.

There are many options to generate the script and export it for the mysql system in the Data Modeler but none of them actually worked displaying dozens of errors. I have extracted CREATE queries to save time and manually created the database on the server. Main issue with this was that I have spent a long time trying to export and import the database, and it was actually easier and faster to manually input the queries to the mysql system. I do not know what was the problem, it might have been the version of the uWamp or Data Modeler, but I suspect the uWamp. The reason for this is that when I have been exporting the database from uWamp phpMyAdmin interface and tried to import it again to the same system(after deleting the database), it still didn’t work and gave me another set of errors and issues. Finally I had to delete all the auto-generated comments and it worked.

### 4.3 Project plan

I was planning to finish every step of the project a week before the final deadline but it didn’t work out that way, I have always had some issues or minor problems that forced me to over my personal deadlines. Fortunately I was able to stick to the official deadlines and submit the steps in time.

### 4.4 Strikes and extended holidays

It is worth to mention the strikes and our timetable in April and May, our class had a lot of days off college because of them. It did not affect our performance that much but I feel like sometimes during this period it would be useful to be in class and ask for help or guidance when I was stuck with a particular problem like the database issue.

# Knowledge and skills that I have gained while carrying out the project

### 5.1 Database design and implementation

At the time what we learned in the SQL class was mostly about the database design, creating the ERDs and planning to implement the database into the system. It was difficult to learn and implement the database solution and connect this with the website without the knowledge I have now. Biggest problem was to figure out was how to implement the relationships, unique keys and the foreign keys and how to use them in on the website. I am not sure if my solution I have used was the best but I am still learning the SQL. I have learned how to implement the queries into the php script and how to display the data in the table, or perform a query after a website button click. In the project I have used GET parameters to process some data, now I know that this is not the ideal way to do it, using the session variables would be a much safer way.

### 5.2 Java Script and CSS libraries

There are many JS and CSS libraries that allow to easily modify the look and some functionality of the website. I have been learning about them throughout the development process of the project and if I would plan the solution and UI now I would definitely have used some of them. Libraries like W3.CSS allow for an amazing website look without much effort and with easy implementation. I was planning to use this library in particular more extensively but than I did which would improve the visual aspects of the website, but I have learned about it too late.

### 5.3 PHP

I have used PHP before but never paid to much attention to it. After this project I have learned the solid basics on how to use it and how to structure the website, loop through the data from the database to display it and so on. It is a bit awkward to use the global variables and to use the require keyword to add additional functionality to the pages but I have enjoyed it and I would gladly learn more. It would improve my code if I have used more comments that heavily explain the functionality of functions or globals. Sometimes I was returning to a problem after a week and didn’t remember what is going on in the function.

### 5.4 The importance of backing up the progress on the regular basis.

This mistake costed me few points. I was aware that backing up the important data is crucial but have never experienced it myself. During this project I have learned to be methodical about it and never skip the backup. I could have used the remote server to store the database and the website data, but I was planning to work on it locally and upload it to the server in the end of the development stage. Unfortunately it never happened due to much bigger problems in the ending days of the development.

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