

# **Project Report for Research Tool for User Studies (Dashboard)**

Submitted By:

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## **Project Overview:**

The website we have developed is based on **Proposal 1: Research Tool for User Studies** which helps researchers to carry different experiments by the help of different users. Researcher assigns same or different experiments (that contain various tasks) to different users and users perform these tasks in a particular assigned order. This will help the researcher to know the impact and result of tasks order on an experiment. Following are the main components of the developed tool:

**Users:** Users are assigned experiments by the researchers to perform some tasks related to the experiments. The tasks are to be performed by the user in the order they are assigned.

**Tasks:** Tasks are assigned by researchers to users who carry them out and help researches gain results with their experiments.

**Experiments:** Experiments are based on the researcher's field of interest i.e. area of research.

**Researcher:** Researcher performs experiments on a particular area of study where he/she assigns tasks to the users who perform tasks in the order assigned and help gain results accordingly.

Both the researcher and the user will have access to the website but the user will not have access to what the researcher is doing. Based on these aspects front-end and backend for the website is designed.

## **Technologies Used:**

### **Front – end:**

- Html was chosen for frontend as it is easily understood and good for beginners.
- Here Html 4 is implemented with Bootstrap 4 Css and JQuery's.
- As Bootstrap 4 is the latest version of bootstrap it was implemented with custom changes in CSS that was changed to Style CSS later.
- We have designed a customized logo for the website as well using Adobe Photoshop.

### **Decision making on website's front end:**

- On the dashboard page, managing of data tables was a challenge which we overcame by putting style constraints and hovering buttons.

- Star Pattern animation implementation had issues which led to code hiding and carousel dismissal. This was achieved by cleaning, tidying and proper implementation of JavaScript's code.

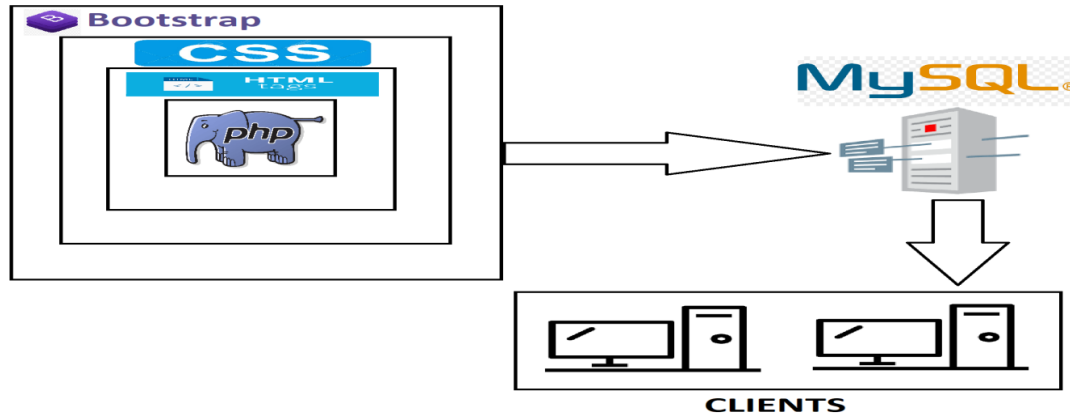


Figure 1.1: Front-end and Back-end structure

### Back – end: (PHP, MySQL)

For the back-end development, PHP is used and for the database MySQL is used after the joint collaboration of both team members. We used this because it was easier for us to manage HTML designed front-end with PHP.

### Database structure:

There are four different tables in the database for users, researcher, tasks, and experiments separately. When a task is added by researcher, it will be stored in the tasks table. Similarly when a new user is registered or researcher adds a user on his/her own, an entry will be made in users table. When a researcher adds new experiments, he/she has to choose users and tasks from a list of available ones. An entry of this experiment is stored in the database along with differently ordered tasks together with the assigned user's detail.

### Some key features:

- We have used primary keys, Distinct, Group\_Concat() and Group by SQL functions to avoid any duplication of data while data viewing and to group tasks and users according to the experiment they are a part of.
- After an experiment is added, researcher from the main dashboard can see what experiments a particular user is part of. Similarly when user will login into the account, he/she will be able to look at all those experiments that a researcher has assigned him/her to do. If a user is not assigned to any experiment, he/ she would not be able to access any experiment unless researcher assign them to do that. This is again used to avoid any unauthorized access to researcher's experiment.

- A user can register them on the website through register page or a researcher can add them manually him/herself as well. Whenever a new user is added, the user list on researcher's dashboard is updated.
- In order to maintain data's integrity, several checks are applied on the data deletion. Users, tasks, experiment can be added, deleted and edited. A task or user cannot be deleted if they are a part of some experiment. In this case, a researcher is notified through an alert box.
- Rand() and Shuffle() functions are used while tasks and users are being associated with an experiment. With this, different users are assigned a same experiment with same tasks but with different order. User will be able to see these assigned experiments with differently ordered tasks on their dashboard after login.
- We have tried our best to apply different database checks on login/register to make the website secure and to avoid any duplication of data as well. Not only this we have used sessions to maintain the user state on a website after login and to avoid any unauthorized login.

## Conclusion:

In the end, we believe that we have a great learning experience through the development of this project. Though we had some challenges in terms of team resources and skills but we overcame that with proper communication and project planning.

## Screenshots to show some basic features of the website:

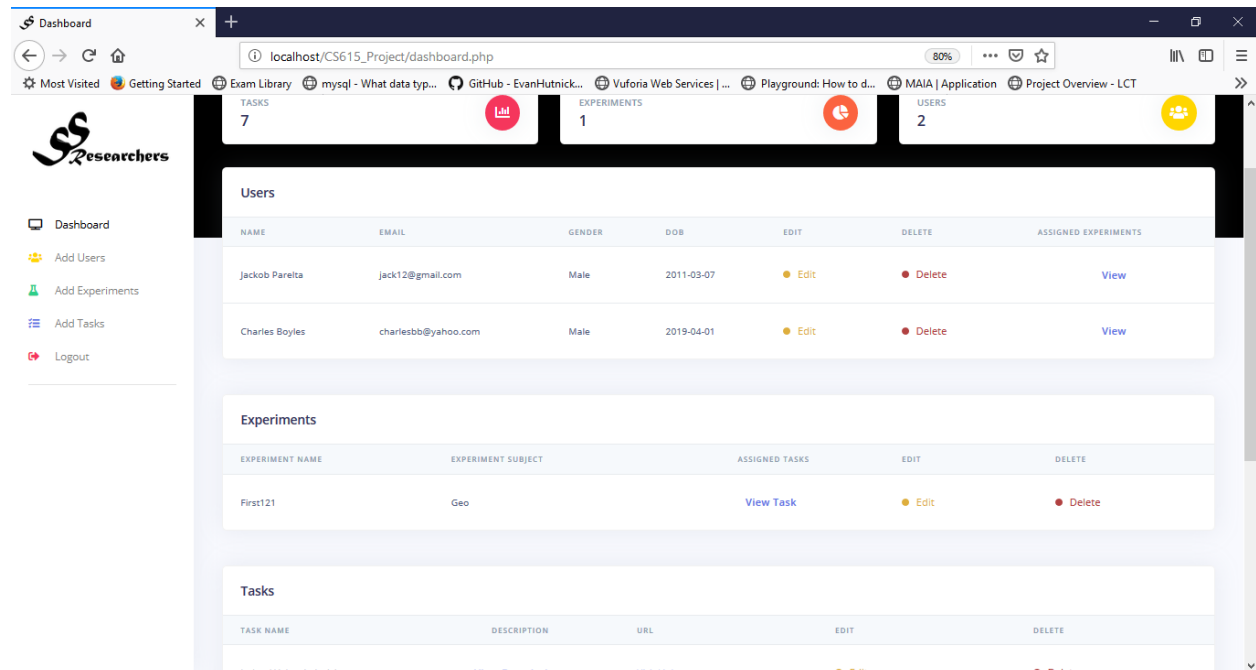


Figure 1.2: Researcher's Dashboard

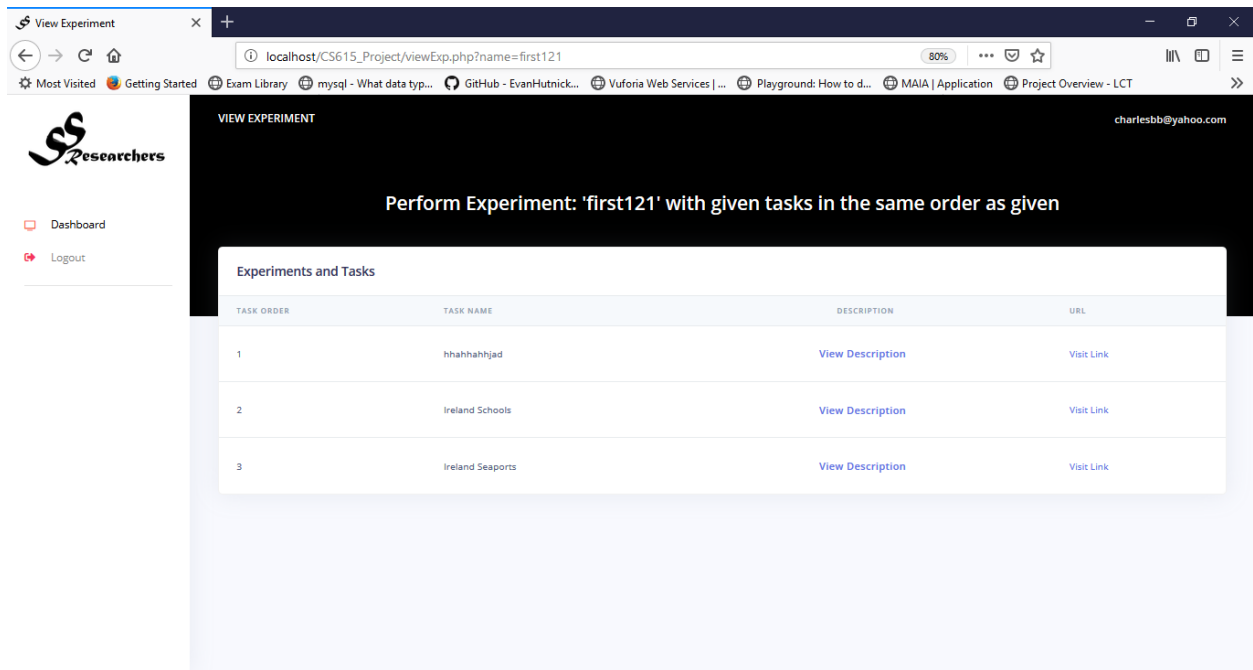


Figure 1.3: User's View Experiment Page