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Digitized Engineering Notebook

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ABSTRACT

Digitized Engineering Notebook is a fully operational web application which designed in a perspective to replace the traditional notebook of students with a complete digital feature.

The noticeable functionalities of this project include front page with welcome message and a menu for navigation. The administrator will have access to edit the content in the database. The project leader and the team members can edit the content in the project. User will have option to create a new project or edit and can select existing project. Project leader will have accesses to add or remove members from the team and can be able to create dated log entries. The user can create, share or edit the content to encourage team work, brain storm ideas and documents.

User can upload text documents, drawing, sketches, figures, and multimedia elements such as pictures, videos. User can give their comments in discussion board. This wed application will provide users with input columns labeled as tasks, reflections, notes, details etc.

This web application can also convert contents to an organized pdf file. This wed application is developed using open source software which includes PHP, Apache HTTPs server, MySQL

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1. Project Description

The main goal of implementing this application is to store the information digitally, so that manual carrying of data will be reduced and the time taken to store and search the information will be reduced. There is the possibility of storing the information chronologically. While retrieving the information also it will be easy for us to view the information. Members of the project will work on it and they can communicate the status of the project by using this application. Even in the retrieval of information it is the interest of the user that in which way and what information they want to view that can be seen by this application.

1. Competitive Information

After going through with the literature, I did not find any such application with the current requirements. There is some application where it will have the individual requirements, if we want to have all these requirements then we need to have different applications. Now all the major requirements of all the other applications are included in this application and developed which will be satisfying the needs of users.

2. Relationship to Other Applications/Projects

Existing application does not have all the features. which are there in this application. This application is an integrated application which is having all the features.

3. Assumptions and Dependencies

- As this is the web application, it should be available to multiple users.
- It is assumed that even in the peak loads it should work well.
- To use this application continuous connectivity of the application is needed.
- To execute this application all, the compatible software should present in the system.

4. Future Enhancements

Apart from the given requirements, we can even add other features like version management, maintaining the log records etc. With this features we can have the information of all the updates of the application. Even we can know the information of all the users that when they have logged in and what work they have been done etc. This may even help the organization to complete the employee appraisal.

5. Definitions and Acronyms

This project is mainly developed for digitalizing traditional engineering notebooks and to create a pdf with the data provided by team.

2. Project Technical Description

This web application is mainly used for keeping a log on projects digitally and communicate with other team members and generating pdf for submitted entry. Each project has one captain and each member is associated with one team. As a security feature, every captain need to be approved by admin to create an account. We used PHP language to design application.

2.1. Application Architecture

2.2. UML diagrams:

In the design of the application, I have used some of the UML notation to know the flow of the data in the application.

a. Use case Diagram: This diagram helps the developer to understand how many functionalities are there and who is using which functionality. Every functionality is called as a use case and every user is represented by an actor.

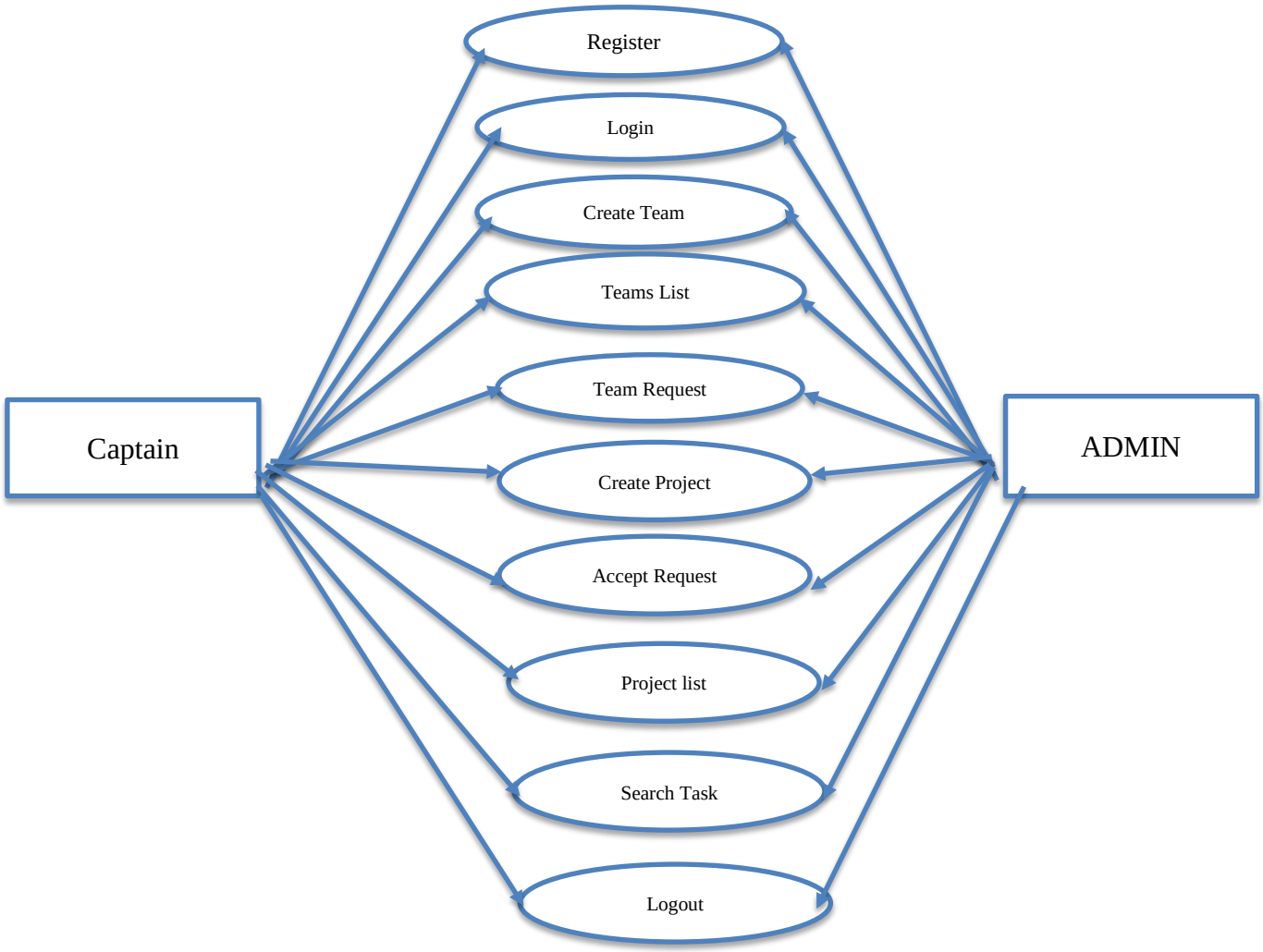

Figure 1 : Use Case Diagram.

b. Activity Diagram:

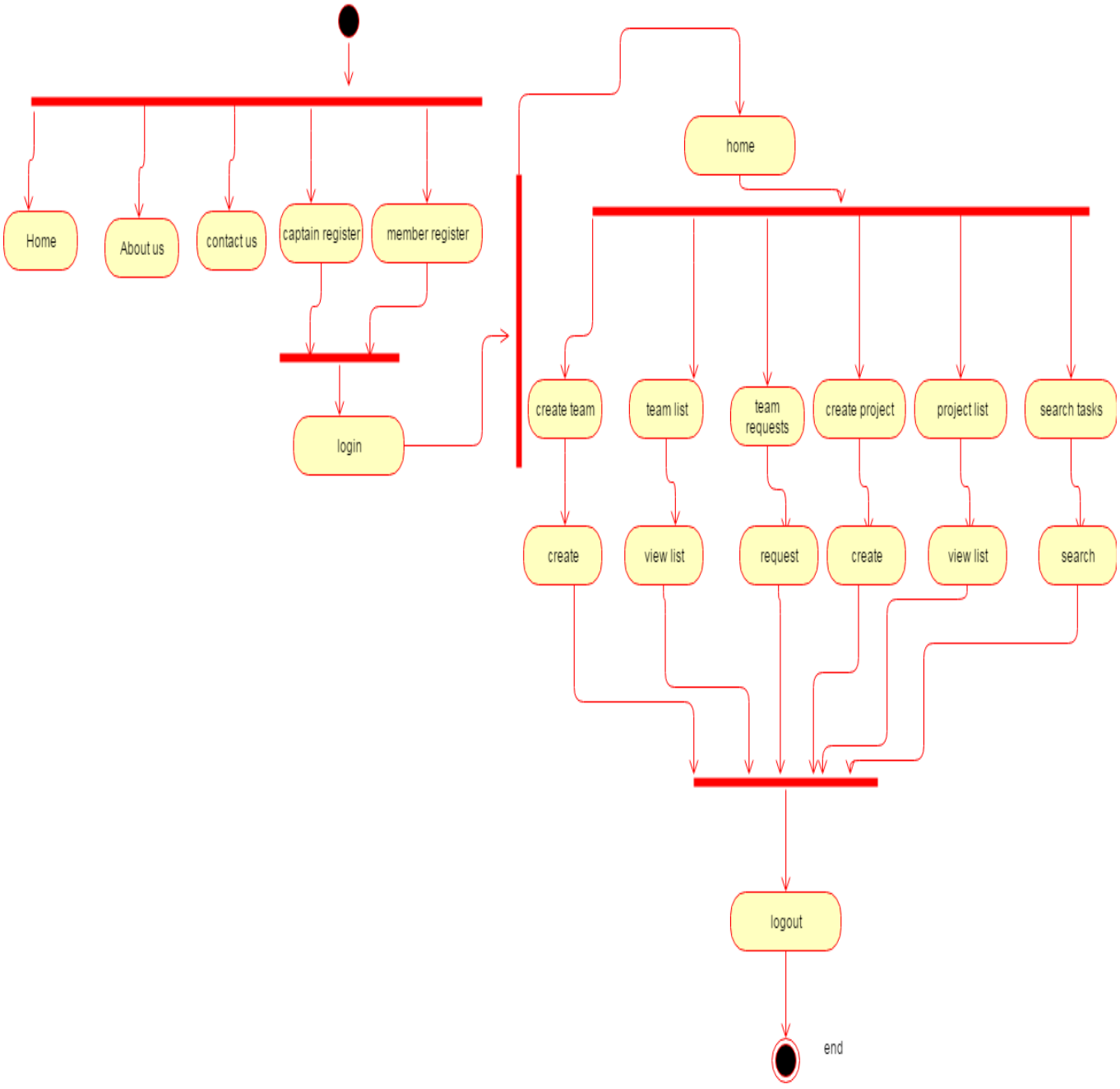

Figure 2: Activity Diagram

2.3. Interactions with other Projects (if Any)

This is an individual web application and did not need any kind of information with any other projects

2.4. Interactions with other Applications

No interaction is needed with other applications.

2.5. Capabilities

The main capability of this web application is keeping a log of task and reflections of the project, generating a pdf from the logs entered, and insert media files in the pdf. This application also have a admin console for site administration, create a new project or select an existing project, Add team members to project, File upload for text documents, drawings, sketches, figures, etc., Search the teams while signing up as member.

2.6. Risk Assessment and Management

As the information which is stored in the application may be valuable information. This information may be hacked by any person. To avoid this user authorization and user authentication will be there, where if the user is valid user then only he will be allowed into the application to do the activities.

To avoid the loss of information which can be had for different reasons like system failure, security breaches and malicious attacks, back up of data should be there in the application.

Application should be tested with load testing and stress testing to test under peak loads. If the application will not survive for peak loads then it will crash. All the

There will be different devices which will be used to use this application. Application should have the device compatibility, to have this, application is implemented with a responsive design which will be even compatible with the mobile devices also. Secured protocols are used to avoid hacking of the data.

3. Project Requirements

3.1. Identification of Requirements

As per the users, the requirements has been gathered and they are implemented one after the other. This application is used by different users like

a. Admin
b. Project Captain
c. Team member.

Admin Functionalities:

a. Admin should be able to view all the information about the projects or events created.
b. Admin should view the requests given by the project members or Captain.
c. Facility should be provided to accept or to reject the request.
d. Admin can view the status of the project.
e. Admin should have the right to change the access rights like changing the password etc.
f. Admin can deny the access to any of the user.

Project Captain:

a. They should able to create the teams.
b. They can create the project
c. They should able to update the status of the projects.
d. They can able to see the details of the events or projects done by the members.
e. They can able to convert the document to the pdf.
f. Captain can upload the text, images, graphs and videos.
g. Captain can edit the data.
h. Captain can view the log record of the members

Members:

a. Add the contents to the project.
b. They can add text, image, graphs etc.
c. User registration will be there.
d. Login to the users into their area.
e. All this information should be stored in the database.
f. User can search the information/ logs based on dates.
g. User, Captain and Admin can able to retrieve the information in different ways.
h. Log record editing should be rejected by the members.

3.2. Operations, Administration, Maintenance, and Provisioning (OAM&P)

Operations: This application is developed to digitalize the traditional engineering notebook and which should be able to keep an log on each project every member is working on and generate a pdf which includes media files. As this is the web application, if this application is hosted on www.bluhost.com as http://www.theengineeringnotebook.com we deployed this website by uploading all files to c-panel in blue host.

The process of deployment:

- Go to www.bluehost.com take hosting domain
- Go to MySQL database, create database, then create user and give database permissions to create a user.
- click on add on domain its only if it is not taken from bluehost.com,
- Go to phpmyadmin, click on sql, and download sql file from localhost and upload sql file in server
- Go to file manager click on upload then all files into folder,
- Go to application and then go to config, open database.php, then change username, password and database name then go to config.php, change base_url.

Administration: The main responsibility of the administration is to monitor the user action and asking the user to take the backup of the data. Admin have the control of who can be captain and member.

Maintenance: These days, there are so many security breaches are occurring, then it is the responsibility of the webserver or site owner to maintain the data perfectly. It should not allow any attacker to hack the data. For this firewall or any other security services should be adopted in this maintenance. Bluehost provides lot of security features regarding this issue so that we stay secure.

Provisioning: Different services are offered by the application. All these facilities may or may not be used by the member. But the chance is given to all the users to make use of all the resources available.

4. Project Design Description

Here all the user interfaces are presented and these interfaces has been designed according to the requirements given to us.

requirement 1: The following page is Home page which gives the information about the application and its functionalities. By seeing this everyone can able to understand the information of the application.

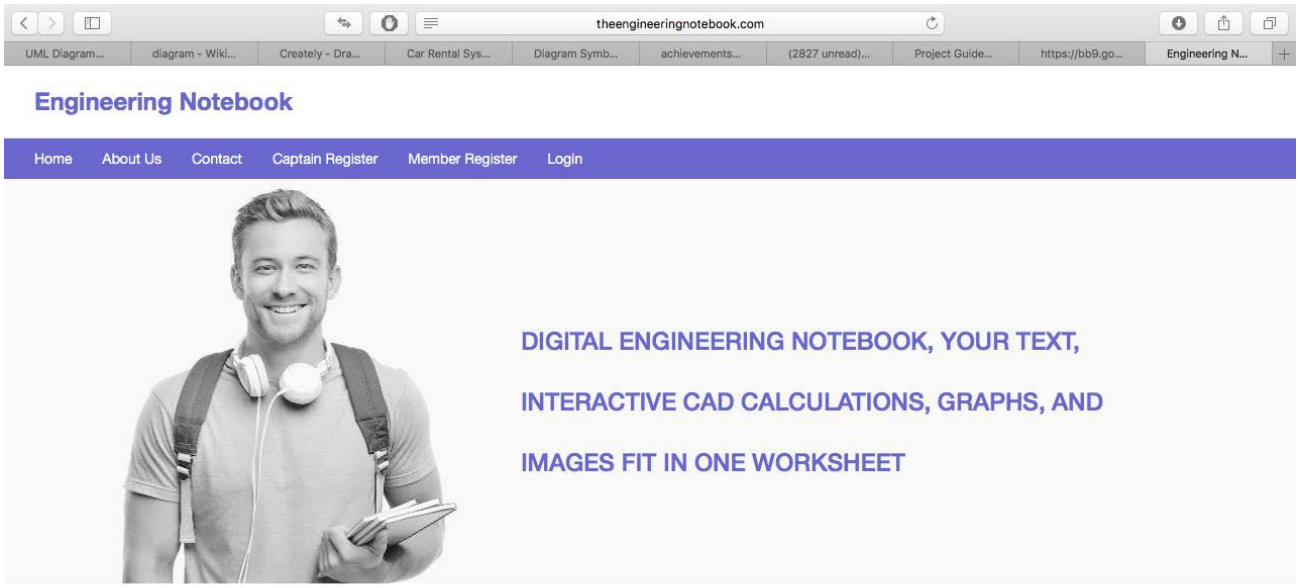

figure-3 Home page

Requirement 2: This is the registration page where members can able to register with this application. He can give his details like name of the user, mail id and password. After getting registered these details should be used for further reference in the application.

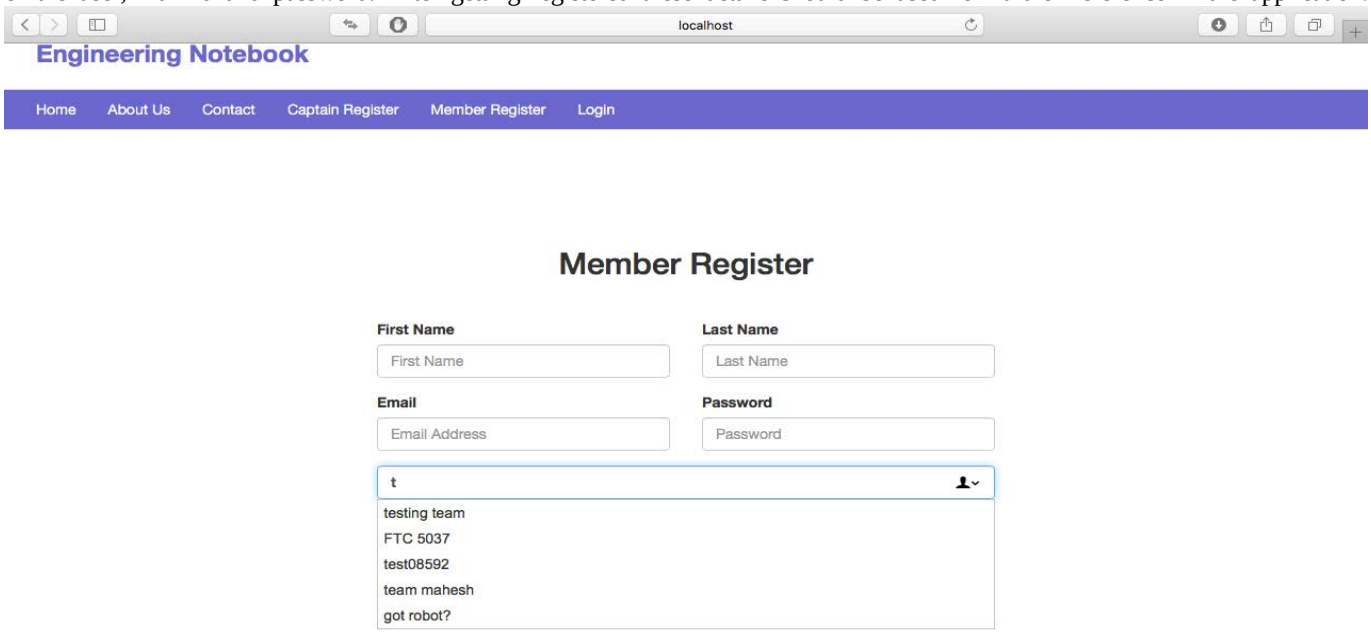

Figure-4: Member Registration Page

Requiremrnt-3 : This Admin panel allows the admin to view the registered users. This information contains user name, email, type of the member like captain or Captain, member and the actions that can be performed. He can click on edit or delete options based on the need.

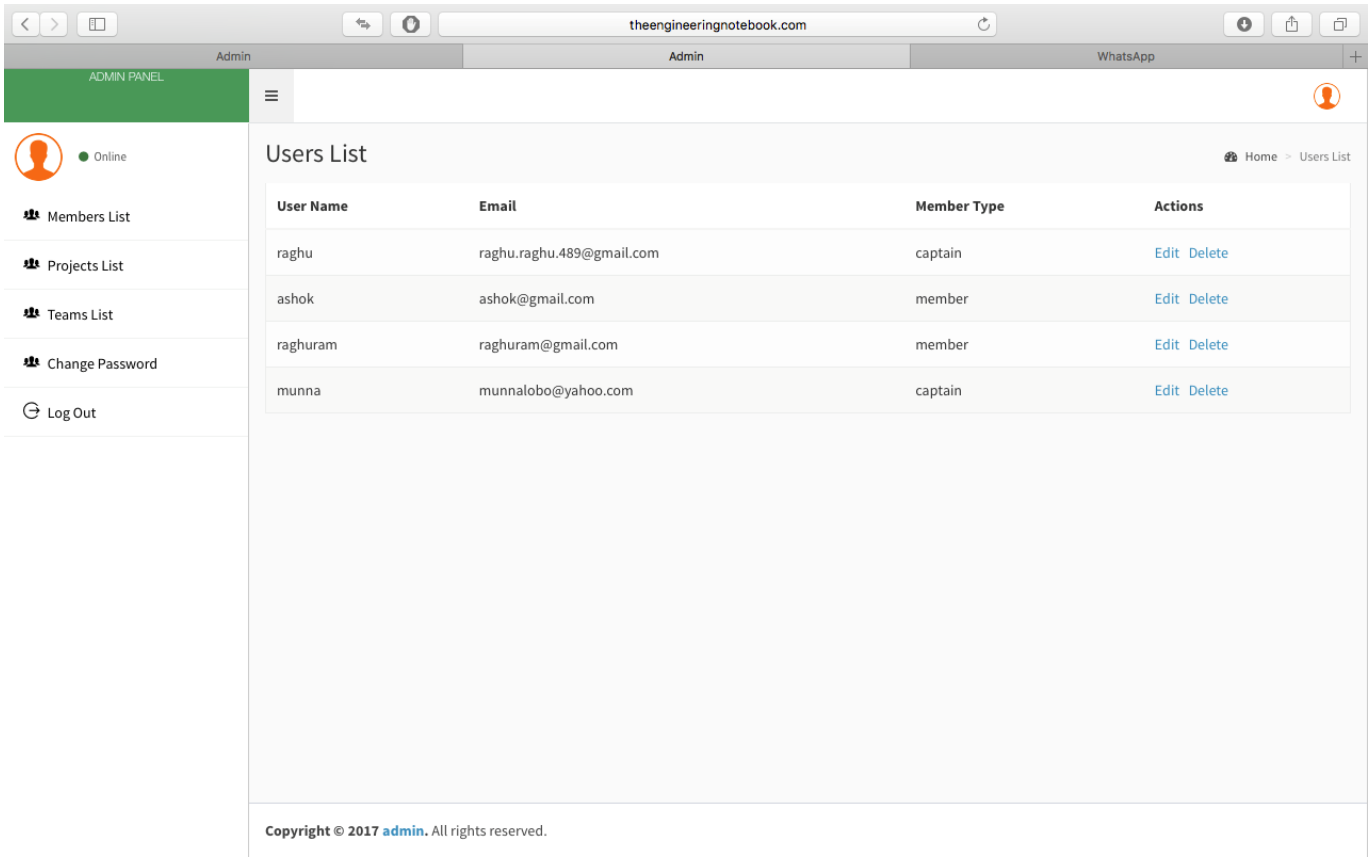

Figure 5 To view users list.

requirement-4: This interface is used to create the team. While creating the team the required details should be entered then on the entered details team will be created.

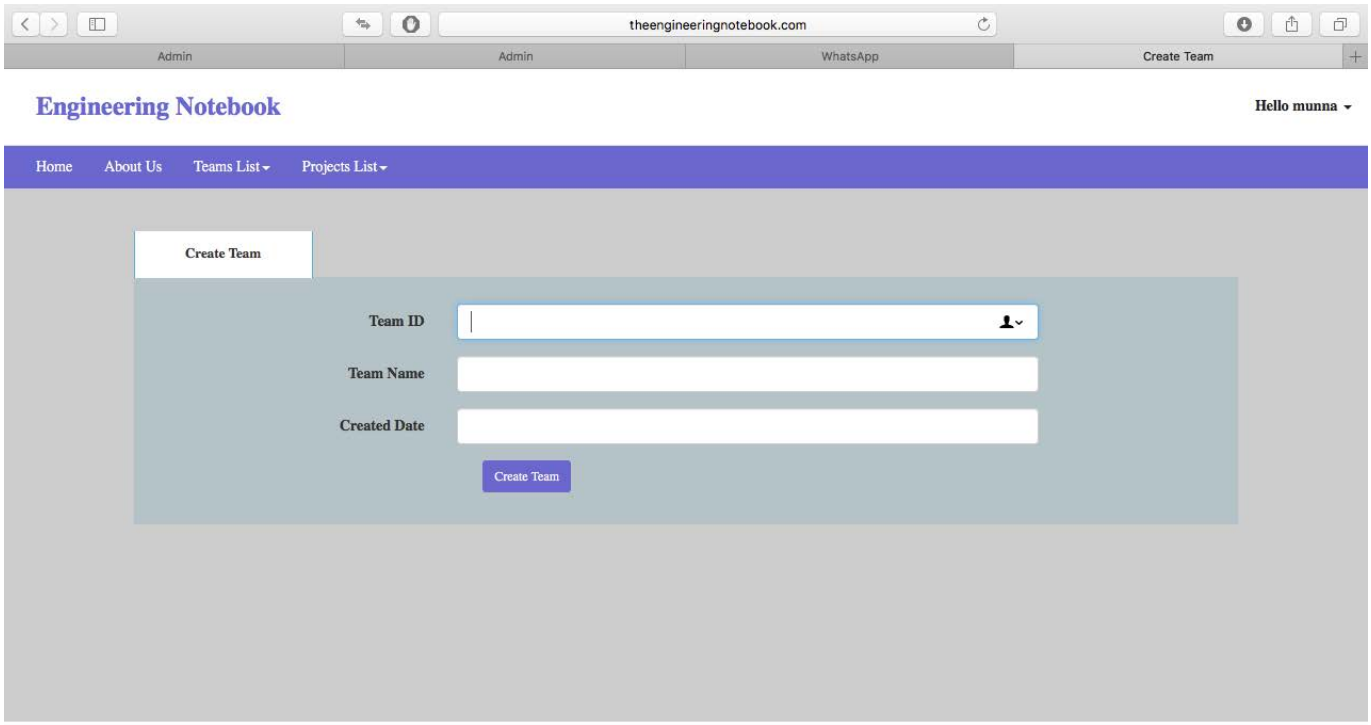

Figure 6: Create team page.

Requirement-5: This interface is used to view the list of projects or events created in the application by the users.

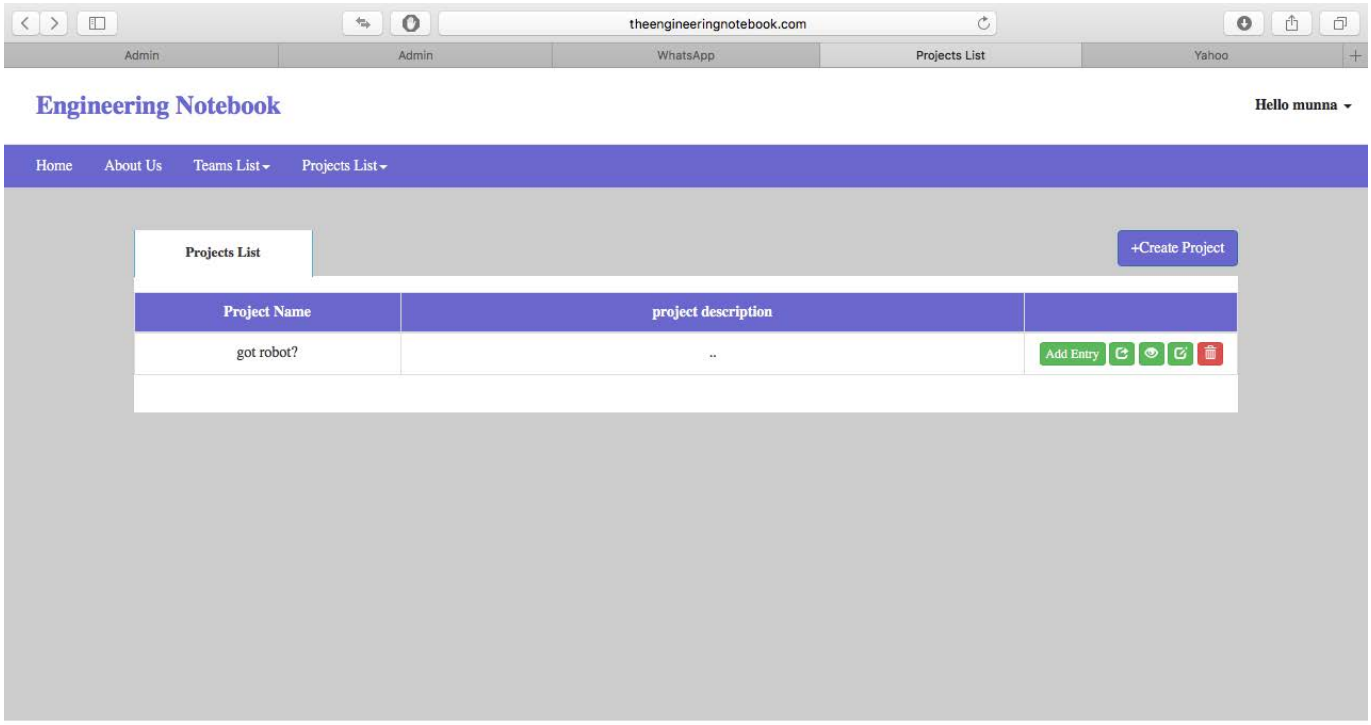

Figure-7 To View the project list

Requirement 6: This interface is allowing the user to search the information in the application.

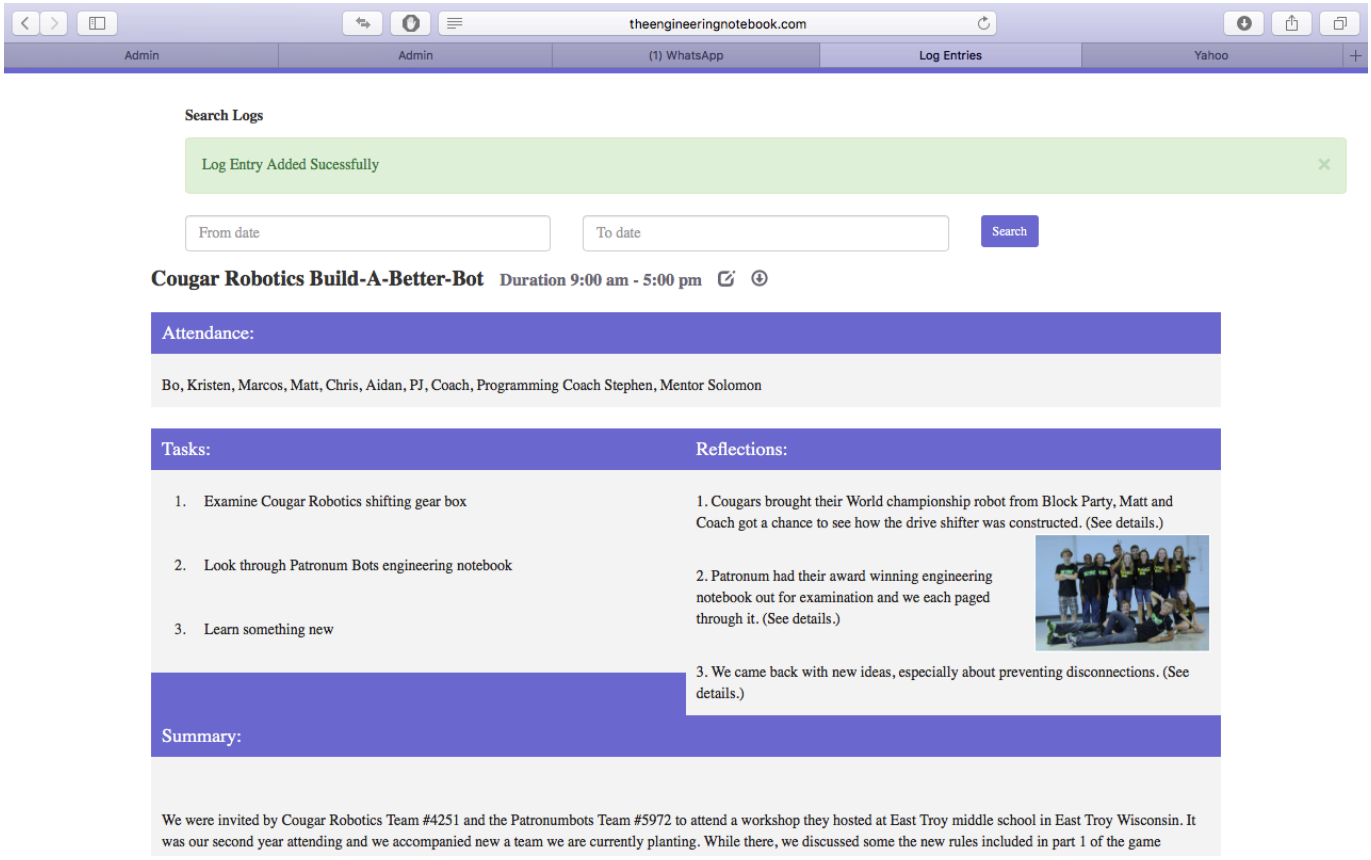

Figure- 8 Search page

Requirement 7: To add entries the following page is used. Here we can add all the information which is needed by the user. This interface allows us to attach image files too

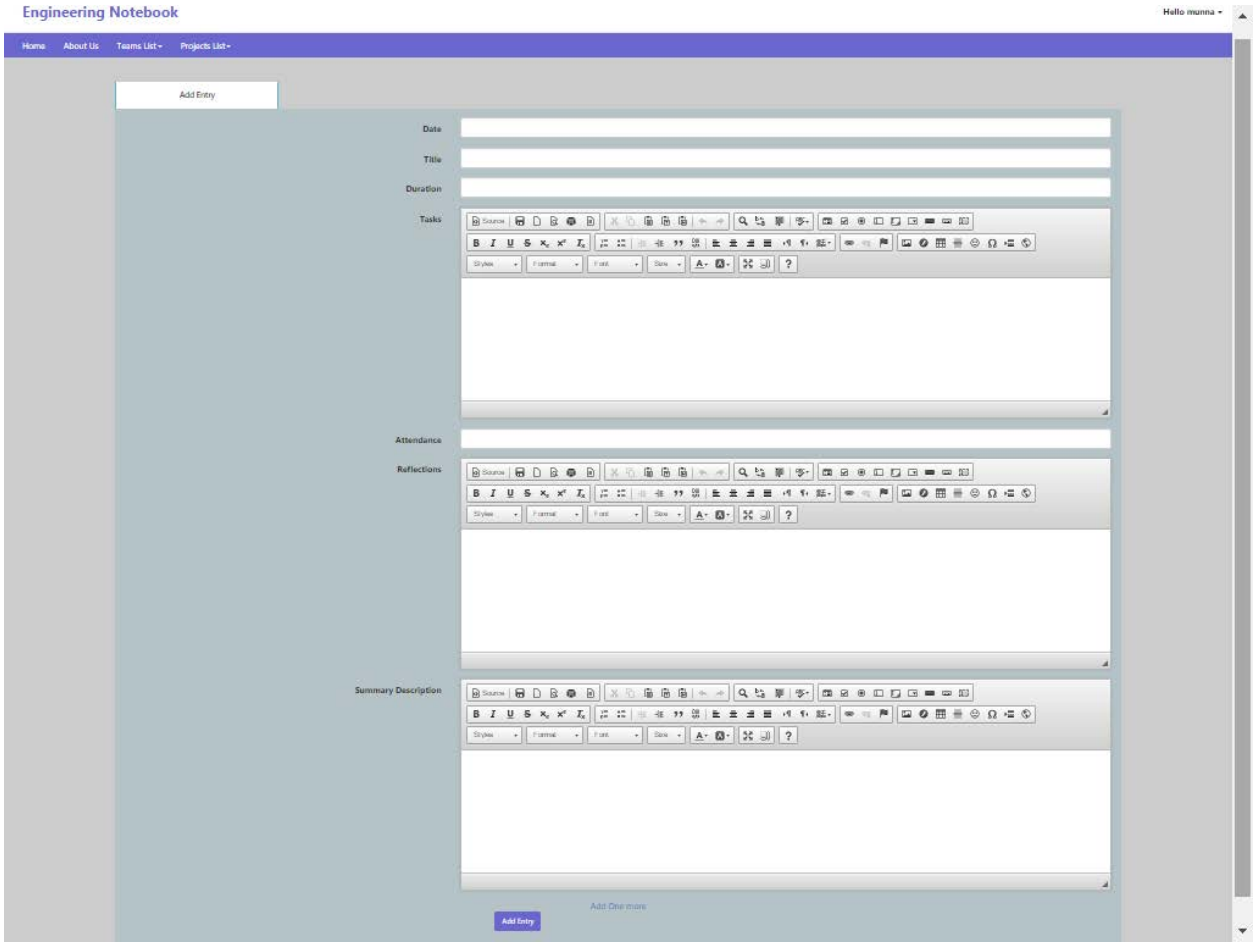

Figure-9: To add the entries

Requirement-8: This interface will be used by the user to change their passwords

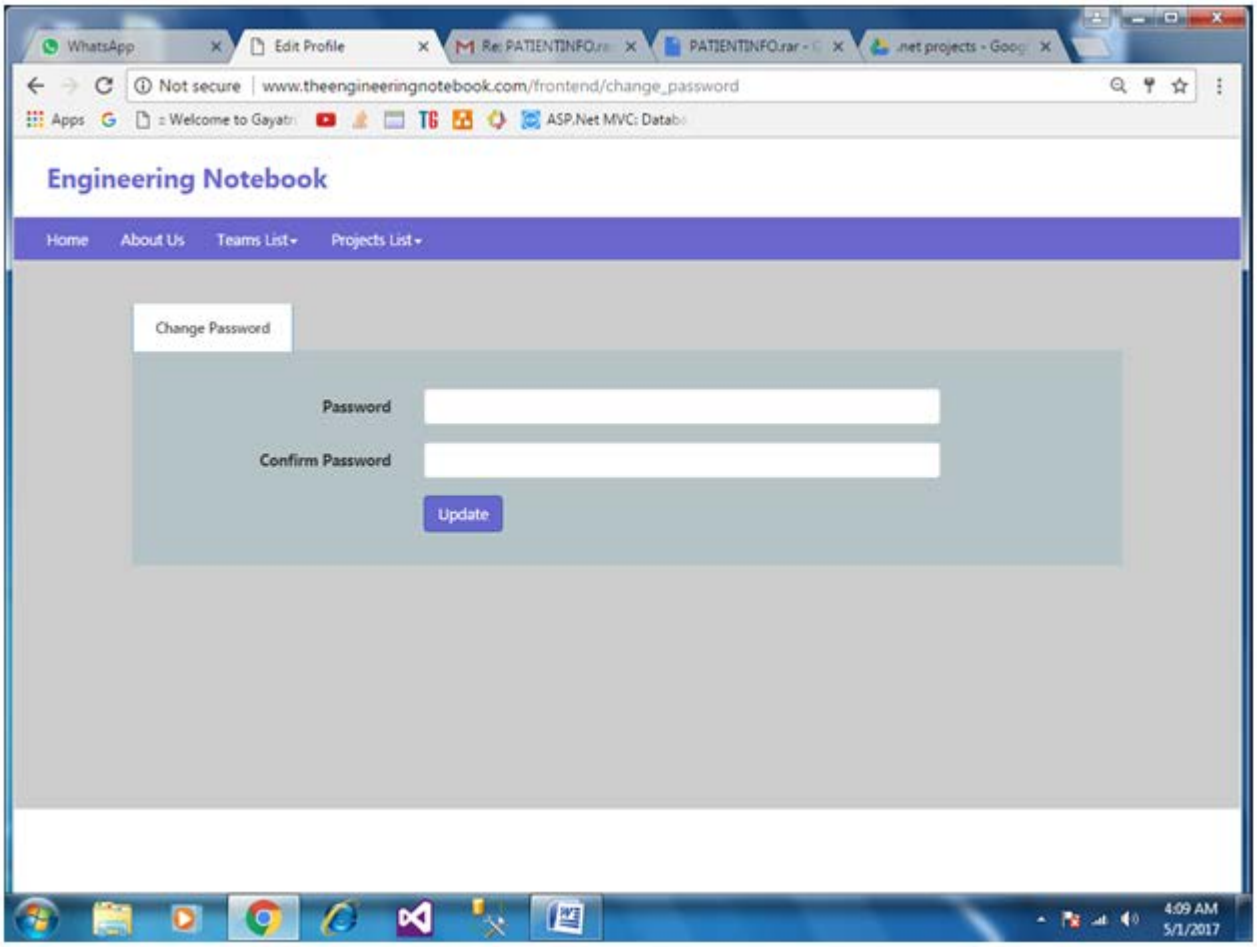

Figure-10: To change the password.

5. Internal/external Interface Impacts and Specification

In this application, whatever the information is entered that will be gets stored in the database. Database communication is established and the information will be retrieved from the different tables of all the users. Information can be flown from one interface to the other interface. Based on the type of the user, information will be accessed by the users.

This application is developed with object oriented approach, hence all the concepts which are associated with the object-oriented language can be applied to the application.

5.1. Functional Area A/Design Unit A

5.1.1. Functional Overview

The objective of the project is to build engineering notebook web application for the members of engineering project. By using this application, users should be able add their project information like text and graphical data to the engineering notebook. The team will have many team members and one captain with each team. The captain has an authority to activate and deactivate any member of their team. Also, admin has the power to remove any project for any reason. However, the members can't do these things, and they are able to add the information to their notebooks.

5.1.2. Impacts

Following are some of the impacts which is achieved by implementing this application.

R01 With the internet connection, any user can use this application from anywhere.

R02 Captain or captain will have the right to add or delete a member.

R03 While registering the application, user should give the valid credentials to register with the application.

R04 A front page with welcome message and a menu for navigation.

R05 Admin console for site administration

R06 Option to create a new project or select an existing project

R07 Add team members to project

R08 Table of content (or log index)

R09 Creation of dated log entries for ideas, details, observations, etc

R10 File upload for text documents, drawings, sketches, figures, etc.

R11 Allow multimedia elements such as pictures and videos embedded in Web pages

R12 Search of teams when member sign up

R13 Creation of PDF version of log

5.1.3. Requirements

All the functional requirements of the application are explained clearly in the previous section. Nonfunctional requirements should also to be achieved by the application like reliability, usability, performance, Functionality etc. The requirements we achieved are.

R01 A front page with welcome message and a menu for navigation

RO2 Admin console for site administration

R03 Option to create a new project or select an existing project Add team members to project

R04 Table of content (or log index)

R05 Creation of dated log entries for ideas, details, observations, etc.

R06 Chronological listing of log entries

R07 File upload for text documents, drawings, sketches, figures, etc.

R08 Allow multimedia elements such as pictures and videos embedded in Web Pages Search and listings

R09 Printing of log

R10 Creation of PDF version of log

6. Open Issues

None.

7. Acknowledgements

We would like to thank Dr. Tang for letting us work on this project under her guidance. We acknowledge the fact that she motivated us to do better at every meeting we had. We thank her for being very convenient about the weekly meetings.

Last but not the least, we would like to thank Governors State University for giving us this opportunity and for being the school we needed it to be.

8. References

[1] Banas, D. (Director). (2015, December 27). Install XAMPP [Video file]. Retrieved April 26, 2017, by Derek Banas

https://www.youtube.com/watch?v=xdvVKywGlc0

[2] Beginner PHP Tutorial - 1 - Introduction to PHP [Video file]. (2011, April 19). Retrieved April 26, 2017, by The New Boston Subscriber

https://www.youtube.com/watch?v=iCUV3iv9xOs&list=PL442FA2C127377F07

[3] PHP 5 Tutorial. (n.d.). Retrieved April 26, 2017, from

https://www.w3schools.com/php/

[4] Team Management Resources. (2017, April 4). Retrieved April 26, 2017, from

https://www.firstinspires.org/sites/default/files/uploads/resource_library/ftc/team-5037.zip

[5] What is XAMPP? (n.d.). Retrieved April 26, 2017, from

https://www.apachefriends.org/index.html

9.Appendices

1. Admin- Administration/Administrator.
2. XAMPP- Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P).
3. FTP- File Transfer Protocol.
4. HTTP- Hypertext Transfer Protocol.
5. DB- Database.
6. MySQL- My Structured Query Language.
7. RDBMS- relational database management system.