BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
(RAJASTHAN)

COMPREHENSIVE PROJECT REPORT
ON

TITLE: DEVELOPMENT OF AN INTRANET WEB PORTAL FOR THE MARKETING TEAM AT BHEL-HPVP, VISAKHAPATNAM.

ID Numbers	Name	Disciplines
2018A7PS0308H	SREE HARSHA KOPPULA	B.E Computer Science
2018B5A71003H	NIVED DAMODARAN	B.E Computer Science, MSc. Physics
2018B5A30627G	AKSHAT AGRAWAL	B.E Electrical and Electronics, MSc. Physics
2018A7PS0282H	BEJJANKI ADITYA	B.E Computer Science
2018A7PS0301H	POOJARI VENKATA SHREESH	B.E Computer Science
2018A3PS0638H	MOHAMMED ANEES	B.E Electrical and Electronics
2018A7PS0256H	SHREYA GUPTA	B.E Computer Science
2018A7PS0431H	DINESH REDDY NANDYALA	B.E Computer Science
2018A7PS0272H	TULAIB AHMED ABDULLAH	B.E Computer Science
2018A7PS0262P	YASH GUPTA	B.E Computer Science

AT

Bharat Heavy Electrical Limited-Heavy Plates and Vessels Plant, Visakhapatnam.

A Practice School-I Station of

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
(JUNE 2020)

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Prepared in the partial fulfilment of the
Practice School-I Course Numbers
BITS C221 / BITS C231/ BITS C241

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BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
(RAJASTHAN)

Practice School Division

Station Name: Bharat Heavy Electrical Limited
Centre: Heavy Plates and Vessels Plant, Visakhapatnam
Duration: 18th May 2020 to 24th June 2020
Date of Start: 18th May 2020
Date of Submission: 25th June 2020

Title of the Project: Development Of An Intranet Web Portal For The Marketing Team At BHEL-HPVP, Visakhapatnam.

Student Details:

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Abstract:

This project consists of the development of a contributory web portal to access and gather information on tenders for the Marketing Department of BHEL-HPVP, Visakhapatnam. The goal of this portal is to create a document repository of past-tenders and their details using HTML, CSS, PHP and SQL along with databases created and maintained in BHEL servers. The records maintained are supposed to be advisable to the Marketing Department of BHEL in the event of calculating future bids(Technical and Commercial) for tenders which are similar to previous tenders and creating a solid database of previous bids. This is important so as to preserve the efforts and resources used in making a bid. Here, differential access will be granted to the different users based on their role in the company. Admin has access to upload/download files into the portal whereas the general user will be able to only download files from the portal. This is done to maintain the authenticity of records stored in the portal. The admin also has access to Add, Delete and Edit new records and documents related to the tenders, updating the portal as and when required. An admin can also create/ give permission to other admins to edit the details of the tenders as well. Other functionalities added for the convenience of the user are Changing Password and Updating their Profile. This would contribute to the smooth functioning of the Portal.

TABLE OF CONTENTS

I. INTRODUCTION

The purpose of the project is to create an Intranet based Web-Portal for the Marketing Department of BHEL for their internal use. It will facilitate the monitoring of Real-Time Progress of tenders as well as act as a Document Repository. The portal can make access to the bid and tender information for the staff much simpler and easier and allow for a smooth flow of data. By ensuring that the documents are always accessible, it can potentially be used in the future to secure more bids and understand the requirements of the clients in a better way.

Web Technologies used for the creation of the portal are:

• HTML and CSS for the front-end which includes styling the pages and neatly structuring the data.

• PHP and SQL for the back-end to accept requests, store and retrieve data from a database.

• JavaScript and AJAX for dynamic modification of the database and for a more user-friendly environment in updating the information regarding the tenders.

• XAMPP server which acts as the local server to host the web pages.

• NetBeans IDE facilitates debugging and easier coding for the project.

The Role-based flowchart gives an idea on the functionalities accessible by different people based on their roles, i.e., a Normal user and an Admin user. The admin user can access and modify tenders whereas a normal user can only download the tender document.

The project workflow explains the entire working of the portal, the flow of data, using a simple flowchart for a better understanding of the project.

The Database Design gives an idea on the various tables created and their purpose in the project.

Quite a few functionalities have been added for making the Portal as smooth and user friendly as possible, keeping its simplicity also in mind. The functionalities added are:

1)   Default Page: A normal user(any employee) can easily download the required tender document.

2)   Login Page: A login system for the Admin User to login and update the tenders.

3)   Password Recovery Page: To recover the password in case the user forgets the password.

4)   Update Profile and Change Password functionalities help the user to change their profile and password to their convenience.

5)   Add User: Only an admin can make another person admin, thereby giving that person access to all the functionalities. This has been done keeping the security and accessibility of the databases in mind.

6)   Adding a Record: Allows the admin to add new tender information

7)   Uploading and Download of files enable the admin to upload the relevant tender document and make it available to everyone. The download feature allows users to download the same.

8)   Editing a Record: allows the admin to edit the tender information in case of an error or in case of an update in any of those details.

9)   Deleting a Record: allows the admin to delete the record when he deems it unnecessary or irrelevant to the organization or other employees.

I finally got an hands on experience on what I have learned until now, finally got a chance to work on a real time project. I had an amazing experience of the environment and the industrial culture. got many new opportunities to add some languages like PHP,CSS,HTML to my knowledge. Operated in different environments like NetBeans IDE along with XAMPP and MySQL. This project gave me the confidence to build more complex webpages along with database connection. Well, I faced a few challenges in the project but with the help of my team and mentor gave to enough courage to withstand. Clean code reduces unexpected errors, which can affect page load. I wish to expertise myself in web development before I complete this project. Looking forward to build more web portal like this in the future and much more. This project has helped me gain a lot of skills that are useful for my resume.

II.   OVERVIEW

A. Project Requirement and Approach

BHEL is a large scale industrial manufacturer and undertakes many large-scale tenders each year. A large portion of the production is devoted to the manufacture of industrial equipment used in various production plants.

Production companies requiring industrial equipment release tenders illustrating the number and specifications of each product required. Many manufacturing companies bid for this tender and the bid which has the lowest price is granted the tender.

The Marketing Department of BHEL is behind the process of making bids. Once a tender is allotted to BHEL, they act as the mediator and spokesperson between BHEL and the company whose tender has been undertaken. Any correspondence with the company is done by the Marketing Department. Hence, they assume the overall responsibility of the completion of the project and all of its results, whether profit or loss. All other departments that are directly involved in the production come under them.

The bid is prepared by the Marketing Department by:

- Analysing past data.
- Taking inputs from the following departments:
    - *Engineering* - To evaluate the feasibility of the production using the available equipment.
    - *Material Management* - To evaluate the raw materials/alternatives required and the means to procure them.
    - *Finance* - To evaluate the total expected cost of the process, ways to bring it down and set the bid price according to it.
    - *Project Management Group* - To analyse the time frame in which the production can be completed and map out the daily and weekly goals so that the production timeline remains on track.

As one can imagine this process is quite lengthy and requires time and a lot of effort. Hence to preserve the efforts done by the marketing team, even if the bid fails, a common repository is required to save the bid documents for future reference.

This is where a Marketing Portal comes into the picture. This portal will provide many functionalities such as:

- *Real-Time Progress*: The Web-Portal will display the real-time data and progress for each of the projects undertaken/under negotiation by the Marketing Department at BHEL-HPVP Plant. Only authenticated users will have access to modify the project data from time to time. A large scale manufacturer like BHEL has a lot of utility for this because it undertakes a lot of projects and managing each one of them is   quite   difficult   as   well.

- *Document Repository*: It will also provide a medium to upload and download the documents of every successful/failed bid ever made by the company. It would serve as a future reference when a similar tender is released. Again, only selected users will be granted access to the upload feature to maintain the authenticity of the content   being   uploaded.

- *Security*: It will be intranet based so that only BHEL employees can access it, that too from within the company premises to achieve data security. Moreover, login will be required to access the portal, acting as an additional layer of security.

III.   TECHNOLOGIES USED

The different technologies used in the project include but are not limited to HTML, CSS, JAVASCRIPT, AJAX, PHP, XAMPP, SQL.

A. HTML

HTML stands for HyperText Markup Language and is the most basic building block of the Web. 'HyperText' refers to links that connect web pages to one another, either within a single website or between websites. HTML uses 'markup' to annotate text, images, and other content for display in a Web browser since links are the fundamental aspects of the Web.

Version 5.2 of HTML is used in the implementation of this project and is also compatible with some of the older versions.

B. CSS

CSS stands for Cascading Style Sheets and is a simple design language that adds style to an HTML document, simplifying the process of making web pages presentable. It is used to add style to HTML elements of Web-Page such as adding colour to text, setting the background colour, or adding borders to elements. It separates code from its style, saving time and enhancing reusability. There are three ways of including CSS into an HTML document:

- Inline CSS
- Internal or Embedded CSS
- External   CSS

The version CSS3 is used in the implementation of this project.

C. PHP

PHP is an acronym for Hypertext Preprocessor and is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. All PHP code is executed on a web server only, not on a local computer. For example, if a person completes a form on a website and submits it, or clicks a link to a web page written in PHP, no actual PHP code runs on the computer. Instead, the

form data or request for the web page gets sent to a web server to be processed by the PHP scripts. The web server then sends the processed HTML back (which is where 'Hypertext Preprocessor' in the name comes from), and the web browser displays the results.

Version 7.4.6 of PHP is used in the implementation of this project.

D. SQL

SQL stands for Structured Query Language. It is used to make modifications to a relational database and automate retrieving specific information from large databases which couldn't have been done by human operators. SQL combines the roles of data definition, data manipulation, and query in a single language. It was one of the first commercial languages for the relational model.SQL queries are used in this project to sift through the various databases and records for verification of users, modification of data etc. and used in conjunction with PHP scripts.

E. JavaScript

JavaScript is a scripting language for web pages but used for many non-browser environments as well. It provides for adding interactive behaviour to web pages. During earlier stages of the project, it allowed the login functionality (for static data only) without the need for backend programming. Major applications in our pages were for enhancing the functionalities with its methods, like being able to edit the contents of the database in parallel with on-screen editing. It can be used for fetching details of a file/data by methods like onclick, which help for further actions to be taken on the selected file/data.

F. AJAX

AJAX stands for Asynchronous JavaScript and XML. AJAX is a technique for creating fast and dynamic web pages. It allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes. By decoupling the data interchange layer from the presentation layer, Ajax allows web pages and, by

extension, web applications, to change content dynamically without the need to reload the entire page. Ajax is not a single technology, but rather a group of technologies. HTML and CSS can be used in combination to mark up and style information. The webpage can then be modified by JavaScript to dynamically display and allow the user to interact with the new information. AJAX is used for dynamic entry of values in the table in this project.

G. XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package.It consists mainly of the Apache HTTP server, MYSQL database, tomcat and also interpreters for scripts written in PHP and Perl programming languages. It played an important role in the initial growth of the world wide web. Available for all OS platforms like Windows, Linux, Solaris and Mac, it was instrumental in emulating a remote server like an environment on a local computer so that we could run the PHP scripts and SQL queries which would be required to implement the portal using BHEL servers.

IV. FLOW AND DESIGN OF DATA

A. Work-Flow
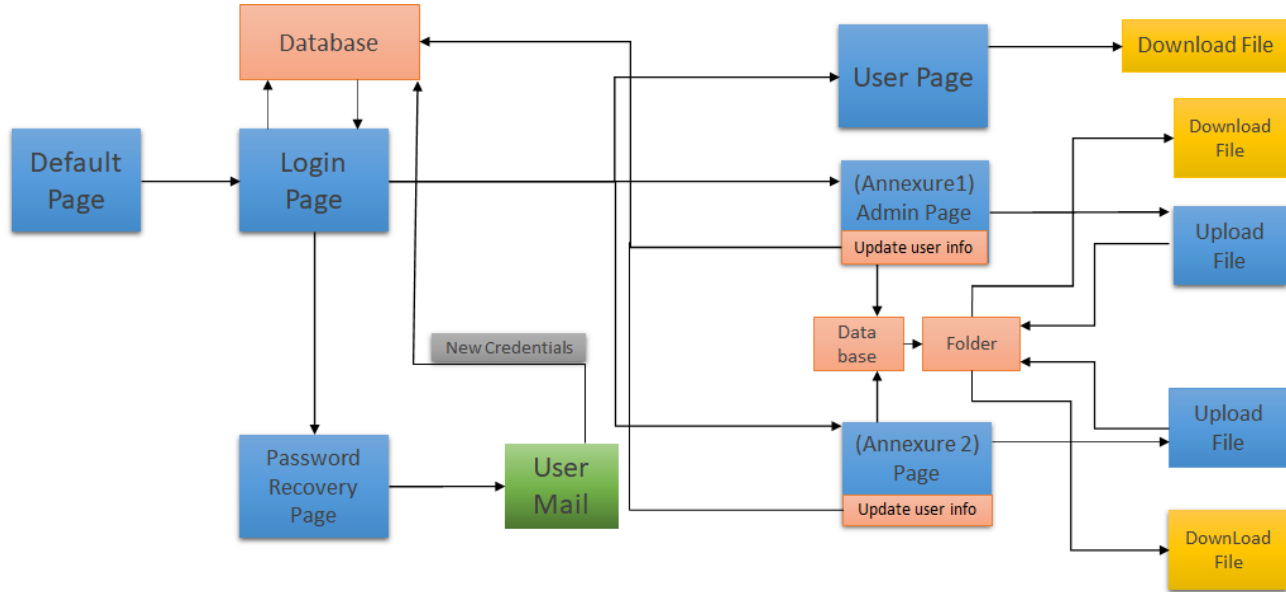
Figure 1: Depicts the flow of data in the Web Portal

B. Database Design

Table: **User**

Column Name	Data Type	Content
staffno	int(7)	Staff Number (Primary key)
password	varchar(30)	User Password
email_id	varchar(50)	Email-ID
name	varchar(50)	Name of the User
dob	date	Date of Birth
phone_no	varchar(20)	Phone Number

Table: Annexure-1

Column Name	Data Type	Content
marketing_group	varchar(200)	Marketing Group Details
hpvp_enq_no	varchar(200)	Enquiry Number (Primary key)
consultant_cust_name	varchar(200)	Name of Consultant/Customer
consultant_cust_enqno	varchar(200)	Consultant/Customer Enquiry Number
due_date	date	Due Date
contact_ph_no	varchar(200)	Phone Number of the Contact
description	varchar(200)	Description
qty_nos	bigint(20)	Quantity Number
hpvp_offer_ref	varchar(200)	HPVP Offer Reference Number
delivery_month	date	Month of Delivery
remarks	varchar(200)	Remarks
file	varchar(200)	File-Name of the uploaded file

Table: Annexure-2

Column Name	Date Type	Content
s_no	int	Serial Number (Primary key)
doc_name	varchar(200)	Name of the Document
date_of_upload	varchar(200)	Date of Upload
file_name	varchar(200)	File-Name of the uploaded file
hpvp_enq_no	varchar(200)	Enquiry Number

Database : *Main*

This is the database which holds all the three tables and their information as mentioned above. It has tables by the names User, Annexure-1 and, Annexure-2.
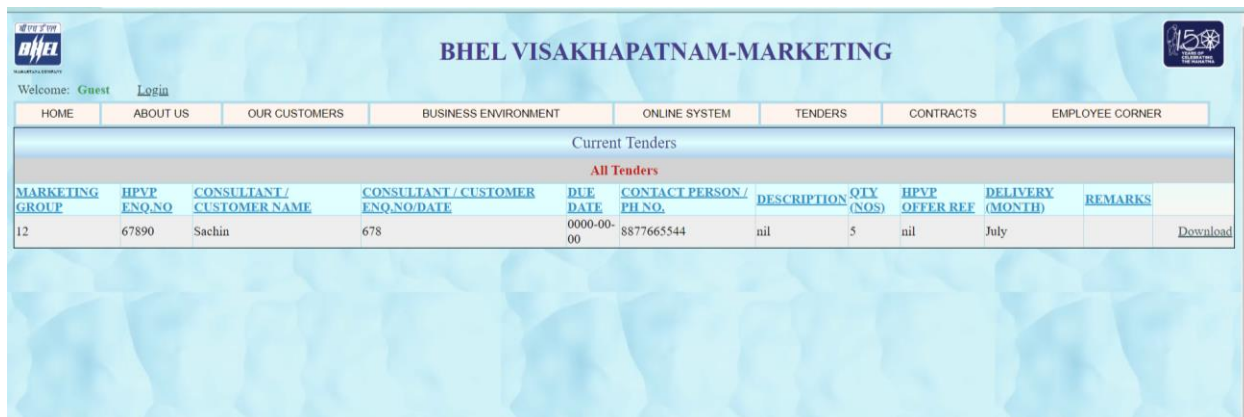
Table : *User*

This table captures the credentials of the users and administrators and is required during login and password recovery functions.

Table : *Annexure-1*

This table stores the general information regarding projects undertaken and displays it to anyone who visits the web portal. Only users with accounts have the option to edit this table's contents.

Table : *Annexure-2*

This table stores project specific information regarding various projects. The purpose of this table is to allow users to upload project related documents so that everyone has access to them.

V. WEB-PORTAL FUNCTIONALITIES

A. Home Page

Image 1: Snapshot of 'Home' Page

The first page that opens up when accessing the Marketing Portal is the 'Home Page'*(see image-1)*. It displays general information regarding current or previously undertaken projects and anyone who has access to the link to the portal can download files using the 'download' link. This page displays the information stored in the table Annexure-1 in the database.

B. Login Page

In our project , when BHEL users open the Marketing Portal Website, a user login link will be there from which admins (users who have existing accounts) login to the website. Strictly, only admins can log in into the website. However, they can create new admins once they logged on to the website. On clicking the 'Login' link on the 'Home' page, it takes you to the 'Login Page'*(see image-2).*

The login page is created by using HTML, CSS as front-end languages and PHP, MySQL as backend languages. By using HTML and CSS the webpage is designed and a login form box is created with the help of `<form>` tag. PHP is used to take the 'Staff No' and 'Password' from the login box by using `$_REQUEST` method. MySQL language is used to match the entered 'Staff No' and 'Password' with the data in the database with the help of `mysqli_query()` and other MySQL methods,

Image 2: Snapshot of 'Login' Page

Firstly, admin users enter the 'Staff No' and 'Password' in the login form box and click on the 'Login' button. If the entered 'Staff No' and 'Password' matches with their respective values in the database then the user is logged into the website. If the entered

credentials do not match with the credentials in the database then an error message 'Invalid Credentials' is displayed.

How the 'Login' page works from start to end is explained with the help of the flowchart explaining the basic structure and working.

Figure 2: Depicts the how the 'Login' Page works
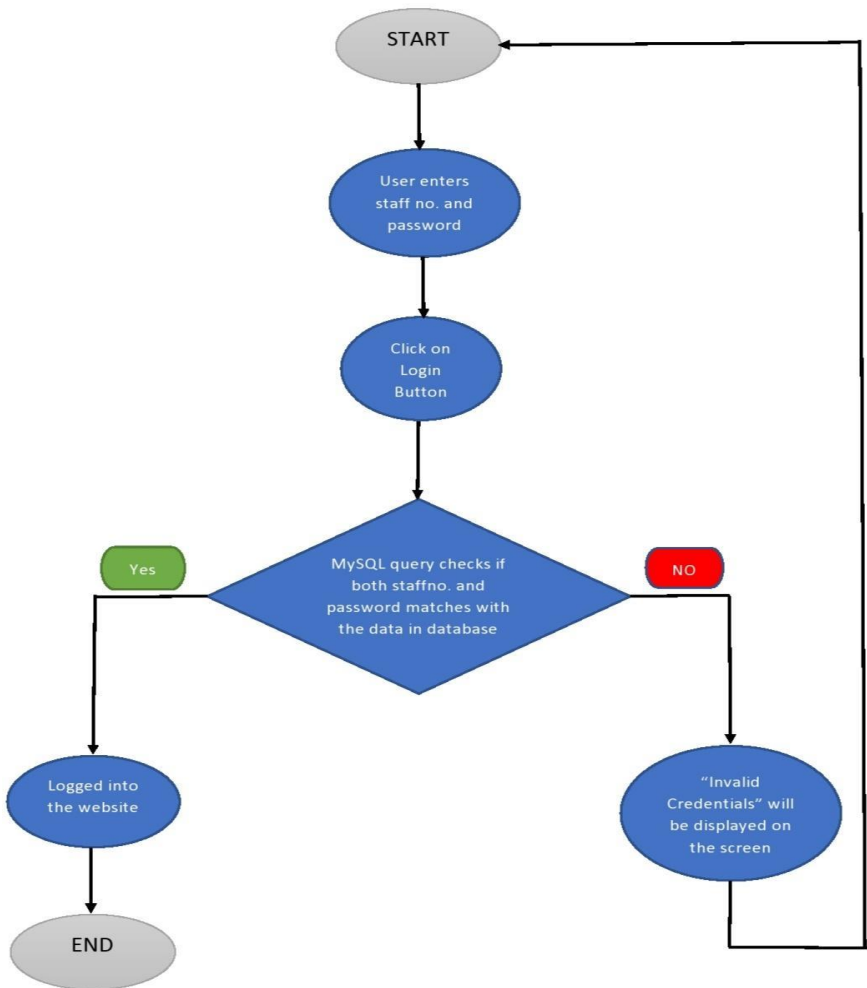
C. Password Recovery Page

It is of the utmost importance to have a Password Recovery System in case the User forgets his/her password. The user enters their 'Staff Number' and an email containing the new password is sent to the user, which can then be used to access the portal.

The technologies used to create the Password Recovery Page are HTML, CSS, PHP and SQL. HTML and CSS are used for the Front-End for the creation of the form and style of the page. PHP and SQL form the Back-End for retrieval of data from the database, generation of a new random password and emailing the password to the user.
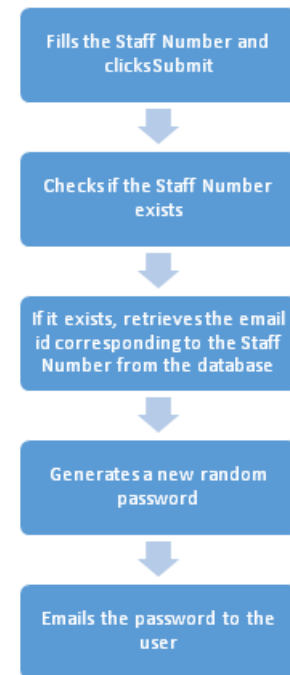
Figure 3: Depicts the mechanism

of 'Password Recovery'

The user enters their 'Staff Number', which is then checked in the database. The 'Email ID' corresponding to the 'Staff Number' is retrieved from the database. A string containing the alphabets and digits is used, and a `rand()` is used to generate a new random password using the string. The `mail()` is then used to send the new password to the corresponding Email ID.

Image 3: Snapshot of 'Password Recovery' Page

D. Creating a New User

The Web-Portal is expected to be hosted on BHEL-HPVP, Visakhapatnam's intranet, providing access to certain sensitive information only to the Marketing Team. Since the access to the database remains restricted, direct changes to it are not allowed. However, there would always be a requirement to create a new account for a new user. Hence the already existing accounts come with the option of creating a new user account.

Clicking 'Add New User' takes you to a new page that looks identical to *image-* . The existing user is expected to add information regarding the new user and then click on the 'Submit' button. Some information can be left out for later, but others such as entering the 'Email-ID' or 'Staff Number' are crucial without which the account will not be created. If the account is successfully created, a message displaying the same will appear. An email alerting the new user about their successful account creation is sent on the email id of the new user. Otherwise an error message is displayed depending on the kind of error that has occurred. For example, if the user enters a different password in both the input slots, an error message saying 'Passwords do not match' will be displayed.
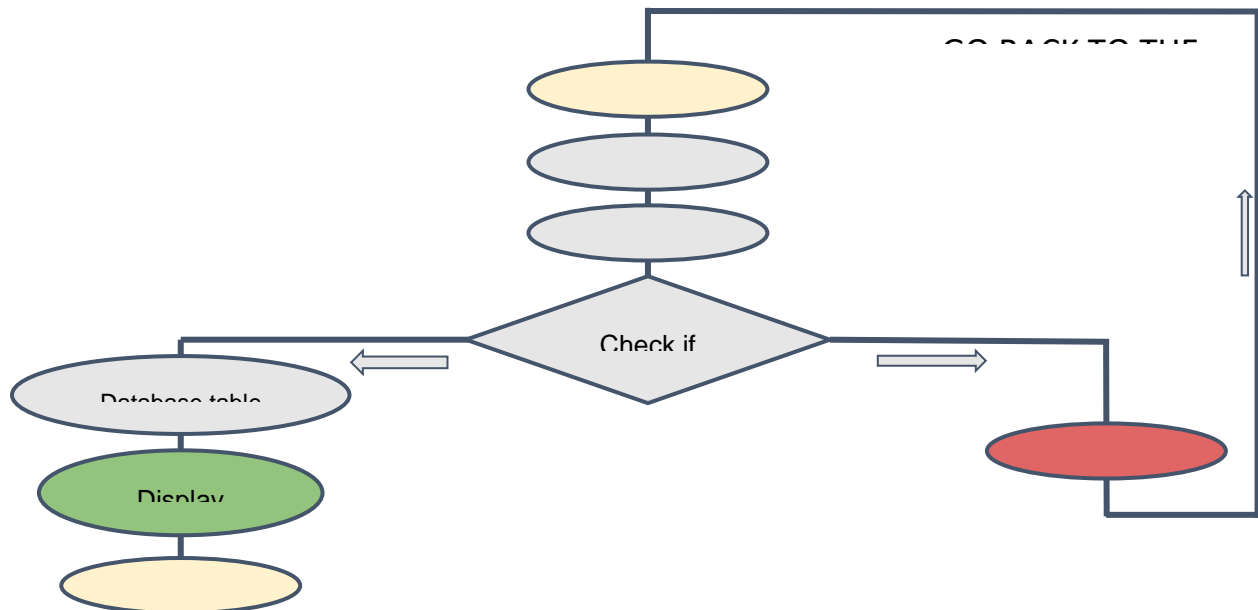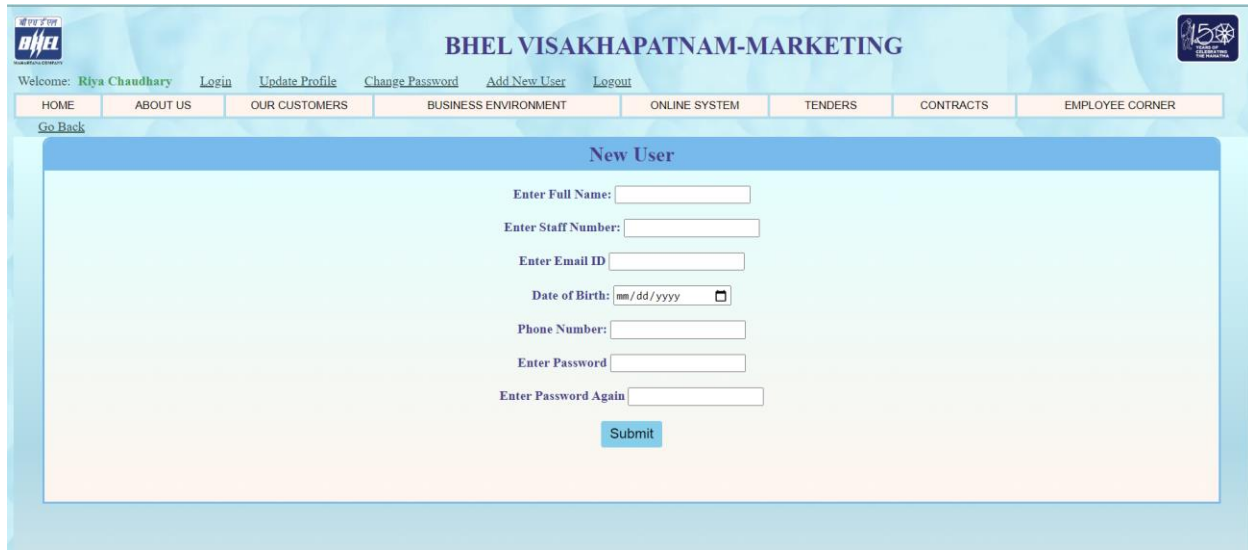
Figure: Algorithm of 'Add New User' Page

HTML `<form>` tag is used to collect input from the user in the frontend and is sent to the backend using `method="post"` on clicking the 'Submit' button. The backend code written in PHP acquires the data using the `$_REQUEST` method. Simple SQL queries such as

`INSERT INTO` are used then to make changes to the 'User' table in the database. The use of `mail()` is also made to send alert mails on the email id of the new user.

Image: Snapshot of 'Add New User' Page

E. Changing User Password

The Web-Portal is required to provide an effective and functional access to information to the user. Hence, an approach that focused on user related functionalities was also needed that would enhance and smoothen the experience for the user. Therefore, an option that allows for the users to change their password is also provided. It can be accessed using the 'Change Password' link. *(See image-)*

The user is first required to enter their 'Current Password' followed by their 'New Password'. The old password entered is checked against the value stored for the user in the database. This is to ensure that the account is not being mishandled and for verifying user identity.Thus, this step acts as an additional security measure. Once the old password is validated, the password of that user in the database is updated with the new password. An email is also sent to the user alerting them about their account activities, if it is suspicious. Otherwise, if the 'Current Password' entered is incorrect, it displays an error message and changing of password fails.
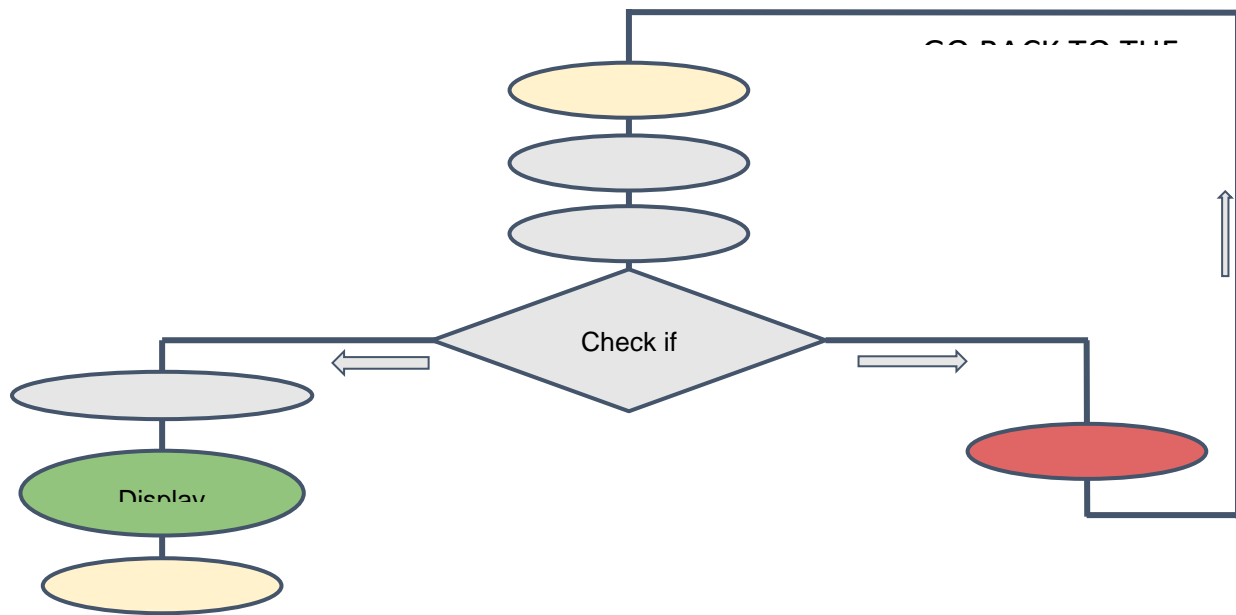
Figure: Algorithm of 'Change Password' Page

<form> tag is used here as well to receive input from the user. SQL Queries such as SELECT and UPDATE are used to access and make changes to the database tables. An if condition is used to check if the old password entered is correct and the mail() function is used again to send alert mails regarding the changing of passwords.
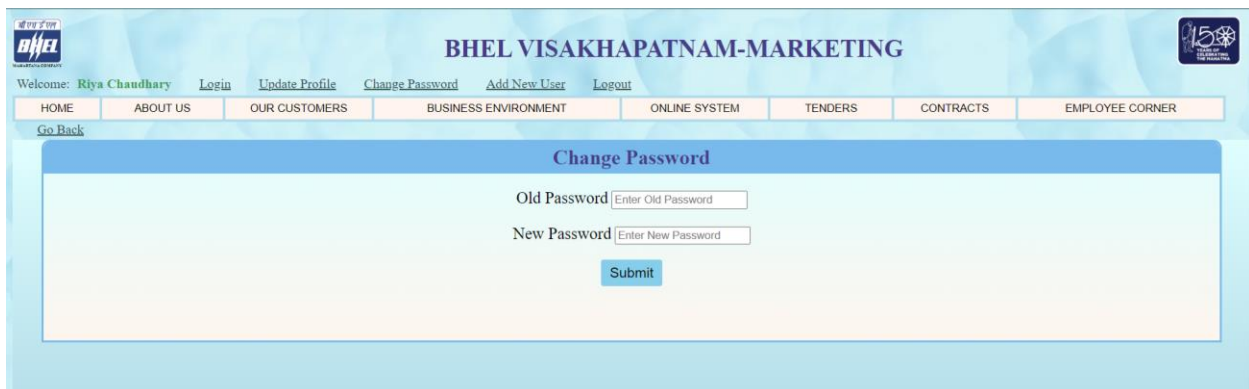

Image: Snapshot of 'Change Password' Page

F. View/Updating User Profile

It is expected that certain user-related information such as phone number, or email id might be updated with time. Additionally, certain details were left out to be optional during the process of creating a new user so that the user can enter these as per their convenience. So a page that fetches data from the database and displays 'User Profile' was

designed. The page also contains an 'Edit Profile' link clicking on which allows the user to edit the user information. *(See image and image)*

The user can simply enter the new details on reaching the editing page, the user simply has to enter their information and click the 'Submit' button. The database is then updated and the user profile is displayed again. However, if for some reason, the web page fails to update the data, an error message is displayed. Again repetitive use of `<form>` tag, SQL Queries and `$_REQUEST` method is made to achieve the desired results.
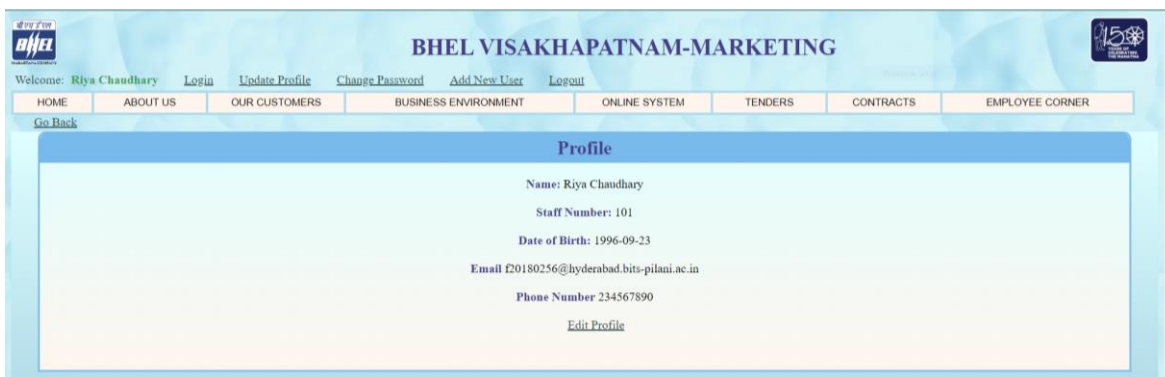
Image: Snapshot of 'View Profile' Page
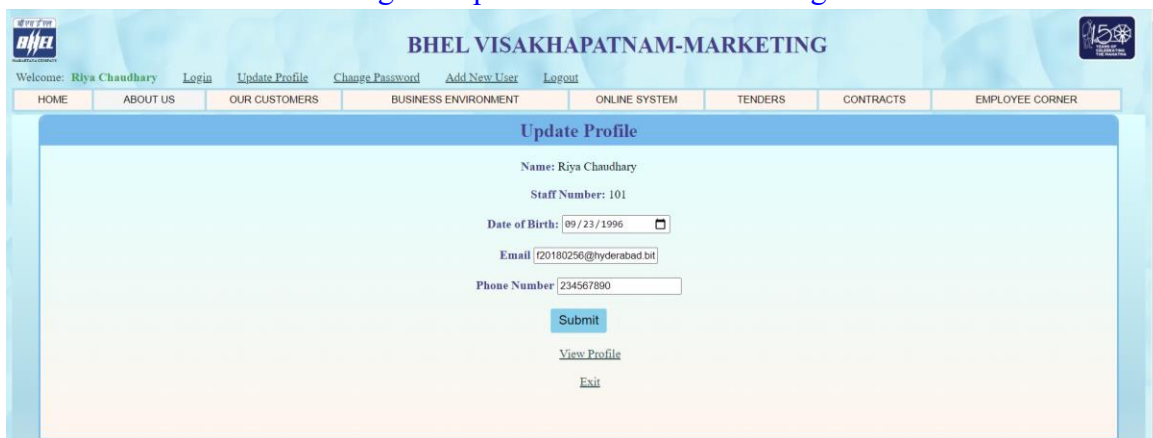
Image: Snapshot of 'Edit Profile' Page

G. Addition of Records

For the sake of legitimacy and security addition of records can only be done by administrators. A file can be added in two ways:-

1) Adding only tender details.
2) Adding tender details along with the file.

This Adding functionality is given to 2 pages, one is for Annexure 1 and another is for Annexure 2. The data which are given by admin, are stored in their respective tables. These uploaded files are not stored in the database, rather in a separate folder. A folder is maintained for holding all the uploaded files. The database holds the details of these files and an upload request will be approved only after checking the database for a duplicate of the record.

Image 4: This page appears after the addition button is clicked in the Annexure_1 page.
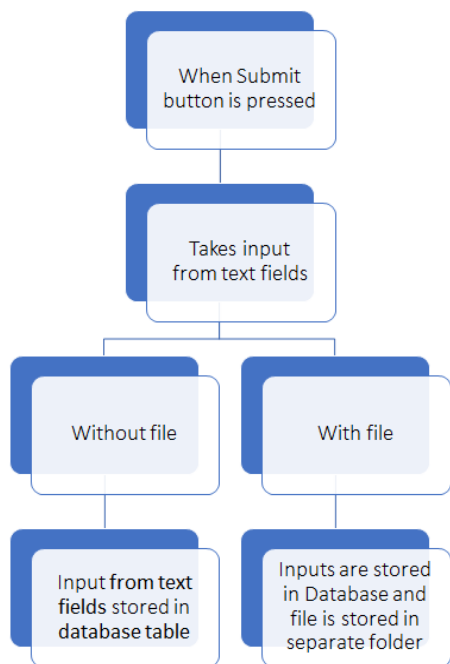
When the admin clicks the submit button, it takes the input from those text fields and stores those values in the Database through the SQL command `Insert`.

The file uploading is not mandatory for the admin to upload during the creation/addition of records. Later on, admin can upload the file in the edit functionality or in the main table.

Figure 4: Depicts how records are stored in the database

H. Uploading Files

Maintaining and keeping records of tender documents is very important for the Marketing Portal of BHEL. This helps them to bid on the projects wisely. The files can be uploaded into a secure web portal and can be used later. Upload feature available for only admin users whereas the normal users can only download the file. To ensure control over what's being uploaded and to manage the files.

The 'Upload' button (Add) is seen in the Annexure-1 and Annexure-2 page. Both the pages work in the same way. We created an HTML, PHP form that lets a user select a

file from computer and server using various methods like `$_POST`. We also used various methods like `isset():` to determine a variable is set or not null. Similarly, `$FILES` is used to upload files to the current script via the HTTP POST method. The function `more_upload_file(string $filename, string $destination): bool:` checks to ensure that the file designated by the file name is a valid uploaded file and it will be moved to its destination.

When we click the upload button the user gets an interface to select the files from the local storage. Once the user selects and submits then if the file destination is not found or if the file size exceeds 100MB (megabytes) then an error is displayed. Else a message can be seen that the file has been uploaded successfully. The file gets stored in a separate folder and can be retrieved later through the download button.When the file size exceeds 100MB of data then an error message will be displayed showing 'FILE TOO LARGE'. If the `$destination` is not found then an error message is displayed saying 'FILE NOT UPLOADED'. If the file gets uploaded we get a message 'FILE UPLOADED SUCCESSFULLY'. If a file is already present then it will be replaced by the newly uploaded file.
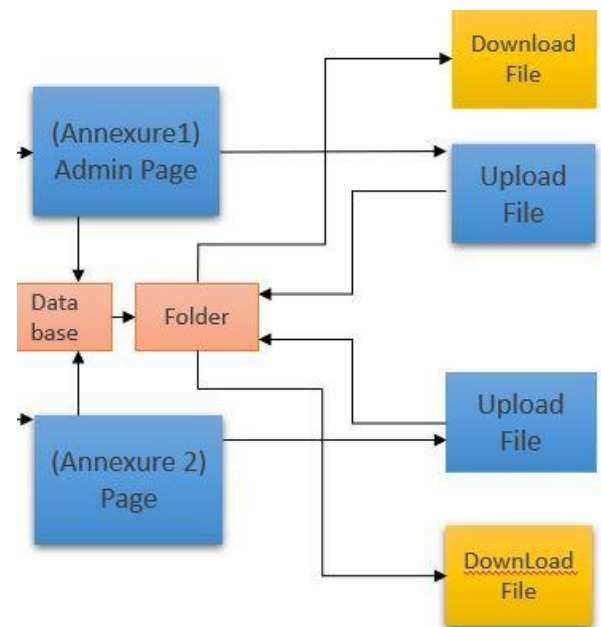
Figure 5: Explains Upload Functionality

I. Downloading Files

The next thing to uploading a file is to download it. There are 3 locations where download feature is made available :-

1. Where the general public can use it, i.e Home page
2. Where a BHEL employee can use it for their work after logging in, i.e User page
3. Where an administrator can use it to monitor the work done on the tender after logging in, i.e Annexure-1 Page and Annexure-2 Page.
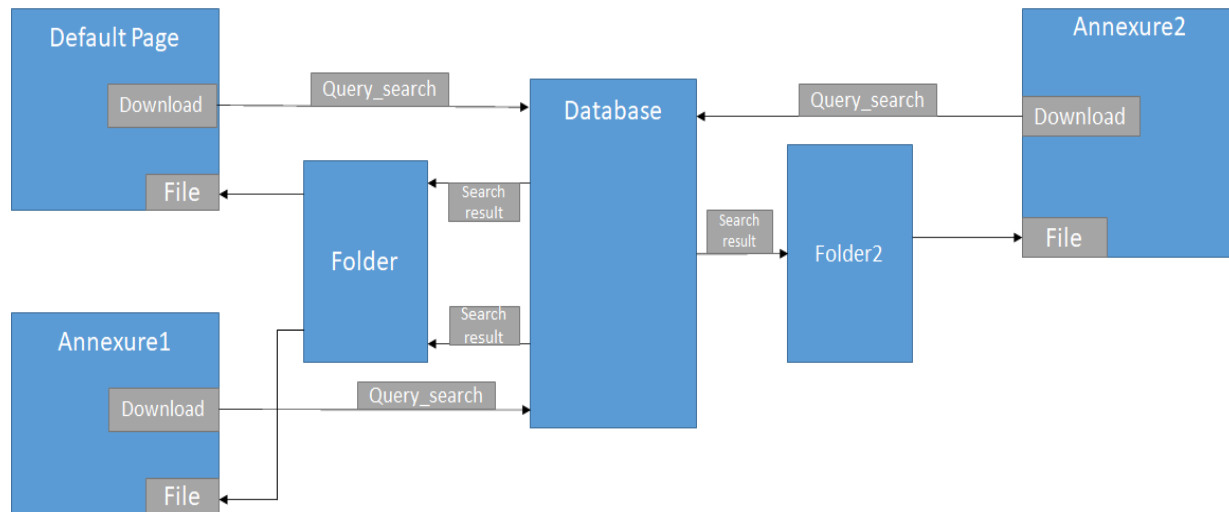
When download is initialized many functions come into play, a variable will receive the file_id of the file, which when clicked, actions are performed on the file having the file_id.

Downloading a file has many functions in it. `form type: multipart/form-data` allows a user to enter data that is sent to a server for processing. The content functions describe where and what is to be downloaded. Basically, content-type for a browser is what an extension is to a text processor. In our case content-type is a binary file denoted by octet-stream.The `disposition` functions controls what to do with the fetched file, either to show it on the browser or download it to a local directory with the filename. The cache functions operate on how and when to download a file. Cache is a piece of code which will return a saved action, like when offline, chrome returns a page which was visited previously with the help of cache. The `expires` function prevents the cache from doing this. `Cache-control:revalidate` will enable the browser to always check for a newer version of file before downloading it. Finally the `readfile` writes the output file to a location permanently

J. Editing Existing Records

Editing an Existing Record is an essential functionality in the project. In case a wrong data is entered or a wrong file is uploaded while adding a new record the 'Edit' functionality allows the user to edit that data or file. Also sometimes a user may want to add a new record and upload a file later in that record. The 'Edit' functionality is useful in

doing that too. A record can be edited in Annexure -1 and Annexure -2 only by authorized users.

Image 4: Edit Annexure_1 page.

HTML, CSS used for front-end development. PHP, JavaScript, AJAX and SQL were used for Back-end development. PHP is used for some of its in-built functions and for interacting with database. Using AJAX, an existing record can be edited without refreshing the web page to save the changes so that the changes are visible to the user while editing. JQuery library which is a JavaScript library is used for implementing AJAX. Below is a flowchart showing how the edit functionality works.

The 'Edit' button is present in both Annexure-1 and Annexure-2 through which the edit annexure page is accessed by the authorized user. In the Edit Annexure Page, there is a search bar which asks the user to enter a unique key ('HPVP NO.' in case of Annexure-1 and 'Document Name' in case of Annexure-2). If a right key is entered a row containing the search result is displayed on the page. The columns in the row can be edited and saved without refreshing the page. If a file has to be uploaded during editing, if there is no file related to that record a new file is uploaded or else the old file is deleted and then replaced by the new uploaded file. After making the changes, clicking on the 'Done' button prompts the user back to Annexure page.
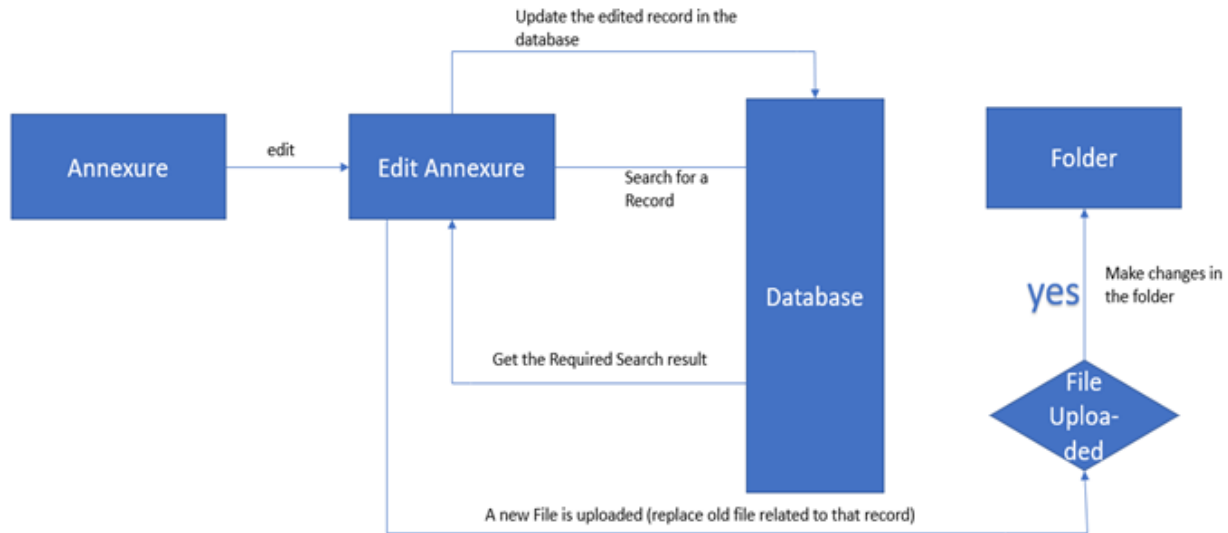
The Flowchart is same for both the Annexures.

Figure 6: Explains Edit Record Functionality

K. Deleting Existing Records

Deleting a record is a necessary function in the web portal. A user may want to delete a record or entry either to free up space or if the record loses its relevance or maybe due to an incorrect entry. For doing this 'Delete' functionality is quite useful. It is present in the Annexure-1 and Annexure-2 for the authorized users only.

HTML, CSS used for front-end development. PHP, JavaScript, SQL were used for Back-end development. JavaScript was used to highlight/select the row which is to be deleted and PHP is used for some of its in-built functions like `UNLINK` which is used to delete the uploaded file related to the record and for interacting with database for deleting the record in the database. Also, if there is no uploaded file for the record the code identifies it and deletes the entry only in the database. In the implementation of this page 'Cookies' are also used for interaction of JavaScript and PHP.

The 'Delete' button is present in both Annexure-1 and Annexure-2 through which the delete annexure page is accessed by the authorized user. In the 'Delete Annexure Page', there is a search bar which asks the user to enter a unique key ('HPVP NO. 'in case of Annexure-1 and 'Document Name' in case of Annexure-2). If a right key is entered a row containing the search result is displayed on the page. The user has to select the row he wants to delete, the row gets highlighted then press on the delete button to delete the record from the database. If the deletion is successful a message is displayed and the user is prompted back to the Annexure page.
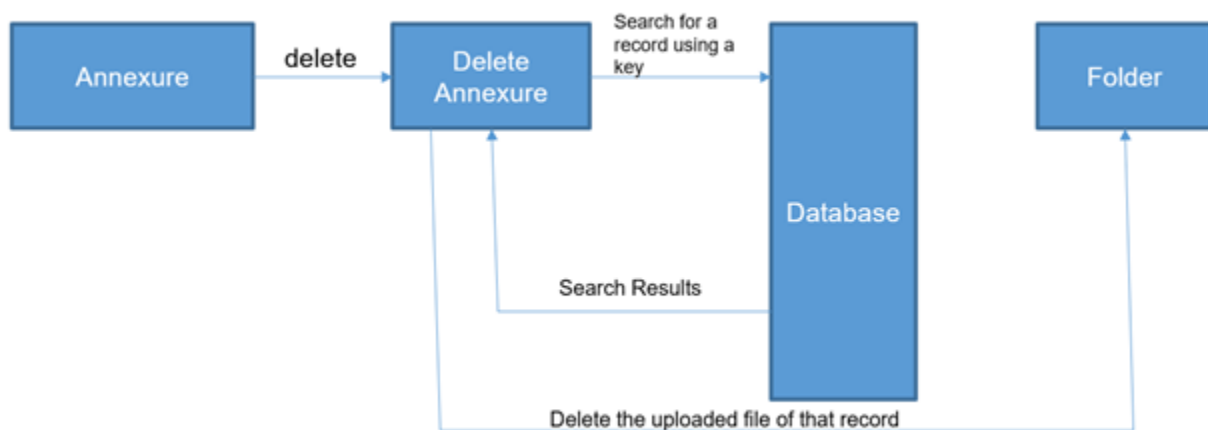
Flowchart for Deleting a record in Annexures

Figure 6: Explains Delete Record Functionality

VI.   CONCLUDING REMARKS

The report deals with the development of web-portal for BHEL.To develop web-portal we used HTML,CSS,PHP,SQL,JAVASCRIPT,AJAX softwares. These softwares act as prerequisites for achieving major goals set by the industry and thereby completing the project.We gained the required theoretical knowledge from different sources as guided by our mentor.

Planning tools, such as the site structure worksheets and the site maps, were vital aides. The site-structure worksheets were especially helpful during the planning stages while the teams were still outlining the site. In spite of that, we were able to implement the web pages with little to no mistakes.

The table created for dynamic entry of tender details is perhaps the most important and successful of pages created because it is very much beneficial to the marketing team to store their information for future reference . The upload/download functionality also is very important as it gives admin privilege to upload the documents thereby maintaining authenticity.

The process of work implemented here shows appropriate details required for the implementation of the project. To create a wonderful web portal takes more than hard work and time(such as easy navigation, intuitive design and user experience, webpage speed, query optimization and web compatibility). This may be harder to achieve in practice than implementing in theory.

Despite challenges such as debugging and sticking to the deadlines, we have successfully completed this project because of the dedication,teamwork and coordination among team members and guidance of the Industry mentor .

VII. REFERENCES

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VIII. GLOSSARY

- **BHEL** - **B**harat **H**eavy **E**lectrical **L**imited as mentioned on the website
- **HPVP** - **H**eavy **P**lates and **V**essel **P**lants as mentioned on the company's website.
- **HTML-** **H**yper**T**ext **M**arkup **L**anguage
- **CSS**-**C**ascading **S**tyle **S**heets
- **PHP**-**H**ypertext **P**reprocessor
- **jQuery**- A JavaScript Library
- **AJAX**- **A**synchronous **J**avaScript **A**nd **X**ML
- **SQL** - **S**tructured **Q**uery **L**anguage
- **Intranet web portal** - refers to the intranet that is accessible to the BHEL employees at BHEL-VISAKHAPATNAM.
- **Admin user**- One who has the authorization to access the various functionalities and modify the details of the tenders.
- **Marketing Department**- refers to BHEL Marketing Department whose purpose is to secure bids for tenders.