TEAM FILE SHARING

PROJECT REPORT

CLASS CMPE207-01

TEAM-SOCKET SNIPERS

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1. ABSTRACT:

The project aims at implementing client server interaction and uploading files to the server from the client and also incorporates some additional functionalities. There are six pairs of client and servers. The backend server side has been designed using PHP, so as to enable the client to upload multiple photos to it. cURL is used to establish an interdomain communication which ensures that a file or image that is uploaded in one server is reflected in all the remaining servers and the image is saved in the database of the remaining servers.

The project involves the implementation of additional features like android and python clients, viewing the uploaded images, downloading the photos uploaded to the server, downloading the selected photos in a zip format, deleting files, email validation, navigation, sign in to the server using facebook API, session management, password encryption forgot password and change password, account activation and authentication through email and sms message notification for uploads.

2. Introduction:

Domain and hosting services were bought from different hosting services-two from yahoo and one each from Interserver webhosting, fatcow.com, Godaddy.com and domain.com. The domain names that we have used in the project are:

User	Domain Name
Rahul Jain	rahul207.com
Veerappan Raja Veerappan Shanmugam	veerappanraja.com
Archana hariharan	archana24.com
Saraswathi Sorakka Natarajan	snsaraswathi.com
FNU Suganya Kanagavel	suganyakanagavel.com
Hemanth Kumar Punnium	Hemanth-kumar.com

Each domain mentioned will be able to communicate with their domain server through a client. The server was implemented using PHP in each domain and in order to achieve interdomain communication between servers we used PHP cURL. It is a command line tool which uses URL syntax to get or send files.Uploading and downloading from/to a remote server and accessing member only session by logging into other websites. The main advantage of using PHP cURL is that it uses just four functions to summarize major part of its functionality. cURL is nothing but a library that allows different types of protocols to establish connection between different types of servers.

3. Architecture:

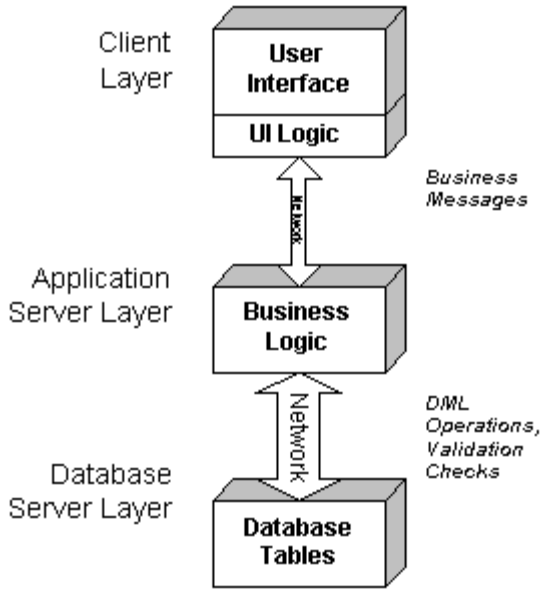

Figure 1- Two tier architecture

The project works by the concept of a two tier system as shown in the figure 1. In a two tier architecture the user interface runs on the client side and the data structure gets stored in the server side. In our project, in the server side we create a database and create tables in the database which acts as a data structure. While the client is implemeted using java, java swing, ajax, HTML5, CSS etc.

4. Implementation of cURL:

cURL usually uses the following steps:
curl_init: this is the first step where a curl handle is generated and the curl handle is sent to other curl functions.
curl_opt: It is a function and it specifies what the curl library can do.curl_opt can be called many times.
curl_exec: This function executes a curl function.
curl_close: it is used to close a curl session.

For cURL to be implemented we should ensure that cURL is enabled in the server.curl might be disabled if it is commented out in the php file in the server.
A new cURL resource is initialised using curl_init() function. This function can be used to create a handle that will be passed to the curl_setopt() and curl_exec() function.
curl_setopt() can be used to set options in the given handle. As seen in the code, a handle which is returned from the curl_init operation is sent as one of the operators of the setopt function. The second parameter is the options parameter. The parameter is used to perform several operations such as fetch operations on the mentioned URL ,to do a HTTP POST and several other options according to the requirement or the need.

In our code we have first mentioned the URL from which the data has to be fetched from. Then it is followed by enabling the POST method that is making the POST method TRUE. Following this we will use the POST operation so as to post a file which in our case is an image. The entire path of the image or data has to be mentioned.
The image if first stored in the destination in a temporary location and then moved to the permanent directory inside the server on which cURL is implemented. Then the images or data are collected from the present server and sent to all the servers that are linked by the cURL. cURLhas to be enabled for each other sever by mentioning the URL.

5. Additional Features:

We have developed three clients to interact with the server out of which one is a web based clients which was implemented using HTML, one java client one is an android application.

5.1 Java client: User Interface

A java client has been developed which has features such as a single or multiple file uploads. A user interface has been designed for the java client using java swing. when the client becomes functional a signin page opens up. If the user is registered already he can use his credentials to sign in to his account. But if he/she is a new user they have to register by clicking the sign up button. Clicking the signup button will open a dialog box that will prompt the user to enter their first name, last name and an email address and password that they want to use for subsequent login to the client. Once the details are entered signup button is pressed and the user information is stored in the database.

Subsequently, the user signin using these credentials. when a user does a sign in the user is redirected to the uploads page. In the uploads page there is a browse button to search for the image that the user wants to upload to the server. when the image is selected and the upload option is enabled and the selected image is uploaded to the server. As cURL has been implemented in the server side all the images that are uploaded to a single server will be reflected on all the servers that are connected to it using cURL.

5.2 Web Client:

In web client we have added extra functionalities like password encryption, forgot password and change password,viewing,searching,downloading and deleting images in the server, email validation, account activation through email and message notification when image is uploaded to the server. HTML, javascript, CSS, ajax and PHP have been used to build the GUI.

The webclient has a homepage containing the navigation bar, a short description about the project and also the signout button. A user has to first signup inorder to access the functionalities provided.A user validation has been created whereby when a user does a signup for the first time, a mail is sent to the email address using which the person did a signup. The mail contains a link which will activate the user account. An email validation is also set up which ensures that the data entered is of the form.The signup page involves entering information such as the first name, last name, email address and password.

While entering the password for signin or signup it does not get displayed as plain text but instead as bullets. Password entered by the user is encrypted and stored in the database instead of storing the password as plain text. The password is encrypted using MD5 technique.

Navigation tab has been incorporated in the web client. It is a tab which can be used to navigate between the different fields that are listed. The various fields that are present in the navigation tab like home which takes you to the home page from the page you are currently present in, images tab which includes upload images to upload a new image to the web server backend and view images that is used to view the images that have been already uploaded to the server. It also contains fields such as change password and tabs for about the project and contact information.

There are two operations that can be performed on the password field which are forget password and change password. Forget password is implemented so that if user forgets the password he can enter his email id and a mail will be sent to his/her email address. The mail will contain a link that will take the user to a new page that will request the user to enter a new password. The new password will overwrite the old password in the database and hence enable the user to login with the new credentials. Change password can be used if the user needs to set a new password for his account. The user will be prompted for the old password followed by a new password.

The photos that have been uploaded will be saved to the database. Several operations like view, search, delete and download can be performed on the uploaded images. The navigation tab present in the home page has a view option that will display all the images uploaded by any user.

We can also search for a particular image by entering the name of the image and if the image is present in the database the image will get displayed or else . The images can be downloaded either by selecting a single image or by selecting multiple images and downloading the images as a zip file.The images can also be deleted either by selecting an individual image or by selecting multiple images and clicking delete.

A session is used to store the changes or data stored by an user and so that it can be accessed for subsequent logins of the same user. Moreover session management ensures that once the user is logged out of the session the session should expire and hence hitting the back button will display a session expired page. Session management makes the web page more customised.

5.3 Android client:

Another client is a hybrid android application and its working is demonstrated using a emulator. The user can register in the signup page by entering the mandatory details. To complete a signup process an automatic email is sent to the registered email address. The email contains an activation link and when the activation link is clicked the user's account gets activated. Sign in can be done by a registered user using his credentials.

Once the sign in is done by the user, a navigation occurs to another page having the upload and the download functionalities. When we click the upload button we get to browse for the file or picture we want to upload. Once a picture that we want to upload is selected the path of the picture is automatically fetched. When we click the upload button the picture is uploaded to the uploads directory present in the server. As curl has been implemented in the server side the upload will be reflected in all the servers at the same time.

6. Test cases:

Test Case#	Functionality	Test Summary	Test Steps	Expected Result
1	User Registration	If the user is not already registered, the user should enter the first name, last name, email id, password, confirm password and click sign up button. An activation link will be sent to user's email id.	Enter the first name, last name, email id, password and conform password and click sign up	An activation link should be sent to the users email id
2	User Activation	User should activate his account using the link provided	When the link is clicked the sigin page is opened and the user can login with their credentials	The user should be able to sign in and home page should be displayed on the screen.
3	Forgot Password	The user has the option to reset his password if he forgets it.	The user should enter the email address and a reset link will be sent to the email address. The link opens a reseet password page where the user can reset his password	The password is reset and the user should be able to login using the new password.
4	Change Password	The user has the option to change the password for security reasons.Click the chagne password link.	User should enter the old and new password.	The user should be able to sign in with the new password and home page should be displayed on the screen.
5	Upload Image	Click the upload Image link .	User can upload the image using the features	The image should be uploaded to the server.
6	View Image	Click the view image link.	User can view the images in the server.	The images in the server should be displayed
7	Download image	The user should have the option to download image.	Click the name of the link to download the image	The image should be downloaded to the server.
8	Delete Image	The user should have the option to delete image.	Click the trash icon near name of the link to delete the image	The image should be deleted from the server.
9	Java client	The user should be able to sign and upload the image to the server.	The user can upload the image using java client	The image is uploaded to all domains.
10	Android app	The user should be able to sign in, upload and download the images using the android app.	Sign into the app and upload the image.View and download image.	The image is uploaded to all domains. And the image can be downloaded.

7. Conclusion:

Hence we have successfully implemented the basic requirements along with the implementing additional features. An interdomain communication has been implemented using cURL at the server side so as to interconnect all the servers used in the project.