Development of Final Year Project Logbook System Website

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Abstract: Final Year Project (FYP) is a fundamental piece of University training and an imperative one. This is where the undergraduate are challenged to work on a huge task in term of size and difficulties and it is likewise to prepare them with proper skills to work on future project in the industry. But developing a project is never easy without a logbook to keep track of the project progress. A logbook has always been done on paper but paper based record system have several major flaws. Thus, in this era of technology, a transition to a new platform is relevant which is in this case, websites. It is much more mobile, takes no space and much more environmentally friendly. This study describes the development of final year project logbook in the form of a website that aims to assists and ease the students to record their progress in a paperless approach. The website can cater three type of users which is the students ,coordinator and supervisors. The coordinator can register the students and supervisors and assign the students to their respective supervisor. The coordinator can also view the content of the report submitted by the students. The students can access the website by using the user ID and password given by the coordinator and record their project progress while supervisors can access the website to check and comment on their student progress. A thorough report of the logbook can be generated and can be printed for the use of the user.

INTRODUCTION

Project logbook is a written record showing all your work progress from start to the completion of the project. Final year project logbook helps the student to keep track of their project progress as well as putting down important details that is needed in order for the project to successfully completed. Developing a project is never easy without a logbook to keep track of the project progress. A logbook has always been done on paper but paper based record system have flaws. According to Loci Solutions Group Pty Limited[1], several flaws that is critical in using paper based record system is prone to damage, it could take a significant amount of space as the number of document grow larger, editing problem will occurs, s ince, you will need to photocopy the original
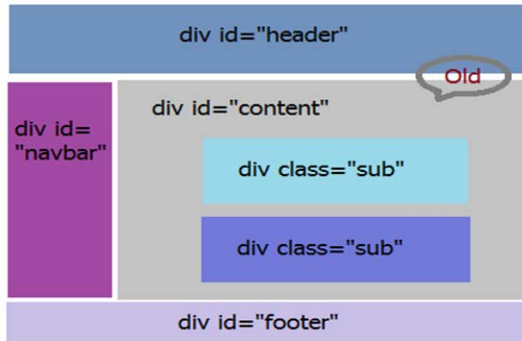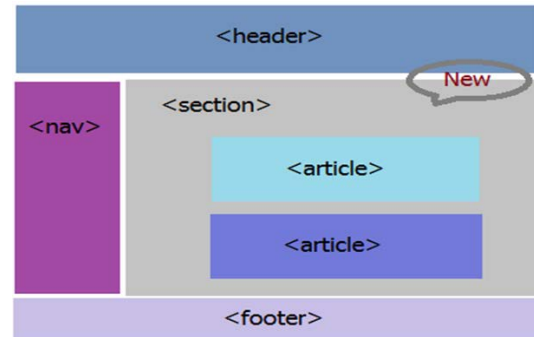
Fig. 1: Old HTML version (HTML 4)

Fig. 2: Latest HTML version (HTML 5)

document first, otherwise it will be ruin it with edits and comments and according to National Research Council[2] approximately 500 million cubic meter or 14% of wood harvested worldwide is used for pulp and paper thus it is bad for the environment since it promotes deforestation. Thus, in this era of technology, a transition to a new platform is relevant and very much needed.

Background of the study: The main aim of this study is to help ease the student to record their final year project progress without having to face the problem that might occurs while they are using the paper-based logbook by creating a website that have all the essentials of a traditional logbook.

To develop a fully functioning website, one's need to know that the terms front-end and back-end development. Front-end development: The front-end which is the client-side can also be referred to as "web design".The front-end is everything that involved with what the user sees. The two core technologies that is used to develop the front-end which is the web pages are HTML and CSS. HTML (Hypertext Markup Language) is a language that is used to describe the structure of a web pages. The language give the authors the means to create online documents with heading, texts, tables, lists and photos. With HTML, the researchers can describe the structure of pages using markup.

The latest version of HTML is called HTML5 and it came with the new syntactic features and page structure elements. Figure 1 and 2 shows the old version of HTML and the latest version of HTML which is HTML5.

CSS (Cascading Style Sheet) work simultaneously with HTML. CSS is a language that describes the presentation of a web page. It includes colors, layout and fonts. Figure 3 shows the syntax that was used in CSS. CSS allows one to adapt the presentation to different types of devices. CSS is versatile as it can be used directly into HTML document or it can be separated as a CSS stand alone document. By separating the two files HTML
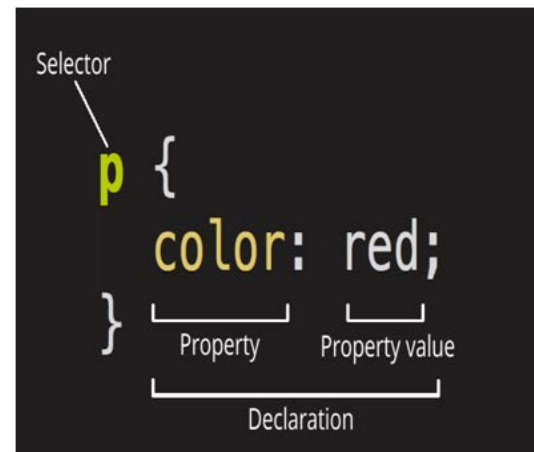

Fig. 3: Example of CSS syntax

and CSS, it will make it easier to maintain the sites. This is referred to as the "separation of structure (or: content) from presentation"[3].

While those two are the core technologies use to develop a website, there is a third element that will complete the essentials of a modern web pages and it is called JavaScript.

"JavaScript is most commonly used as a client side scripting language. This means that JavaScript code is written into an HTML page. When a user requests an HTML page withJavaScript in it, the script is sent to the browser and it's up to the browser to do something with it".

JavaScript is used primarily to enhance web pages for a more user friendly experience. This means that it involves in dynamically updating web pages and user interface enhancements such as menus, 2 and 3D graphics and video players. Now when those 3 technologies it is called the web page triad in which what are the modern web pages are using.
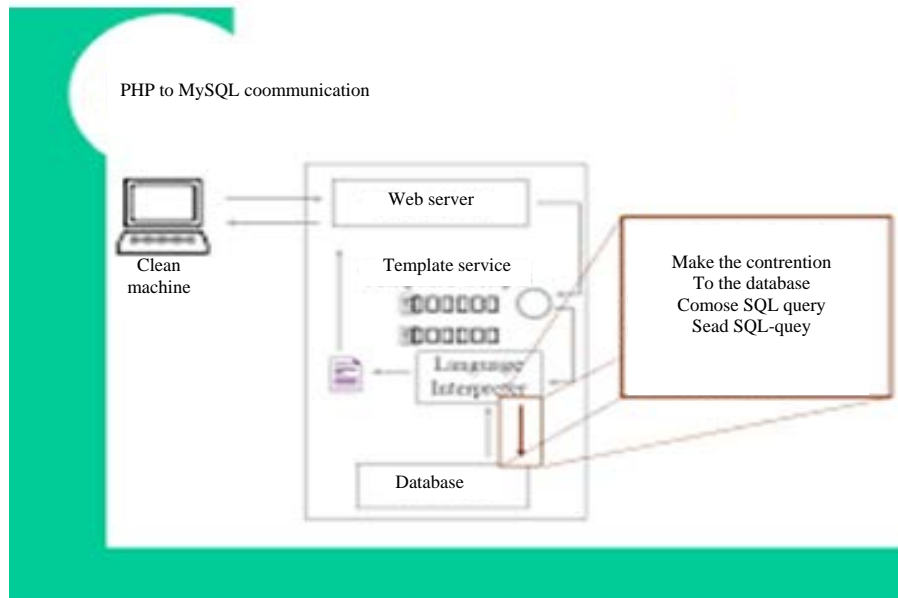
Fig. 4: PHP to MySQL communication

Back-end development: The back-end or the "server-side" is where all the background process of a web page or in another word is how the site works. This refers to everything that the user can't see in the browser such as databases and servers[4].

Back-end development is required to develop a dynamic sites. A dynamic site is a sites that is constantly changing and updated. The most known programming languages that are used by web developers is PHP. PHP (Hypertext Preprocessor) is a server-side scripting language that was used to communicate with the server. The code communicates with the server and then tells the browser what to use from the databases. Figure 4 show communication between PHP and database.

Existing application: During the search for any existing website for final year project logbook, the results shows that most of the students are using websites such as Wordpress and Blogspot to record their project progress. This shows that there is no specific website for students to record their progress. Thus, the development of this website is relevant because there is a need for it.

MATERIALS AND METHODS

Introductions: Most of the web developers company are using web development process called WDLC or Web Development Life Cycle. WDLC follows the same concept of the SDLC model using a waterfall approach. However, by incorporating prototyping methodology, the WDLC become repetitious process involving the users through the development process. By
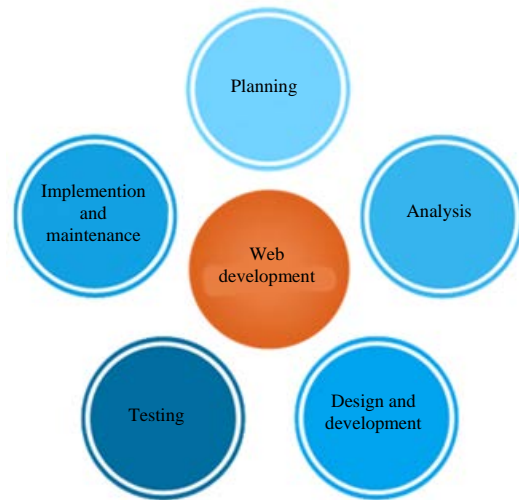

Fig. 5: WDLC

dividing the graphical development and also the functional development into completely different stages, every of those set of phases may be worked on consecutively or at the same time[5]. WDLC consists of 5 phases which is information gathering, analysis, design and development, testing and implementation and maintenance. Figure 5 shows the Web Development Life Cycle image.

Information gathering: In this stage, the 5 Ws question were implemented. Such kind of a website development questions helps to develop the best strategy for further

project management. During this phase, the student need to ask the 5 Ws question for themselves such as "Who will use this website", "What are the contents that will goes in the website" and more. This stage is crucial for a clearer vision of where are the project is going.

RESULTS AND DISCUSSION

During the analysis phase, team members will make decisions on what to put in the website which is the content and its functionality. To help define the appropriate Web site content and functionality, you first should identify the tasks that users need to perform. During the analysis phase, the students need to assessed all the software, hardware and data needed in order to develop the website. Beside that, the student need to determines what will goes in the website and the functionality of it. Analysis phase is one of the most important phase as it will decide the outcome of the website.

Design and development: After determining the purpose of the Web site and defining the content and functionality, you need to consider the Web site's design. In this phase, all the visual substance such as pictures, photographs and recordings is made at this step. The client and target gathering of people must be kept in mind while you work on a design. During this phase, the students will start to design the whole appearance the whole website, the student will need to take account of the user friendliness of the website. After the design complete, the student need to start the back-end development which is the coding phase. This will determines the dynamicity of the website.

CONCLUSION

Testing and implementation: Testing is one of the most routine part of the website development. In this phase, every single link will be tested in order to avoid any broken or dead links. Every script that is used in the website should be tested for its functionality. Check if the website has cross browser compatibility and should be make to cater all type of devices. After all the check and

recheck, the website are finally ready to be uploaded into the server and final test should be done after the website was deployed into the server. In this phase, the student will need to check all the buttons to make sure it is functioning as it should and making sure all the scripts coded are functioning as well. The student also need to check the integrity of the database in order to avoid conflict when it comes to the user account. All tables in the website should be related and the primary key need to be defined.

Maintenance: This is the final phase of WDLC. We should remember that a website is more a service than a product. Regular updates should be done to decrease security risks and bug. Feedback system should be added, to allow the user to report any bug whether it is critical or not to ensure that the website can be use into fully extend. In this phase, the student should observe how the website is working and make necessary adjustment should an error appear.

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