Building Student Forums with PHP and MySQL Technologies

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Abstract

In today's open source software (OSS) environment, PHP (Personal Home Page) scripting language [1] and MySQL database [2] offer an alternative, effective, and cost-saving solution to build data-driven, dynamic, and personalized web applications. Meanwhile, on-line electronic learning becomes ubiquitous and unique for contemporary education. In this article, we will discuss the process of developing and deploying student forums using the PHP and MySQL technologies. We have found that by including on-line forums to support classroom instruction, student participation increases dramatically.

PHP and MySQL Database

PHP is a widely-used, general-purpose scripting language that is well suited for database and web development. It is designed to be efficient and fast. PHP is a server-side HTML embedded scripting language, that is, PHP is embedded in the HTML files with the server doing the work of translating the PHP. This means that it is completely platform and browser independent; and it can perform the same functions as CGI programs, such as collect form data, generate dynamic page content, or send/receive cookies, Thus, it can do much more than any server-side language (e.g., Active Server Page ASP, Java Server Page JSP, Server-Side JavaScript etc.) [3].

The MySQL database server is the world's most popular open-source multi-platform database. It is lightweight, and its relational architecture makes it extremely fast and easy to customize [4]. Extensive reuse of code within the software and a minimalistic approach to producing functionally-rich features has resulted in a database management system unmatched in speed, compactness, stability, and ease of deployment. The unique separation of the shared memory area from the background processes makes it possible to run with strict transaction control or with ultra-fast transaction-less disk access, whichever is most appropriate for the situation of web applications and On-Line Analytical Processing applications (OLAP).

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Student Forum

Because of the make up of PHP and MySQL in what must be the best combination for data-driven web applications, Computer Science and Physics (CSP) Student Forum at Texas Southern University (TSU) has been built on these technologies. CSP Student Forum is a communication tool between the students and faculty/staff of the Department of Computer Science and Physics at TSU. The forum allows for open discussion, information sharing, and calendar reminders, at the convenience of the users. A forum is like an electronic bulletin board. Messages may be posted to it for reading by others and for making replies. The forum uses web technology and allows for accessing messages the same way as one would on a web page - by clicking a hyperlink. Figure 1 shows the screenshot of the first page of CSP Student Forum.

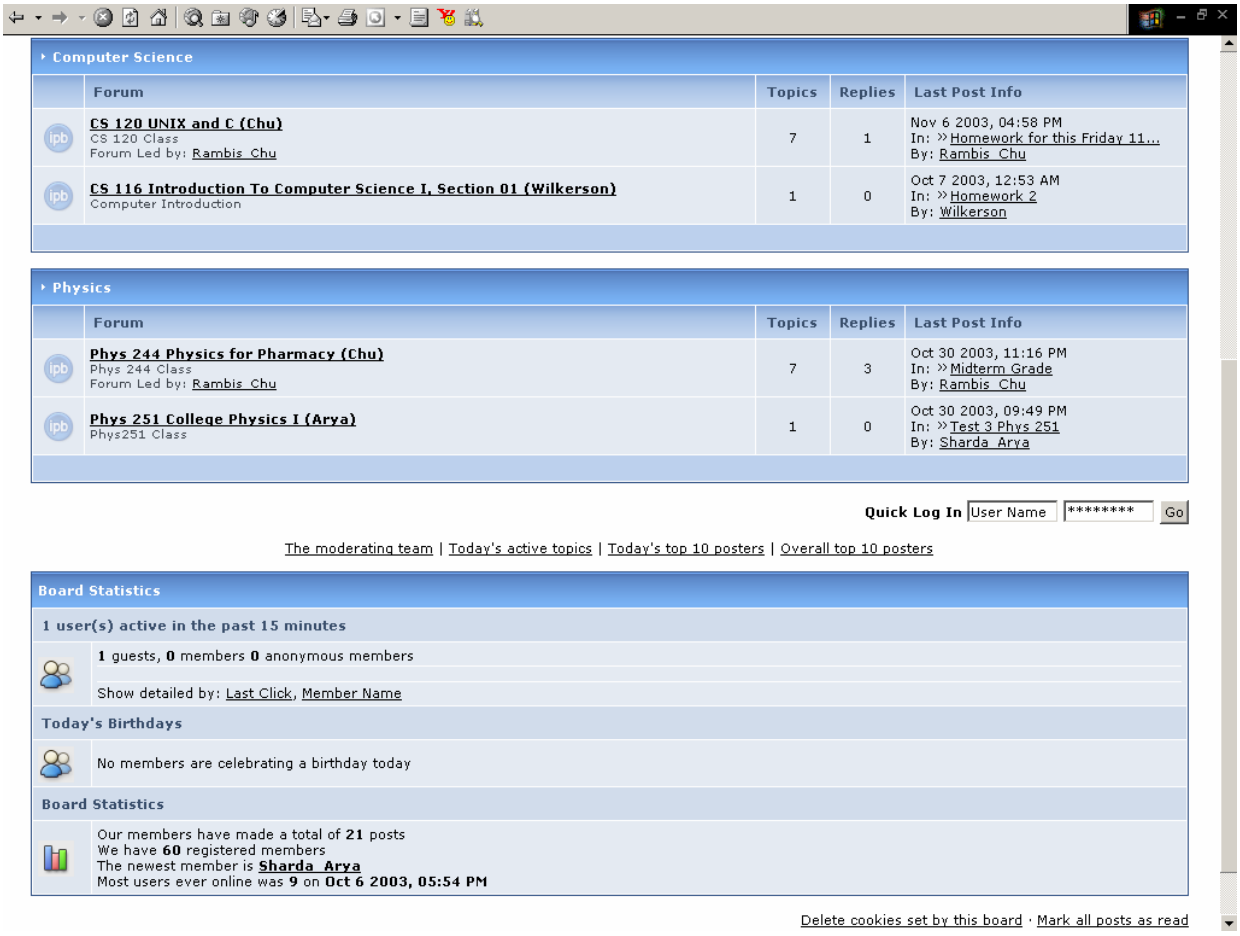

Figure 1

CSP Student Forum is divided into categories: Physics and Computer Science. Under each category, different subject forums have been created (i.e. CS → Introduction to UNIX and C). Within each subject forum, messages are listed showing the following information: the message title (Topic Title); who posted the message (Topic Starter); the number of replies (Replies); the number of views (Views); and who had the last post (Last Action).

A new message is identified with a flag icon displayed; whether or not the message has been read is identified with either an opened or a closed envelope icon; and whether the message has an attachment is identified with an icon of a paper clip. At the top of the page, a navigation breadcrumb trail is displayed the level from the first page. At the bottom of the page, customized site statistics are displayed. For example, the bottom shows how many concurrent users are on-line, members birthdays on the day accessed, how many messages are posted, how many members have signed up, who the newest member is, and which day had the most visitors.

On-line Forums Vs Traditional Information Sharing Methods

After analyzing a survey from the students who have visited and used the forums, we have listed the advantages of the on-line message board over the traditional information sharing methods:

- On-line subject forums create nearly 100% participation.
- Subject forums encourage preparation and thus improve in-class participation.
- They make participation more measurable, so it becomes a more objective part of the class grade.
- They help students begin the process of analysis before class, so class discussion can go further than usual.
- Subject forums help students get a wide variety of perspectives.
- Subject forums help students prepare for writing papers by making connections between works.
- They take the place of quizzes and tests that generally focus on retention of information. Instead, the forum gets us focused on analysis.
- Subject forums allow students to shape class discussion.
- Subject forums are a great way of collaborating on constructing a reading: they aid in the sharing of information and insight.
- They help students to start seeing themselves as writing for a larger public – not just for the teacher, but also for the entire class and even the larger world.
- They encourage students to develop their computer literacy skills.

- Subject forums are a less nerve-racking way than papers to get students to write; and they, thus, help break down writer's block by encouraging students to think of writing as a form of conversation.
- They help to create a sense of community in the classroom.
- Subject forums make it possible for everyone to get immediate feedback on their ideas from others in the class, since the teacher cannot possibly respond to everyone.

Conclusion

We have successfully implemented a student message board system based on the open-source technologies: PHP and MySQL. We have found that it is not only an efficient way for instructor-student and student-student communications, but it also has increased the level of student participation inside and outside the classroom.

References

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4. Reese, G, Yarger, R. J., King, T, and Williams, H. E., *Managing & Using MySQL, 2nd. Edition*, Sebastopol, CA: O'Reilly 2002.