

## MY SB: A Web-based Course Management System

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**Abstract:** *The School of Business of Independent University, Bangladesh developed a web-based course management system known as “MY SB”. The duties that come with managing a large class room can be organized and controlled by the use of this system. It was designed to modernize common classroom themes like the creation of the virtual classroom, submission of assignments, assigning final grades, etc. The proposed system is superior over other management systems due to its complete flexibility and customization which are due to the fact that the system was designed from scratch. Unlike other management systems, “MY SB” provides an overall organizational system through which faculty members can edit and customize data at their own preference. The usage of “MY SB” in the School of Business has been increased at a great extent due to this flexibility. This paper discusses the guidelines which were followed during the development of the system as well as some of the features the users of the new system found most useful.*

**KEY WORDS:** *Course Management System (CMS), Courseware, Web-based Learning, E-education.*

### 1. INTRODUCTION

To maintain a large class room is a complex task. Many factors may add to this complexity, like large student enrollments, several roles for the faculty members, teaching assistants, staff assistants, lab consultants, and graders; both individual and group assignments, providing class lectures to the student during the course, collection of assignments whose grading may be partitioned across problems, online student submissions comprising many files, administration of sensitive information such as scores, statistics, and final grades. To make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. “MY SB” is a course management system developed by the School of Business of Independent University, Bangladesh [12] that was designed to meet these needs. It has been developed

and used over the past one and half years with considerable success. The usage of “MY SB” in the School of Business [12] has been increased at a great extent over this time period (see Figure 1). In this paper we describe how the faculties and the students are getting benefited by using this system and how it solved many of these tasks in a robust and scalable [9] way. Although existing course management systems support some of these tasks, we are not aware of any system that supports the work-flow associated with running a course to the degree that “MY SB” does. For instance, the widely used Blackboard system [1] supports online file submissions and grades, but does not support assigning grading responsibilities, tracking requests, or group assignments. While these other systems do ease the burden of course management, they also introduce new sources of complexity, because users must manually tie together information maintained by the system, such as grades, with information maintained outside the system, such as workgroups. The main technical challenge we faced in designing a workflow oriented course management system was scalability [9]. Our objective was to make the system work effectively for the courses of the school, each with possibly a large enrollment and course staff and diverse requirements. Our solution to this challenge involved several ideas. One key principle was decentralization, so that course staff involvement in common course-related tasks were reduced as much as possible. For example, to make the creation of student project groups scalable, we devised an invitation-based group creation model in which students are able to create their own groups without course staff involvement (although staff can also directly manage groups if desired).

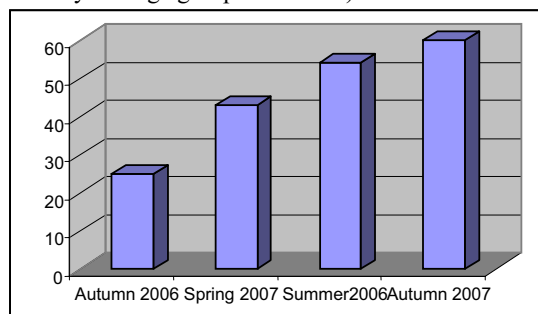


Figure 1: Uses of “MY SB” (in percentage for different semesters)

The system directly routes requests to the appropriate course without requiring any action by other course staff.

The objective of this article is to present the advantages of the proposed web based course management system called "MY SB".

Analysis showed that the three main obstacles for providing effective online materials and learning environment are [4, 5]:

1. Lack of support for the collaborative and dynamic nature of learning.
2. Lack of standards for locating and operating interactive platform-independent materials.
3. Lack of incentives and structure for developing and sharing content.

Based on these shortcomings, a better approach has to be found. The solution [4, 5] is to develop web course tools and provide a collaborative environment and standard interface for creating and distributing course contents.

## **2. KEY FEATURES**

This section will discuss about the key features of the proposed e-learning tool.

### **2.1 Portability**

"MY SB" is web-based and can be run on any operating system platform and web browser.

### **2.2 Protection**

"MY SB" users (students and faculties) are authenticated by their university identification no. It also supports a fine-grained access control model, with several levels of access for course staff. Decentralized workflow management makes fine-grained access control particularly important. Unauthorized users are not allowed to access the course materials.

### **2.3 History**

When designing the system, we were interested in understanding how the system will be used, which information and resources users will look for, and how easily they will find their requirements. Additionally "MY SB" is designed in such a way that all the information should be archived, so information never lost. Some policies and rules implemented by "MY SB" can be overridden on a case-by-case basis. For example, a course administrator can override the deadline for submission of an assignment for a particular student.

### **2.4 User friendly Graphical User Interface**

It is important that the system be easy to learn but also that it provide the power to get work done efficiently. This is accomplished by providing relatively few distinct views of course information but making these views consistent with one another,

information-rich, and hyperlinked to allow convenient switching between views.

## **3. PLATFORM**

"MY SB" was implemented using PHP4 [7], an HTML-embedded server-side scripting language that is similar in syntax to C and Perl. PHP is available as a module for the Apache [6] web server, which dictated the use of Apache. The database used was MySQL [8]. PHP [7] and MySQL [8] were chosen primarily because both of these technologies are open source, and are freely available on the Internet. Another reason for using PHP [7] is its simplicity. It also has an extensive library of functions that provide database access for most of the major DBMSs. The fact that PHP has interfaces to many databases is useful because it allows "MY SB" to be implemented on top of other database back-ends. We used Linux RedHat ENT 3 ES as the operating system for ensuring the superlative security reason [10].

## **4. COURSE MANAGEMENT FOR "MY SB" ADMINISTRATOR**

The "MY SB" administrator is responsible for adding courses to the system and for reporting course grades at the end of each semester. To add a new course, the administrator enters the ID of the course and the course instructor. The proposed system automatically contacts the university systems to import information about the course. Thus, it is easy for the administrator to set up a large number of courses. Similarly, at the end of the semester, the administrator simply activates the reporting feature for active courses and the suggested system automatically exports the final grades in a format appropriate for the university grade management system. The course is archived in its final state, and students are no longer allowed to access after a certain point of time period.

## **5. COURSE MANAGEMENT SYSTEM FROM FACULTY POINT OF VIEW**

The faculty members have to register themselves to use the web based course management system. To protect this system from the unauthorized users the web admin of this site has to mail some secret pin numbers to each faculty members. In the registration period on the system, faculty members have to select courses and the tutorial hours. After the registration is done, a faculty member can find all the facilities that he/she needs to maintain an automated web based course management system (see Figure 2). Following are the steps;

### **5.1 Creating virtual class room and enrolling students:**

This option is used by the faculty members to place marks distribution (in percentage) for that particular course. Using this option, a faculty enters the ID

numbers of the registered students of that certain course to ensure that only the authorized students can access this course page. This feature adds some extra security to the system.

### 5.2 Setting/changing grading system

Sometimes the grading policy may vary from course to course and this option helps the faculty to set the grading system of that particular course. Provision of changing the grading system is also available.

### 5.3 Changing the marks distribution policy

From this option the faculty can change the previous marks distribution policy or can add any new content.

### 5.4 View and update student marks and calculating the final grade

The faculty is able to view the marks of all students of that particular course by using this option. This option facilitates the faculty to enter each student marks of the corresponding examination or assignments and calculate the final grade at the end of the semester.

### 5.7 Course calendar

A course calendar is one of the most important properties of a web based course management system. Using this option a faculty can add the event details to the calendar for that course.

### 5.8 Sending message to students

Using “MY SB” a faculty can send a message to particular as well as all the students of that course.

## 6. COURSE MANAGEMENT SYSTEM FROM STUDENT POINT OF VIEW

When the faculty members use the course management system, they entered the student ID numbers for that respective course. Therefore, only the authorized students can get registered to the system.

After login to the system, students can find all the facilities of the web based course management system (see figure 3). In other words, this system creates a virtual class room for a student. The followings are the major facilities a student can enjoy by using “MY SB”.

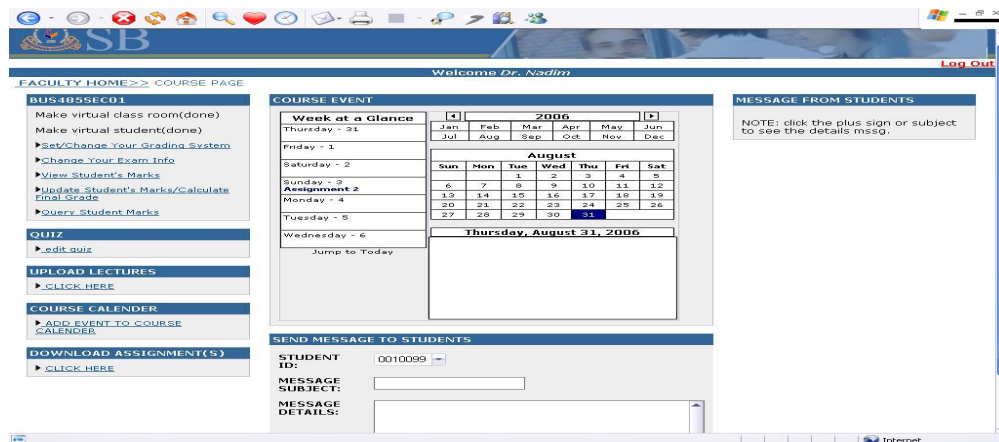


Figure 2: Course page for the faculty members

### 5.5 Query student marks

To query examination marks of a particular student or marks of all the students of a particular exam or assignment, this option can be used.

### 5.6 Uploading lectures and materials and downloading assignment

Faculty members can upload all the necessary lectures or other course materials of this course by using this option. To download the assignments submitted by the students, this option can be used by the faculty.

### 6.1 Viewing marks

In this section, the student can find all the examination marks that are given by the course instructor earlier. Here one can find the current grade status on the basis the result of the given examination that means the grade which has been calculated by the system from the grading policy that has been given by the faculty.

### 6.2 Downloading lectures

From this section, a student can download the entire given course materials for that particular course.

### 6.3 Uploading assignment

This option enables the student to upload the course assignments.

### 6.4 Viewing Course Event

From the course calendar, the students can be informed about any sort of upcoming course events. So, in other words, this option can be acted as a notice board.

## 8. CONCLUSIONS AND FUTUREWORK

“MY SB” is an adaptable system designed to support the management of workflow associated with large courses. It has been in production use for two years, during this time it has undergone considerable refinements in response to faculty and student feedbacks. In our experience, the resulting system simplifies the course management more than the other systems do. We are currently moving our PHP4 [7]-based “MY SB” system to PHP5 [7]. We are also trying to transfer our web server to RedHat ENT 5

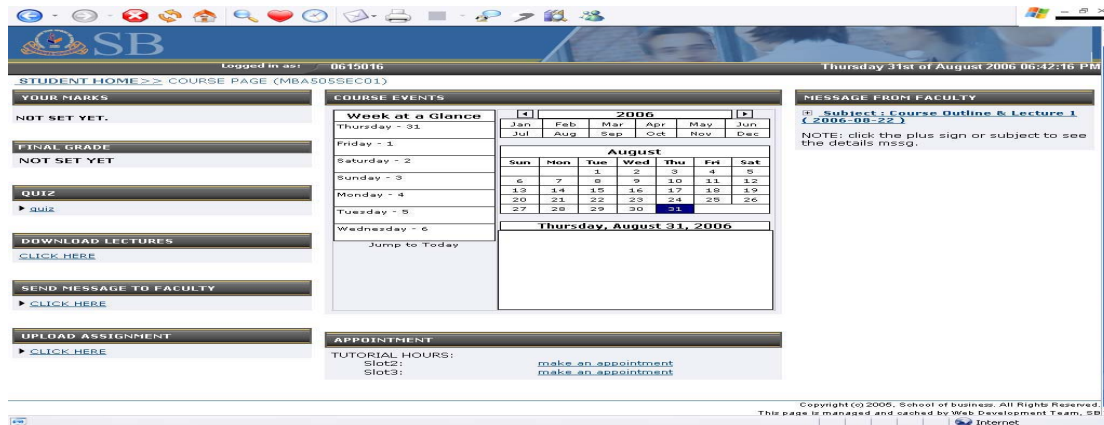


Figure 3: Course page for the students

### 6.5 Final grade

In this section, the student finds the final grade that has been given by the faculty at the end of semester.

### 6.6 Send message to faculty

Using “MYSB” a student can send a message to the faculty members for a particular course.

### 6.7 Getting appointments with the faculty

The students can use this option to fix an appointment with the faculty in his/her convenient time for tutorials.

## 7. RELATEDWORK

Many course management systems have been developed, none of these systems support the entire workflow associated with managing a course. For example, the widely used Blackboard system [1] supports online file submissions and grades, but does not support assigning grading responsibilities, tracking regrade requests, or group assignments. The ongoing SakaiProject [3] aims to capture course workflow by integrating several existing pieces of software that support different functionality. In contrast, “MY SB” is an operational system designed from the ground up to support a fully integrated workflow.

AS which will enable more security aspects [11]. The resulting process will be more extensible and customizable content delivery system. It will also provide students with a more unified view of the courses in which they are enrolled. This new system is expected to get into operation in Summer 2008, and we plan to make it publicly available as an open source software.

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