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Automation of Assessment Record keeping by using Web Server

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ABSTRACT: A Web Server for keeping record of the status of a bundle of answer books in assessment is implemented using XAMPP. A user friendly web interface collects information from the user and stores it in a database. PHP creates a web page and MySQL manages the data.

KEYWORDS: PHP, MySQL, HTTP, Server, Client, HTML, CSS, Database, Linux.

I. INTRODUCTION

Assessment of answer books collected after an exam takes place in a separate building known as Assessment cell or Exam cell. The assessment process involves; issuing a bundle of answer books for assessment or moderation, receiving it after assessment or moderation, issuing it for scrutiny, receiving it after scrutiny, re-issuing it for assessment or moderation if an error is found during scrutiny and keeping a record of all these activities. The entire process is monitored by a teaching staff, while non-teaching staff perform the work of scrutiny and issuing and receiving a bundle of answer books. The record keeping part of the assessment process is done manually, using a long note book. To find information regarding branch wise, class wise, subject wise completed or pending assessment, it is required to manually analyse this record. Computer based record keeping would save paper, make the record available in soft format and make analysis fast and accurate. However computer based record keeping would also require software for creating, modifying and processing records and a skilled computer operator. The cost of software required can be eliminated, by using open source software. The need of skilled computer operator can also be eliminated, by creating a user friendly interface. The open source software XAMPP contains; Apache HTTP web server, PHP interpreter for creating dynamic web pages and MySQL for creating, modifying and processing records [1][2][4][8][9]. A user friendly web page collects information from the user and stores it as a record. PHP creates a web page and MySQL manages the records [5][11][12]. The web pages are placed on a Server, which is either a desktop computer or a single board computer, like Rasberry Pi [3].

II. SYSTEM

Barcodes are used to identify an object [6][7]. A unique barcode is assigned and the corresponding barcode label is attached to a bundle of answer books. By using a barcode reader, the barcode label on a bundle of answer books is read. Before issuing a bundle of answer books to the supervisor, its barcode along with the examination block number and course code is recorded in a table. After receiving a bundle of answer books from the supervisor, its barcode is read and the number of answer books returned (which is equal to the number of students absent) is recorded in the same table. In this way a table containing barcode, block number, course code and number of students absent is created. This table is queried using barcode to get course code and number of students absent. During assessment the bundle status information is received from the operator and is entered in this table. Web pages written in PHP, which provide user friendly interface for performing these operations, are placed on a server. The PHP script of a web page uses MySQL commands to access this table. With Wired or Wireless connectivity to the server the table is accessible from one or more terminals. Typically one terminal is at examination control room and the other is at assessment control room.

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III. DATABASE

A database with the name Exam is created containing three tables, Employee, Courses and Bundles. The employee table contains four fields, employee identification number, name, designation and department. For this table the employee identification number is the primary key. The courses table contains four fields, course code, course name, branch and teacher. For this table the course code is the primary key. The bundles table contains fifteen fields, date, time, course code, course name, branch, block, strength, absent, barcode, IFA (Issued For Assessment), RAA (Received After Assessment), IFS (Issued For Scrutiny), RAS (Received After Scrutiny), ERS (Errors Reported by Scrutiny) and ECF (Errors Corrected by Faculty). For this table the barcode is the primary key. The IFA, RAA, IFS, RAS, ERS and ECF fields contain the date and time (timestamp) at which the activity is performed. The barcode field of the bundles table is update before issuing a bundle of answer books to the supervisor during an exam. The absent field of the bundles table is update after receiving a bundle of answer books from the supervisor after an exam. The bundles table can be created by querying courses, schedule, seating and status table. The schedule table contains four fields, index, date, time and course code. It has one to one relation with the courses table and one to many relations with the seating table. The seating table contains five fields, index, block, strength, absent and barcode. For this table the barcode is the primary key. The status table contains seven fields, IFA, RAA, IFS, RAS, ERS, ECF and barcode. It has one to one relation with the seating table. With MySQL user access to each table in a database can be controlled. Therefore, using six instead of three tables will keep the data more secure.

IV. WEB PAGES

Static web pages are written in HTML[10]. Dynamic web pages are written in PHP. The web pages on the server are written in PHP with Cascaded Style Sheets (CSS) style. CSS is used to set background colour, text colour, boarder style, etc. The get and post method is used for sending data from one web page to other. The post method is used for sending data collected from user, from one web page to other. When get method is used the data is passed in \$_GET array. When post method is used the data is passed in \$_POST array. Web page with form collect data from user and places it in either \$_GET (if get method is used) or \$_POST (if post method is used) array. A form usually contains text box, radio button, check box, drop down box and submit button. Web pages which don't have a form have a link for navigating to other web page. Bar graphs are created by scaling images. Pie charts are created by calling gd routines from PHP. The sequence in which web pages are accessed is shown in fig. 1.

Administrator and users logon the web server through login page fig. 2. When administrator logs on the web server the selection page with enrol operator link is displayed fig. 3. When other user logs on the web server the selection page without enrol operator link is displayed fig. 7. Clicking on the enrol operator link displays the enrolment page fig. 4. The form on enrolment page gets first, middle, surname, username and password from administrator and records it in operators table. If a username already exist in the operator table, the enrolment page with the message, "User Already Exists", is displayed fig. 5. Otherwise, the enrolment page with the message, "User Created", is displayed fig. 6. The form on selection page has a drop down box, after selecting the bundle option from the drop down list, entering barcode of bundle of answer books and clicking on the search button fig. 8, displays the bundle page fig. 9. The bundle page shows the number of answer books in the bundle, displays a bar graph showing the current assessment status of a course and contains a form for selecting the current assessment status of a bundle. Selecting the course option from the drop down list on selection page, entering course code and clicking on the search button fig. 10, displays the submission page fig. 11. The submission page shows all the bundles of answer books and the number of answer book in each, displays a bar graph showing the assessment documents submitted by teacher and contains a form for selecting the assessment document being submitted. Selecting the summary option from the drop down list on selection page, entering a number from 1 to 4 and clicking on the search button fig. 12, displays the summary page fig. 13. The numbers 1, 2, 3 and 4 corresponds to first, second, third and final year class respectively. The summary page contains a pie graph showing class wise assessment status of the selected class. XAMPP for Linux is installed on an Ubuntu machine and the web pages are placed in opt/lamp/htdocs/Exam folder.

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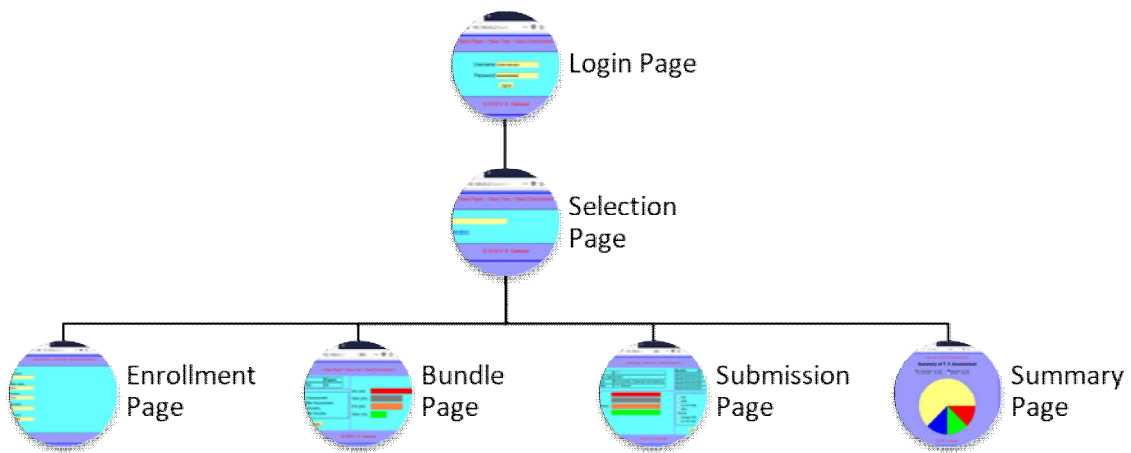


Fig 1: Web Page Navigation



Fig. 2 Login Page



Fig. 3 Selection Page (Administrator)

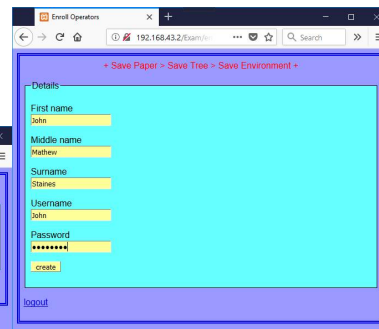


Fig. 4 Enrolment Page

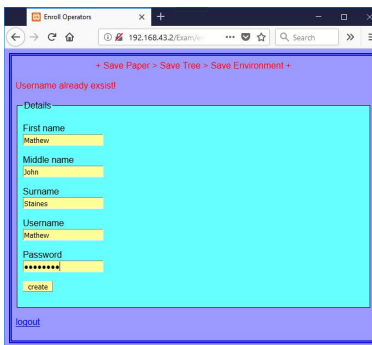


Fig. 5 Page if user exists

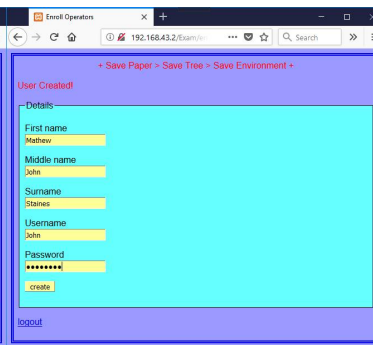


Fig. 6 Page after creating user



Fig. 7 Selection Page (User)

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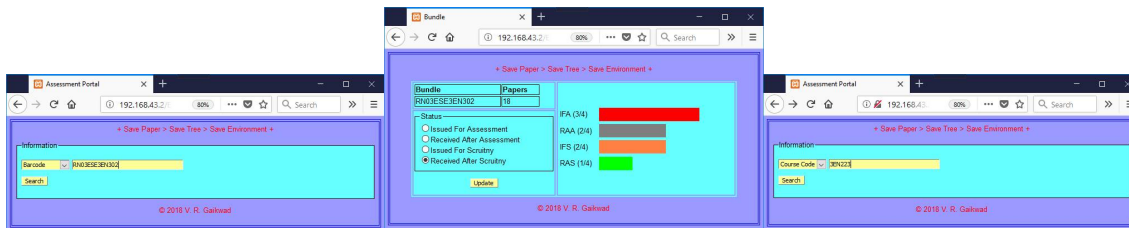


Fig. 8 Bundle Submission Option

Fig. 9 Bundle Page

Fig. 10 Document Submission Option

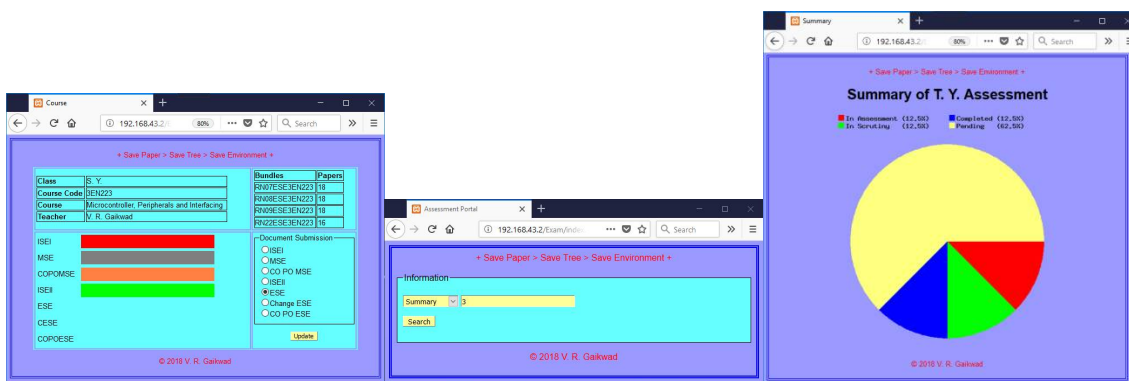


Fig. 11 Submission Page

Fig. 12 Selection Page

Fig. 13 Summary Page

V. CONCLUSION

The system was tested with a wireless connection between the server and client machine. A database was created by entering data in the form on the web page displayed on the client machine. Fig. 2-13 are screenshot of the web pages displayed on the client machine. With CSS and PHP coloured web page with form is created. With MySQL a database of information collected from user is created. The web server for automation of record keeping of assessment activities; saves paper, reduces the time spend in manual record keeping, provides summary of assessment at any time and makes the assessment record available in soft form.

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