



An Automated System for Examination Venue Notification and Seats Arrangement for The Federal Polytechnic Bida, Niger State, Nigeria

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ABSTRACT

The current approach adopted by The Federal Polytechnic Bida for notifying students of the venue for examination is manual and also the arrangement of students into the examination hall is manual. This approach has been found to be very ineffective and inefficient because most students always find it very difficult to locate and get into the examination hall on time. As a way of finding solution to this ineffectiveness and inefficiency, this research therefore developed an automated system that provides an alternative approach for an effective and efficient examination venue notification and seats arrangement. The client-side/web interface pages (front-end) were developed with HTML5 (Hyper Text Markup Language), CSS3 (Cascade Style Sheet), and JavaScript. For the back-end, XAMPP was used as web server with support for PHP as a scripting language and MySQL for working memory functional database. The system was tested and found to be effective and efficient in getting venue notification for examination and seats arrangement on time.

Keywords: Automated, Back-end, Front-end, Interface, Manual, System, Examination Venuw, Notification

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1. INTRODUCTION

In every institution of higher learning, examinations are expected to be conducted at the end of every semester to access the students understanding of the courses that have been taken. However, conducting a decent examination for large number of students involves a very huge tasks, among which is allocation of examination venue and arrangement of seats for the examination. Chandrasekar, Kumar, Selvakumar and Kirshna (2019) observed that examination hall seating arrangement is one of the major concerns in quality education. In light of this, The Federal Polytechnic Bida, Niger State, Nigeria conducts examinations for the students at the end of every semester, and for proper conduct of these examinations, the Academic Planning Unit (APU) of the institution makes available to all the departmental examination officers adequate information that are needed, required, necessary and important for their students before and during the period of the examinations. Such information amongst others include information about examination venues. However, the current approach adopted by each departmental examination officer in notifying their students about their examination venues is manual, where the examination venues are placed on the departmental notice boards about an hour to the commencement of a or some particular examination(s).



This manual approach has been found to be very ineffective and inefficient because there is always a very large crowd formed by the convergence of large population of students struggling to check the examination venue(s) on the departmental notice board(s). Also, The Federal Polytechnic, Bida operates on two locations “The Abuja Area and The Lagos Area” which is about a distance of 500 meters apart, it is observed that most times, after checking the examination venues on the departmental notice board, these students may have to walk that distance if the examination venue does not fall within the “area” that the department is located, by this most students always find it very difficult to locate and get into the examination hall on time. Also, the arrangement of the students on seats in the examination hall is done manually by the invigilators, where students are checked into the examination hall and allowed to sit at their preferred seats, this approach gives students the opportunities to form “bond” amongst themselves in the examination hall, and this has been observed a contributory factor to examination malpractice. In a way to alleviate the aforementioned problems, this automated system for examination venue notification and seats arrangement was developed to randomly generate and allocate examination seats to students, which also provide facilities for students to independently view and generate their examination details (venue and seats) at anywhere.

2.1 Research Aim and Objectives

This research is aimed at providing an automated platform for an efficient and effective information delivery for examinations to students, and the objectives are:

- (a) To develop an automated system for examination venue notification and seats arrangement
- (b) To implement the development in (a).

2. REVIEW OF RELATED WORK

Aravinth, Pavithra, Myvizhimalar, Divya and Rathinakrithika (2014), developed an “Exam Hall Seating Arrangement System Using PHP” for computerization of the traditional way of conducting examinations, by this, the system simplify hall allocation and issuance of hall tickets to students during examination. Their system also enhance access to examination information of a particular student in a particular department. However, the limitation of the system is that it does not generate examination timetable information for the view of the students to select the course, date and time of the examination for the purpose of generating examination venue information.

Dinesh, Mainak, Pushpraj, Pankaj and Suwarna (2017) developed an “Automatic Seating Arrangement of University Exam” that lessen the mammoth task of manually allocating seats during an examination. Their system provides an effective measure to dynamically allocate students in a classroom. The limitation is that the system automatically allocate students to their desired location, this is observed contributes to examination malpractice. Also, their system is not web based, as it’s meant to be used by only the university examination administrators.

Chandrasekar *et al* (2019), developed an “Automation of Seating Arrangement System” to simplify the allocation of halls, seating arrangement of students and allocating staff to the examination hall. The system provides solution to exam seating arrangement problems, which was achieved with the execution of chromatic polynomial algorithm. Their system provides solution for the prevention of some exam hall plagiarisms, the system also used image processing techniques to generate reports of attendance for the examination. However, the limitation of the system is that it does not generate examination timetable information for the view of the students to select the course, date and time of the examination for the purpose of generating examination venue information.

3. DATA COLLECTION AND RESEARCH METHODOLOGY

The review and study of the existing related systems for examination venue notification and seats arrangement was investigated. A face-to-face interview was conducted with the Academic Planning Unit and the Examinations Officers of various departments, where relevant materials for examination venue and seats arrangements were obtained.

3.1 The System Architecture

The architecture of the system is as shown in figure 1 below. The architecture shows clearly the various tasks to be performed by the examination coordinator/officer, the tasks include data management with activities such as registration of students, preparation timetable, allocation of examination venue(s) for course(s) and random allocation of seats number to students, generation of examination venue(s) and seats numbers. Also, the various tasks to be performed by the students in other to view the examination venue and seats number are also depicted, these tasks involve provision of class details, group details, view timetable, view examination venue and seats number.

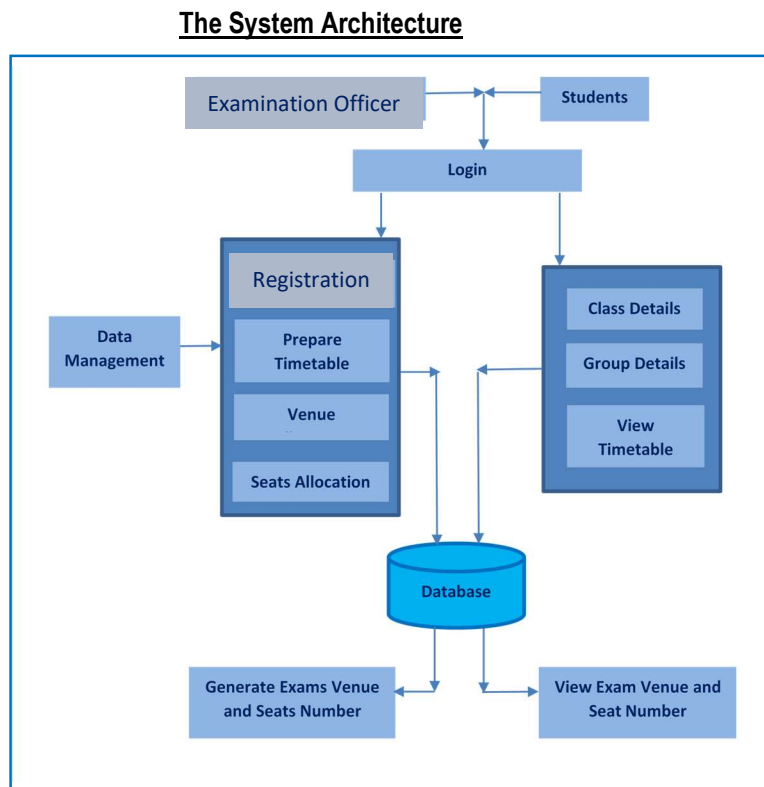


Figure 1: The Architecture of the System



3.2 Input Design

The input to the system from the users (Students) is majorly the user's actions and responses on the web pages of the automated system's website. The actions and responses involved the user's performing the relevant activities.

3.3 Output Design

The output is what the users will see on the screen, it contains the outcome of the processed data/input. The output design is projected in form of interfaces which is interactive with the users, the interface is projected using the Hypertext Transfer Protocol (HTTP).

3.4 Storage Design Description

The proposed system will have a fully dynamic and functional database with several tables. The database will be created using XAMPP and queried using MySQL. The automated system consists of databases with the tables such as: Admin, user, registration, class/level, group, hall, seats. The Admin table consists of login information about the Examination Coordinators (Examination Officers), the user table consists of login information about the user (student), the registration table consists of registration of biodata information about the users (students), the class/level table consists of the level of study of the students, the group table consists of the group a student belongs to in the class, the hall table consists of the examination venue for students, the seat table consists of the randomized seat number for the students.

3.5 System Implementation

The implementation was carried out on a system running Microsoft Windows 7 Ultimate platform / Microsoft Windows 8 platform. The client-side/user/web interface pages were encoded and implemented using HTML5 (Hyper Text Markup Language), CSS3 (Cascade Style Sheet), and JavaScript. For the back-end, XAMPP was used as web server with support for PHP as a scripting language and MySQL for working memory functional database.

3.6 System Modules

The system is designed in various modules with various buttons and links to navigate through the entire system. The major operational modules of the system are explained below.

The Home/Login Page: The home page is the first page that a user (student) sees when the application is launched, it has two main menus (Login, Sign Up). As shown in figure 2 below, the login menu allows a registered user have access to the system after the valid login details (Username and password) has been entered successfully into an html form and submitted, also the signup menu allows a new user have access to the registration form page/interface as shown in figure 3.

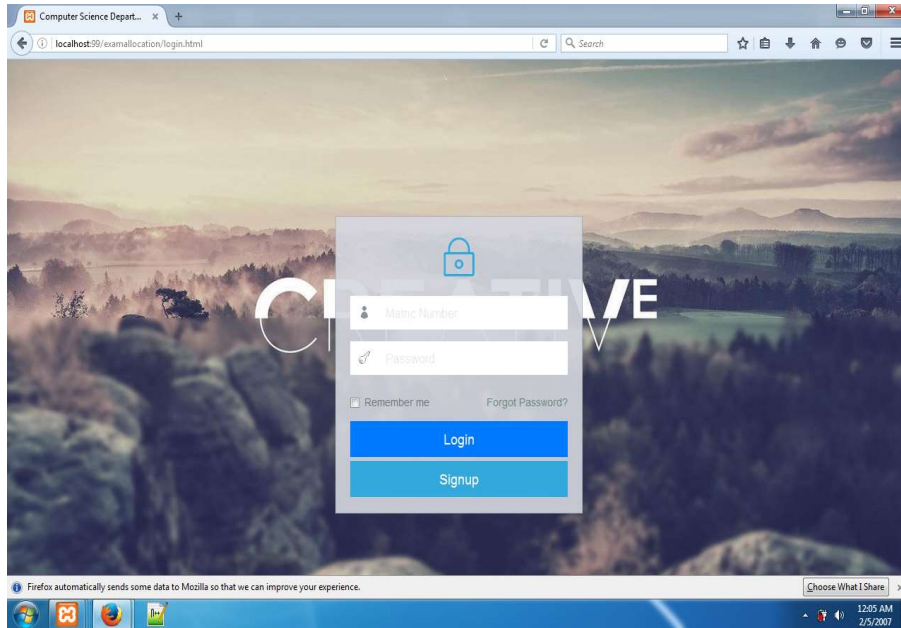


Figure 2: The home/login page of the Automated System

Registration Page: Access to the automated system for examination venue notification and seats arrangement requires users' authentication and authorization. Since users access the system remotely, therefore a built-in security system forces users to register and login first. To register, a user (student) supplies the information via an html form as shown in figure 3 below.

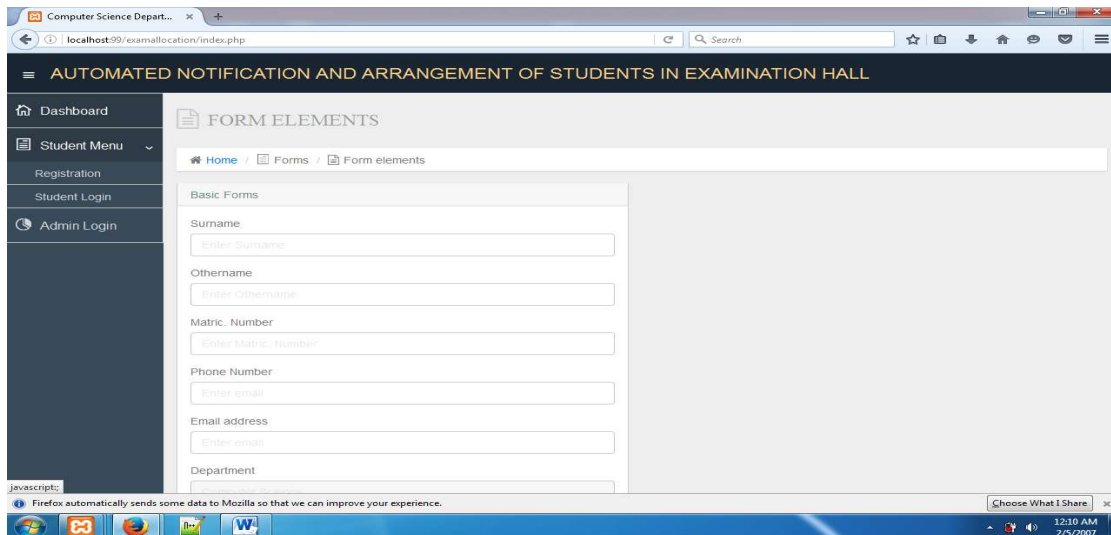


Figure 3: Sample of how a user fills in registration form

Student's Class/Level and Group Information Page: This page as shown on figure 4 is a form containing the details about the class/level and group that a particular student belongs.

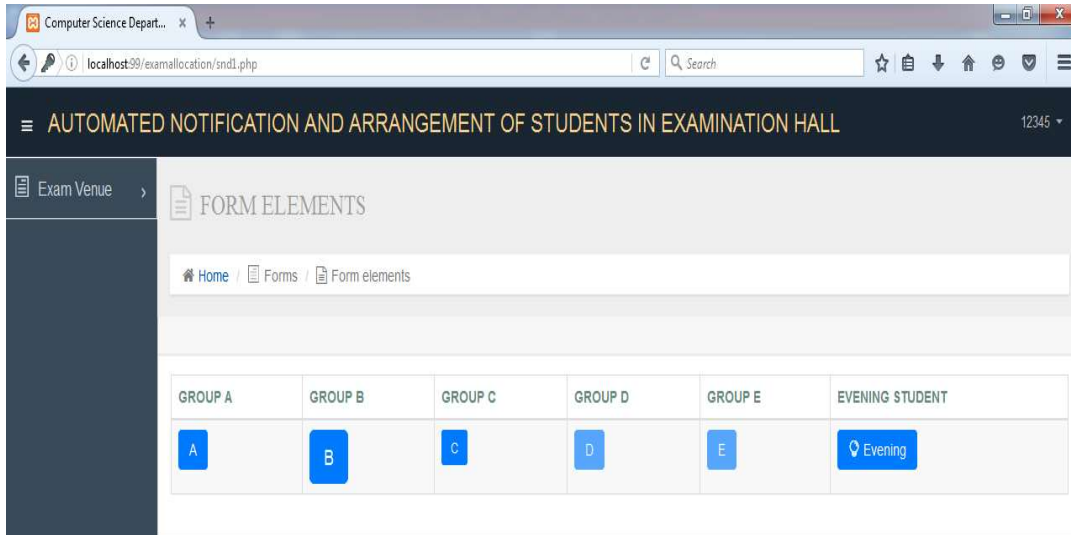


Figure 4: Student’s Class/Levels and Group Information

4. RESULTS/OUTPUT OF THE NEW SYSTEM

The output pages as shown in figures 5 and 6 are the output interfaces of automated system. Figure 5 is the copy of the examination timetable showing the course codes, day, time for the examination, this is generated whenever the students supplies the class/level/group details. Also, figure 6 is the output interface for the examination venue notification and randomized seat no of a particular student, this will be generated and displayed after the student has successfully responded to various links in relation to the student’s particulars like (class/level, group, matriculation number, course code).

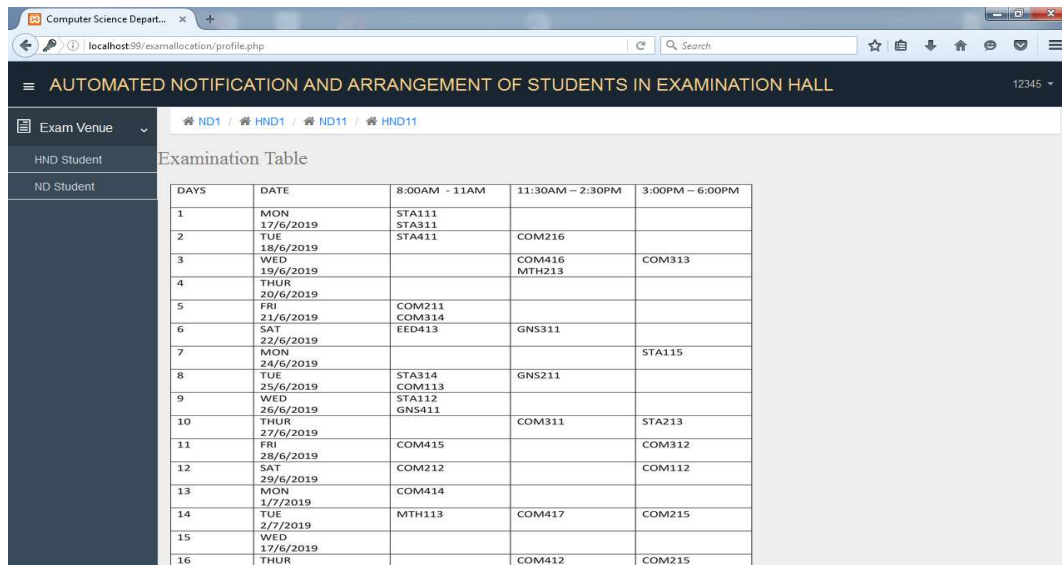


Figure 5: Interface Showing the Examination Timetable

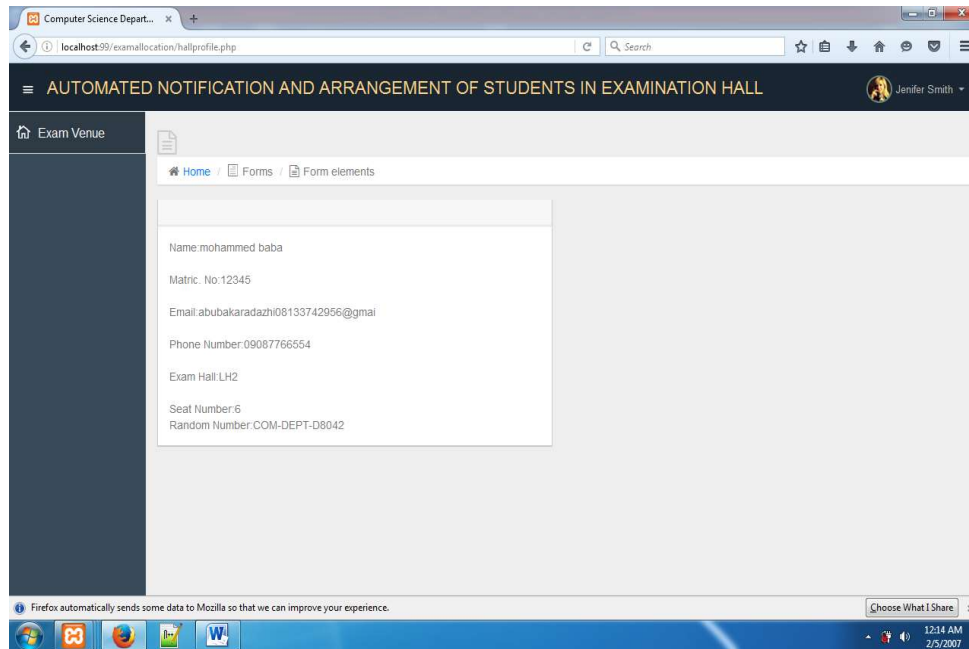


Figure 6: Sample of how a SIWES placement information form is filled.

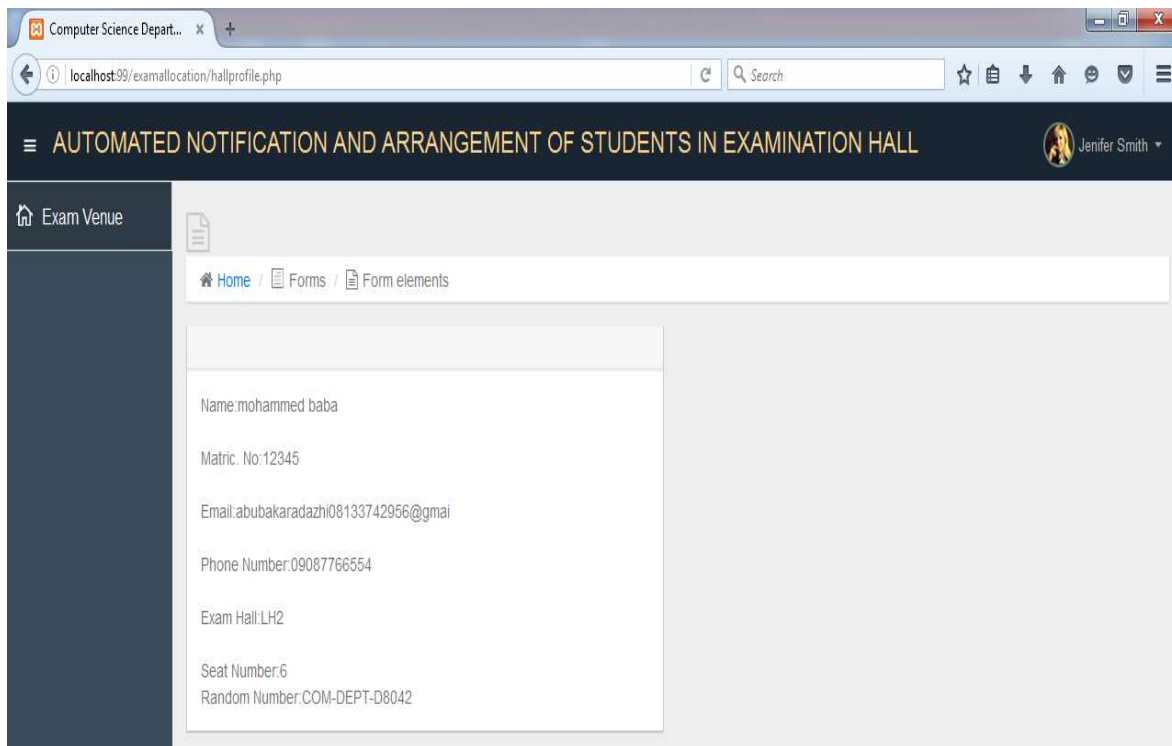


Figure 6: Interface Showing the Examination Venue and Seat



5. CONCLUSION

This research work has explored the challenges faced with the manual approach of notifying students of Federal Polytechnic Bida Niger State Nigeria the venue of examination and allocation of seats to the students. It has also provided solutions to some of the identified challenges by the development of an automated system for examination venue notification and seats arrangement, thereby making the examination venue notification and seats arrangement more effective and efficient.

6. RECOMMENDATIONS AND FUTURE ENHANCEMENT

The following recommendations arise from findings from this research

- (a) The optimum utilization of the system can be achieved by integrating the system into the portal of the Federal Polytechnic Bida where students can easily have access to the system during the period of examinations.
- (b) Further research can be conducted for more areas of improving the efficiency and effectiveness of the system for the enhancement of the performance of the system by the introduction of multi-modal biometric technology for taken real-time attendance of the students, this will also go a long way in making attendance taking easier and faster, and also curbing examination malpractice such as impersonation.

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