

Online Hall Allocation System (OHAS) for Improved Examination Center Scheduling

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Abstract:- Exam hall seating scheduling is a major challenge in most educational institutions. When the number of students, courses, departments and halls increases, exam hall seating management becomes a daunting challenge. We implement this work in view that it will be useful in event scheduling as well.

Online Hall Allocation System focuses on simplifying the task of manual allocation of examination hall for students and invigilators. The main goal is to develop a web based hall allocation System for examination in addition to reducing the manual work of staff. This paper provides solution for complications of allocating examination halls by arranging seats for large number of students and it also finds out the best combination of halls to be assigned for the exam to organize perfect seating arrangement based on the capacity of the exam hall, number of students, and differentiation of courses. It provides better hall seating plan than the manual system used by the most institutions. The paper maintains various details in modules such as Students Details, Admin Details, and Hall Details with proper descriptions.

Keywords:- Hall Allocation, Students Module, Invigilators Module, Hall Details

I. INTRODUCTION

The ceaseless worldwide and social change that we wind up in because of quick change from the mechanical age to a data age realized the presentation of computer into the information industry. "Timetabling is the allotment, subject to limitations, of offered assets to objects being set in existence, so as to fulfill as about as conceivable a lot of alluring targets." [1] Real timetabling issues have numerous structures like instructive timetabling (course and test), worker timetabling, timetabling of games, timetabling of transportation implies, and so forth. This presentation (the utilization of PCs) has quickly influenced all everyday issues going from homes, enterprises and obviously the instructive framework.

The computer isn't simply utilized for getting or getting to data yet additionally for apportioning and masterminding thoughts and data. This has prompted the improvement of a few programming and applications. Be that as it may, with the financial turn of events and progression in science and innovation, adding to the quick

increment in the number of inhabitants in the nation (Nigeria), training turns into the fantasy of each parent for her youngster, deserting the underlying way of thinking against instruction. This prompted huge increment of understudies in schools and there have been a quiet sob for a productive framework that will oversee understudies and their assessment in various institutions. By and by in the colleges, because of the expanding number of understudies, corridor portion for both talk and assessment has become a significant need in the institutions. This kind of application just like [2] can also be widely used in colleges for any kind of exam or even for event management. It reduces our time and makes the procedure very routine.

II. EXAMINATION HALL SCHEDULING SYSTEM (EHSS)

Online hall allocation System (**OHAS**) is a software application that will computerize and deal with the allocation of halls. The framework is additionally a data framework that will robotize and give precise insights concerning the quantity of students to be apportioned. It will likewise furnish the school the board with the fundamental data they may require. The essential features of a computerized hall allotment framework incorporate the database where the student designation subtleties would be gotten to and adjusted, the interface that will be given by the developer is a simple to get to interface and simple to be comprehended. The **OHAS** is worried about putting away and preparing the students information and afterward give the yield dependent on the exercises the students gave. This yield incorporates number of students; hall allotted, courses and so on. The imperatives considered in this work to plan assessments are: No students may have two examinations in a similar period planned for an opening. For each timeslot the all-out number of students taking examination must not surpass the greatest seat limit accessible for that period. For this situation. The same hall ought not to be booked for two tests simultaneously aside from in the event that the size of the hall is enormous, and afterward two unique tests can be planned. Tests are spread as equally as conceivable all through the timetable. Moreover, a delicate limitation where no understudy ought to need to sit for three examinations consecutively is being considered. In [3] we learnt to understand what motivates professionals to adopt new technology. And we discovered that the choice was influenced by prior research and its resulting questions.

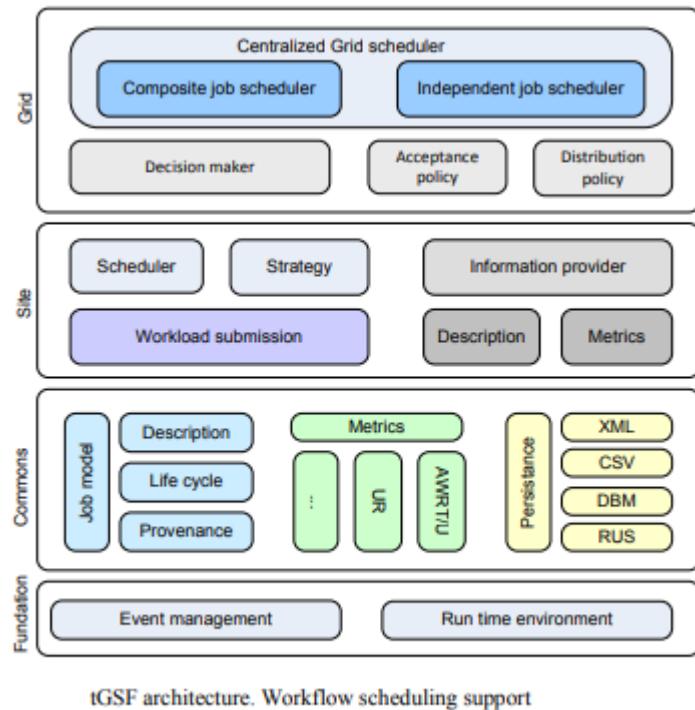


Fig 1:- Framework for iGSF scheduler Adapted from [4]

In a similar software tGSF was developed to provision a simulation framework for Grid scheduling [4]. It is a Java based application developed by the Grid Scheduling Architecture Research Group (GSA-RG) of the open Grid Forum and a research group of equal name within the CoreGrid [5]. tGSF uses, wherever possible, standards for workload representation, performance metrics, and the scheduling architecture [6]. It was initially designed for parallel job interchange between computational sites. It uses job acceptance, distribution, and location policies to achieve load balancing. tGSF is structured in the following four layers (see Fig.2.0)

➤ Related Literature Review

[2] Proposed an improved assignment of manual students plan understudies in an examination hall. It build up an android application for programmed assessment students plan notwithstanding lessening the manual work of staff. The shortcoming of this framework is the utilization of web associations, if an understudies isn't associated on the web or those not have information, they won't have the option to get or know the allotted space for the assessment.

[7] Proposed a manual students plans for the examination hall. The framework gives the students plan to huge number of understudies and aides in forestalling test hall deceitful exercises.

A seat examination system [8] in test dependent on the quantity of the student's ability of seats, conditions and test type. This examination offers answers for test students plan issues that can be accomplished through the successive execution of three proposed calculation.

This [9] venture apportions test hall for every understudy with no conflict and furthermore designate specific invigilator for a particular hall. The framework helps in lessening paper work and make all related data effectively open.

[10] Proposed a hybrid approach for solving the final examination timetabling problem that generates an initial feasible timetable using constraint programming, and then applied simulated annealing with hill climbing to obtain a better solution.

[11]. Generally Exam seats are dispensed physically dependent on some fundamental principles. The greater part of the cases, it requests significant expense and time to give the ideal arrangement while there are countless students and they are from numerous orders or subjects. A portion of the cases there are prospects of having some vacant seats, covering students with various subjects in a similar segment and furthermore having no separation between the students with getting same inquiry set. Subsequently it turns out to be exceptionally extreme for invigilators to control the test corridor and furthermore to guarantee a legitimate test condition. With the expanding number of students and subjects, it turns out to be increasingly hard to organize the best possible seat plan for the students.

[12] provides a solution for room assignment and they consider that only one exam will take place in one room at a time, but it may create an opportunity to cheat in exam hall as like as copying from other.

III. ANALYSIS OF THE PROPOSED SYSTEM

The proposed framework is an improved and progressively productive method for apportioning halls for examination. The improvement of the proposed framework is vital on the grounds that from the investigation of the current framework clearly its working functionalities are not all around incorporated. This task follows the subtleties of the module, for example, the point by point timetable of examination subtleties and room subtleties with the right depiction. A different office, Primary assignment is arranged in order, which will be given by the instructor to the service. This framework additionally assists with discovering qualifying rules for an understudy test in the department.

A. Advantages of Proposed Systems

- Independent of webs association
- Allocation process is quick.
- Systematic record keeping.
- User agreeable in entering and refreshing the information.
- Easy to locate examination hall.

B. Proposed Work

This Paper design a web based hall allocation System for examination. It consider the allocation of halls only for examination. An efficient utilization of hall allocation for examination that will requires the combination of timing and capacity of the halls. The main Objectives of the proposed system are as follows:

- An underlying attainability review on the unpredictability and assortment of the hall allocation issue inside institutions. This is expected to find whether a summed up framework could be made or whether the issue is too fluctuated to even consider making such a framework practical.
- To get data with respect to the quantity of understudy in each degree of the division and the limit of halls to be dispensed.
- To give a quick and proficient arrangement of overseeing halls for examination in this way decreasing time wastage, strain and high work input.

C. System architecture

The architectural design of the proposed framework is of three significant module as appeared in figure 3. These module assists with dealing with the exercises on the allotments of test halls both for the students and the invigilators. **Student's module:** This module is utilized to login and see the assigned hall number and seat number during examinations utilizing registration number and password. **Administrator module:** Here administrator needs to login by utilizing their exceptional username and password. Administrator is the main grant individual to get to this module for security reason. So different clients don't get rights to get to this module for their motivation. **Hall details:** In this module, Admin can update the necessary details for generating seating arrangement. The details to be specified includes hall numbers, the capacity of the halls, invigilators allocated for each hall, the number of students, their department and year [13].

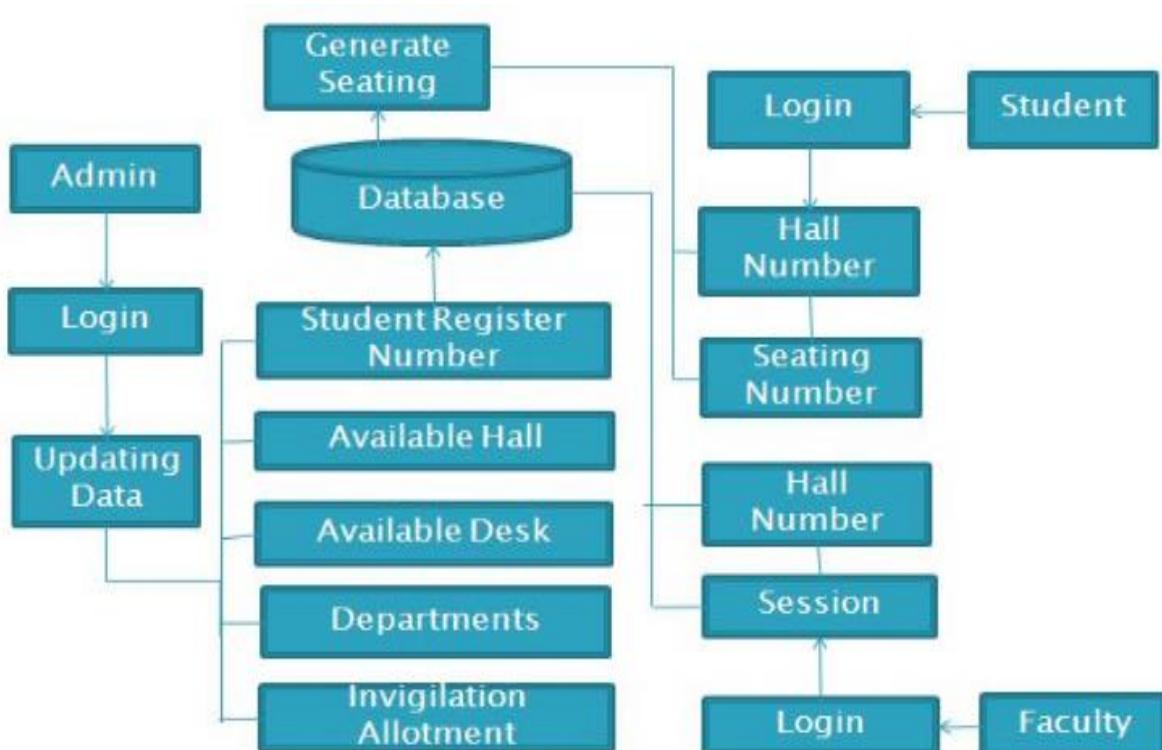


Fig 2:- System Architecture

IV. RESULTS AND DISCUSSION

In completing the framework structure, a few issues were viewed as, for example, the human-PC association that makes it feasible for the correspondence between the PC framework and the client, the database configuration, input/yield plan and particular and the general data/information security. This work plan a framework that

conveys an electronic stage for hall allocation framework. This framework is an adaptable, versatile, simple to utilize, dependable and secure framework. It is financially savvy and a viable framework. The database was planned utilizing MYSQL Database Management System. The database keeps record of information as entered by the client. It is this database that is counseled to answer queries.

Let us have a look at the snapshots below:

	name	department	matricno	time_uploaded	pin	id
<input type="checkbox"/>	Chinonso Victor	Mathematics	2015/17775	2019-10-19 08:03:56	998GBFVDR#	1
<input type="checkbox"/>	Adeyemi Olakunle	Computer Science	2013/145356	2019-10-19 08:03:56	543UJKN09	2
<input type="checkbox"/>	Ikemefuna Buratai	Statistics	2015/120988	2019-10-19 08:03:56	UHNB6765ED	3
<input type="checkbox"/>	Olaitan Kareem	Geology	2016/54637	2019-10-19 08:03:56	UJHBV654V	4
<input type="checkbox"/>	Chioma Ncheta	Industrial Chemistry	2014/167546	2019-10-19 08:03:56	OP879VNMR	5

Fig 3:- screenshot of User Login

	name	department	matricno	time_uploaded	pin	id
<input type="checkbox"/>	Chinonso Victor	Mathematics	2015/17775	2019-10-19 08:03:56	998GBFVDR#	1
<input type="checkbox"/>	Adeyemi Olakunle	Computer Science	2013/145356	2019-10-19 08:03:56	543UJKN09	2
<input type="checkbox"/>	Ikemefuna Buratai	Statistics	2015/120988	2019-10-19 08:03:56	UHNB6765ED	3
<input type="checkbox"/>	Olaitan Kareem	Geology	2016/54637	2019-10-19 08:03:56	UJHBV654V	4
<input type="checkbox"/>	Chioma Ncheta	Industrial Chemistry	2014/167546	2019-10-19 08:03:56	OP879VNMR	5

Fig 4:- screenshot of Department and Level

The screenshot shows the 'officials' table in the 'hall_db' database. The table has columns: name, username, password, department, and id. The data is as follows:

	name	username	password	department	id
<input type="checkbox"/>	Aderemi Yusuf	ade	ade343	Computer Science	1
<input type="checkbox"/>	Omwunmi Adeboye	oma	oma909	Mathematics	2
<input type="checkbox"/>	Ike Julius	ike	ike454	Statistics	3
<input type="checkbox"/>	Abi Kenneth	abi	abi565	Statistics	4

Below the table, there are buttons for 'Check all', 'With selected:', 'Edit', 'Copy', 'Delete', and 'Export'. There are also two sets of filters and sorting options.

Fig 5:- screenshot of Lecturers details

The screenshot shows the 'hall' table in the 'hall_db' database. The table has columns: hall_name, hall_location, hall_maximum, time_uploaded, and id. The data is as follows:

	hall_name	hall_location	hall_maximum	time_uploaded	id
<input type="checkbox"/>	Faculty of Social Sciences Lecture Theatre.	beside jymbas building	3	2019-10-18 18:00:05	2
<input type="checkbox"/>	Faculty of Arts Lecture Theatre.	Beside the works department in UNN	4	2019-10-18 18:00:44	3
<input type="checkbox"/>	RM 230, Department of Statistics, Abuja Building	Beside whatever	1	2019-10-19 08:56:32	4
<input type="checkbox"/>	Faculty of Physical Science Lecture Theatre.	In front of Faculty of Engineering lecture theatre...	0	2019-10-19 09:25:23	5
<input type="checkbox"/>	Faculty of Agriculture Lecture Theatre.	Before Bello hostel	0	2019-10-19 09:25:54	6

Below the table, there are buttons for 'Check all', 'With selected:', 'Edit', 'Copy', 'Delete', and 'Export'. There are also two sets of filters and sorting options.

Fig 6:- screenshot of Hall details

	course_id	course_code	course_title	exam_date	exam_starts	exam_ends	exam_hall	lecturer	date_uploaded	status	id
<input type="checkbox"/>	Edit Copy Delete ffe36fffd00972ec29522f0bc425835	MTH404	Abstract Algebra	2019-10-02	22:03	23:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:27:47	1	1
<input type="checkbox"/>	Edit Copy Delete 958f20d61f5cd729e0e938712279b573	MTH303	Elementary Mathematics	2019-02-03	12:40	14:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:33:59	1	2
<input type="checkbox"/>	Edit Copy Delete e9d8454ef03d4bd2bc83b4fcad7e9acd	STAT205	STATISTICS FOR PHYSICAL SCIENCE & ENGINEERING	2019-02-04	14:03	13:30	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:00:55	1	3
<input type="checkbox"/>	Edit Copy Delete c568000976900a60c104b62656de83ad	STAT222	Statistical Methods	2019-12-25	12:30	14:40	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:04:08	1	4
<input type="checkbox"/>	Edit Copy Delete 27248bb4e11793a25a1a61a81b31e5db	STAT543	STATISTICAL MODELLING	2019-12-12	14:30	16:40	RM 230, Department of Statistics Abuja Building.	Abi Kenneth	2019-10-19 09:12:29	1	5

Fig 7:- screenshot of Timetable

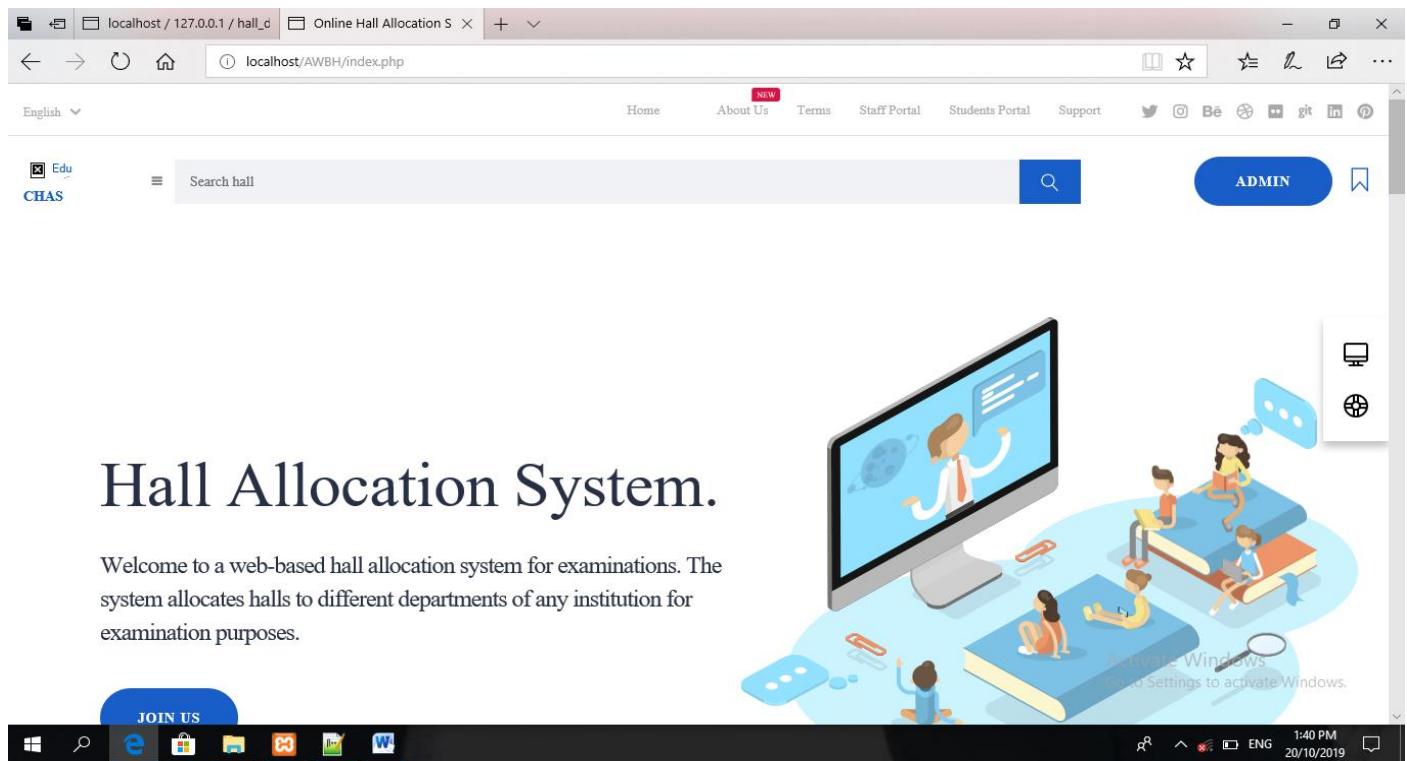


Fig 8:- screenshot of Main menu

STUDENT LOGIN

Matric No.

Select Department

--select your department--

Login

Fig 9:- screenshot of Login Form

EXAMINATION TIMETABLE

S/NO	COURSE CODE	COURSE TITLE	EXAM DATE	EXAM STARTS	EXAM HALL
1	MTH404	Abstract Algebra	2019-10-02	22:03	Faculty of Arts Lecture Theatre.
2	MTH303	Elementary Mathematics	2019-02-03	12:40	Faculty of Arts Lecture Theatre.
3	STAT205	STATISTICS FOR PHYSICAL SCIENCE & ENGINEERING	2019-02-04	14:03	Faculty of Arts Lecture Theatre.
4	STAT222	Statistical Methods	2019-12-25	12:30	Faculty of Arts Lecture Theatre.
5	STAT543	STATISTICAL MODELLING	2019-12-12	14:30	RM 230, Department of Statistics, Abuja Building.

Fig 10:- screenshot of Students Page

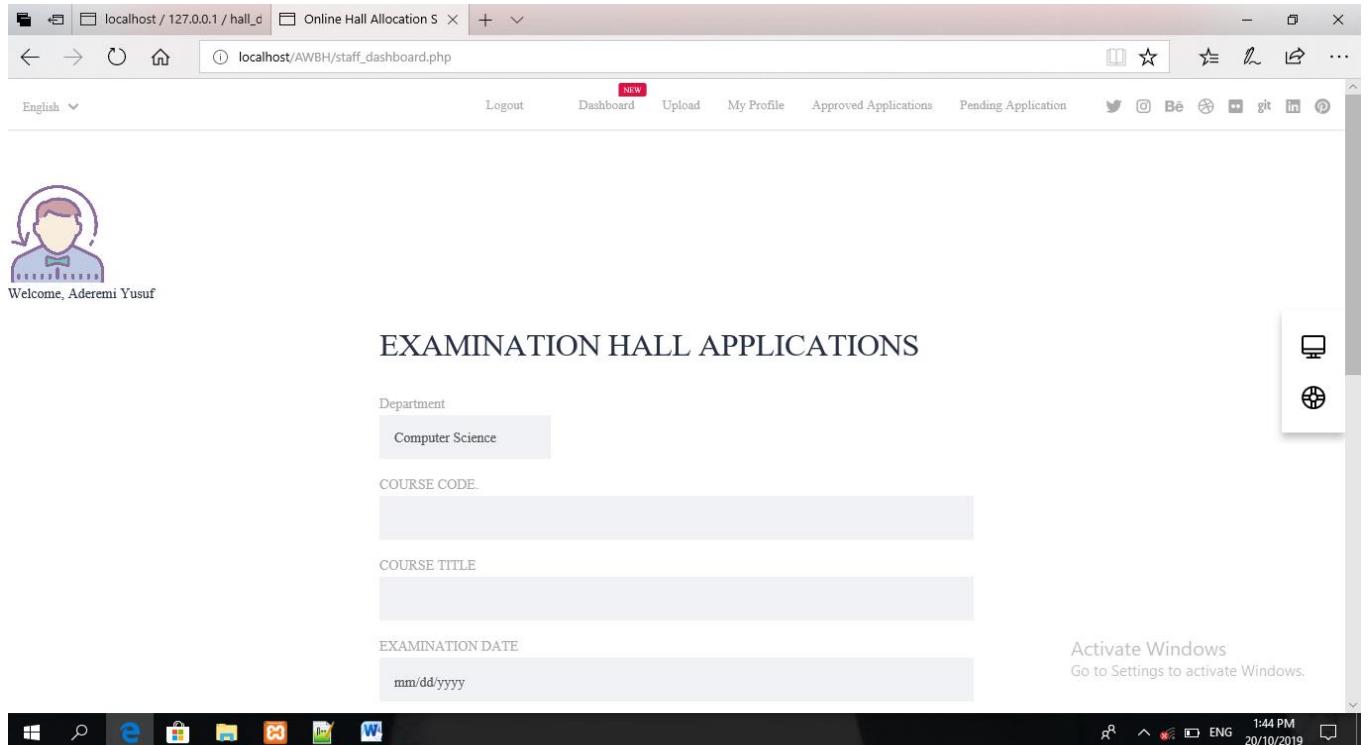


Fig 11:- screenshot of Admin Page

course_id	course_code	course_title	exam_date	exam_starts	exam_ends	exam_hall	lecturer	date_uploaded	status	id
ffec36ff8d00972ec29522f0bc425835	MTH404	Abstract Algebra	2019-10-02	22:03	23:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:27:47	1	1
958f20d61f5cd729e0e938712279b573	MTH303	Elementary Mathematics STATISTICS FOR PHYSICAL SCIENCE & ENGINEERING	2019-02-03	12:40	14:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:33:59	1	2
e9d8454ef03d4bd2bc83b4fcad7e9acd	STAT205	Statistical Methods	2019-02-04	14:03	13:30	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:00:55	1	3
c568000976900a60c104b62656de83ad	STAT222	STATISTICAL MODELLING	2019-12-25	12:30	14:40	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:04:08	1	4
27248bb4e11793a25a1a61a81b31e5db	STAT543	RM 230, Department of Statistics, Abuja Building.	2019-12-12	14:30	16:40	Abi Kenneth	2019-10-19 09:12:29	1	5	

Fig 12:- screenshot of Timetable Unique to a lecturer

The screenshot shows the MySQL Workbench interface with the 'uploads' table selected. The table structure includes columns for course_id, course_code, course_title, exam_date, exam_starts, exam_ends, exam_hall, lecturer, date_uploaded, status, and id. The data consists of five rows of course details, such as MTH404 (Abstract Algebra) and STAT205 (FOR PHYSICAL SCIENCE & ENGINEERING).

	<input type="checkbox"/> Edit Copy Delete	course_id	course_code	course_title	exam_date	exam_starts	exam_ends	exam_hall	lecturer	date_uploaded	status	id
<input type="checkbox"/>	Copy Delete	ffec36ff8d00972ec29522f0bc425835	MTH404	Abstract Algebra	2019-10-02	22:03	23:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:27:47	1	1
<input type="checkbox"/>	Copy Delete	958f20d61f5cd729e0e938712279b573	MTH303	Elementary Mathematics	2019-02-03	12:40	14:30	Faculty of Arts Lecture Theatre.	Omawunmi Adeboye	2019-10-18 17:33:59	1	2
<input type="checkbox"/>	Copy Delete	e9d8454ef03d4bd2bc83b4fcad7e9acd	STAT205	STATISTICS FOR PHYSICAL SCIENCE & ENGINEERING	2019-02-04	14:03	13:30	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:00:55	1	3
<input type="checkbox"/>	Copy Delete	c568000976900a60c104b62656de83ad	STAT222	Statistical Methods	2019-12-25	12:30	14:40	Faculty of Arts Lecture Theatre.	Abi Kenneth	2019-10-19 09:04:08	1	4
<input type="checkbox"/>	Copy Delete	27248bb4e11793a25a1a61a81b31e5db	STAT543	STATISTICAL MODELLING	2019-12-12	14:30	16:40	RM 230, Department of Statistics, Abuja Building.	Abi Kenneth	2019-10-19 09:12:29	1	5

Fig 13:- screenshot of Examination Timetable

V. CONCLUSION

The aim objective of this paper is to provide a Web-based Hall Allocation system to be used in the university to improve efficiency. Though in the long run, more features could still be added which will entail expanding the program to be more complex than this.

The primary purpose of this work is to replace the existing manual processing with error free, high speed and low cost and should improve the system capability. Working on this project was a good experience. We understood the importance of planning and designing as a part of software development.

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