# A Timetable System for Institution of Higher Learning: Case Study Strathmore University

**June N. Katunge[2], Allan O. Omondi[1], Benjamin A. Mundama[3]**

[1]*A doctoral fellow at Strathmore University, Nairobi, Kenya*
[2]*Pursuing Bachelor of Business information Technology at Strathmore University, Nairobi, Kenya*
[3]*A doctoral fellow at Strathmore University, Nairobi, Kenya*

*\*Corresponding Author:*  *Allan Omondi, A doctoral fellow at Strathmore University, Nairobi, Kenya*

**ABSTRACT**

*In each department in Strathmore University, class schedule is produced and posted on the notice board for students to view their class schedule every semester. If any change occurs in the class schedule (increase in the number of students causes change in rooms) a new timetable is produced and posted. The university does not have a system that manages the class schedules and changes to the schedule. The main aim of the developed system is to create a timetable system that notifies the users (students) on the schedule detail (date, venue, time and lecturer) and any change that may occur in the schedule. The system development methodology to use is Rapid Application Development (RAD) which uses prototyping to introduce the product. The prototype is altered during the testing phase then later on a final produce is produced to the user.*

**Keywords:** *timetable system; academic scheduling; institutional systems; academic performance*

## INTRODUCTION

Strathmore university does not have a system that displays the students timetable instead, the timetable is posted in the faculty office for students to view the class details including the time, venue and date and if changes occur the entire timetable has to be produced again hence the changes are not dynamic but static.

The purpose of this developed system is to develop a timetable system that sends notifications to students.

## OUR OBJECTIVES

1. To identify the problem of the university lacking a timetable system for students.

2. To analyse the problem strategies to solve the problem.

3. To develop an interactive timetable system.

4. To test the developed timetable system for Strathmore university.

The system enables students to keep track of their classes hence increasing their productivity (andreia, 2015).

The students are updated if any changes (changes in class venue) occur in their timetable hence the system has a dynamic property instead of always printing the whole timetable which is a traditional and static method causes by a small change.

The system captures schedule details; the administrator should fill in the schedule details for each class and upload the schedule then on the other hand the student will need to just enter the faculty, semester and year. Once the student has submitted the details he/she can view the schedule.

## Related Works

According to Muhammad Asif (2011), it is a prototype that has been industrialized at the NTNU (Norwegian University of Science and Technology) campus in Norway to help students with their daily errands. It entails of a web- based portal, and a backend server which is responsible for database storage, business logic, and a number of public web services.

It has a Lecture schedule planner used to display scheduled tasks for the present week. The database stores data for the courses and current timetables are produced dynamically based on the course the student has registered. The course codes are stored in the user's profile in the database.

This ensures the student is able to view lecture time, venue and if any changes occur the student

time table is changed since information is linked to the database. In addition, since the system uses course codes chaos in scheduling is reduced for example some courses may share similar names with different parts for example Probability and statistics I and II. Hence having a specific code which acts as the primary key will be effective.

Other related works include my campus, MIT Mobile web and Google calendar.(RH By Alan, 2004), (Asif Muhammad, 2009), (Google Calendar, 2017).

## METHODS

The developed system uses Rapid Application Development (RAD) it is flexible and easy adapts to changes hence it reduces developed system risks. It has lesser defects due to prototyping. It also provides a clear understanding of developed system goals this avoids scope creep. Rapid Application Development (RAD) has four phases: Business Modelling: The product is designed from flow of information from various business channels; Data Modeling: The data is then refined to a set of data objects that play a role in the business; Process Modelling The data object declared from the previous phase is transformed to achieve the information flow so as to achieve the business function that is the object is given a role; Application Generation: the process and data models are converted to prototypes using automated tools; Testing and Turnover: the overall testing time is reduced as prototypes are individually tested in every iteration.

*(THE APP, 2017)*
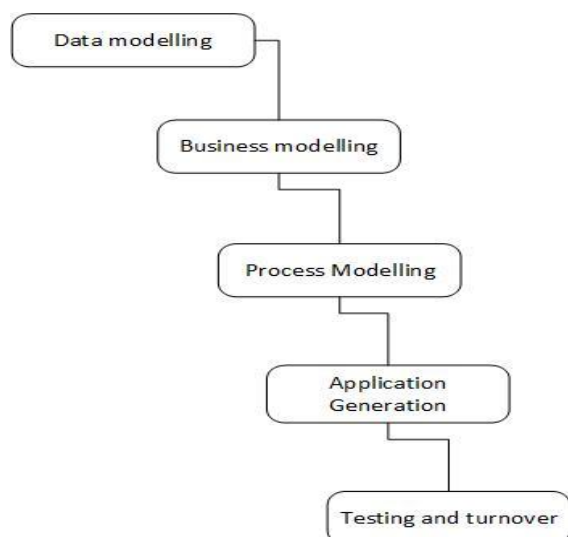


The functional requirements identified are

1. The system should allow the user to login using their email and password after signing up.

2. The system should display schedule details to the user (for example class, venue, time and lecturer).

3. The system should display any changes to schedule from the administrator update.

4. The system should notify the students about the class time and venue.

5. The system should allow the administrator to create new schedules.

The non-functional requirements include:

1. The system should have a user manual to guide the user on the system usage.

2. The system should be able to recover from faults (virus attack) by having a reliable backup system which restores data loss.

3. The system should be able to respond to any instruction/command from the user within less than 3 minutes (for example editing of the schedule).

4. The system should be easily and properly maintained so as to be able to detect errors.

## RESULTS

The following tests were conducted on the system.

Unit testing- where both the administrator and the student units were tested to determine if each function had been met and displayed relevant information as designed.

Integration testing- The units were combined and tested together to test if there were faults in the interaction. This should enable users to navigate easily.

System testing-The requirements were validated and verified this ensured that the system provides a user friendly interface. For example the user can move from one page to another without having to log out so as to access another page.

After the system underwent the testing process, all the requirements were met both the functional and non-functional requirements. Only one requirement that was not met; the system should notify the user about schedule details.

## CONCLUSION

The system developed has made a good contribution to the students who are the stakeholders of the system as the system is able to display the schedule details automatically as students can easily view the schedule and easily identify the change in the schedule. There is no need of the school management producing new schedule every time there is a change in the schedule for example the class venue.

The developed system will implement a new functionality for the notification part this will enable the users to acquire the notifications without them having to check on the web application either through their email or directly from the application.

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