**UNIVERSITY OF RWANDA**

**COLLEGE OF BUSINESS AND ECONOMICS**

**BUSINESS INFORMATION TECHNOLOGY**

**YEAR 2**

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# **VACCINATION MANAGEMENT SYSTEM**

## **CHAPTER 1: PLANNING**

* 1. **INTRODUCTION**

According to the Rwandan constitution, every person has the right to the highest attainable standard of health. It states that it is the right of every child to basic nutrition, shelter and healthcare. The Government of Rwanda, following its mandate stipulated in the Constitution to provide healthcare to its citizens, has among one of its key ministries, The Ministry of Health, keen to ensure that children at a young age are saved and protected from killer diseases such as Measles, Pneumonia, initiated a program, The Division of vaccines and immunization.

Vaccination is the administration of a vaccine to help the immune system develop immunity from a disease. Vaccines contain a micro-organism or virus in a weakened, live or killed state, or proteins or toxins from the organism.

Vaccination management system is an offline system designed to help healthcare providers track vaccination administration and make vaccination appointments available to interested recipients.

* 1. **PROBLEM STATEMENT**

In today’s fast-paced society, it is very hard to be competitive without using innovative technology. in our country there are a lot of problem caused by the current system, there are great challenges faced by its users which are:

* Slow processing of data.
* Loss of paper work
* Difficult to keep information for long time
* Delay in service delivery
* Difficult to transform information of patient from one hospital to another.
* It’s leads to loss of data at the time paper damaged
* Difficult in managing and controlling information of patient
* It is not easy to gather information of patient
* Hard to record information of patient with large number.
  1. **PROJECT GOALS & OBJECTIVES**

The primary objective of the VMS is:

* To develop a system that will help us to make vaccination appointments available to interested recipients.
* To reduce dependency on paper and manual process (and in doing so reduce chances for manual error and improve data quality);
* to provide solutions for efficient [vaccine management](https://www.cronj.com/vaccine-management.html), But it also ensures that some of the procedures are automated.
* To promote the capture of electronic data in real time;
* To provide a holistic view of the progress of the vaccination across the region and
* To produce timely reports and enable data analytics to inform policy and decisions.
  1. **SOLUTION**

The best way to solve that problems is to design a digital computerization assisted system:

* which will allow medical professionals to manage patient records, inventory management of covid-19, plan upcoming dosages and monitor undergoing side-effects, among other processes.
* This system provides[real-time vaccine administration data access and analysis](https://www.cronj.com/data-analytics-company.html).
* This system will store data in system for future usage.
* Which will reduce physical printing and transport of paper documents containing patient data.

## **CHAPTER 2: SYSTEM DESIGN**

**2.1 FUNCTIONAL REQUIREMENT**

Functional user requirement is high level statement of what system should do which are:

* 1. System must allow admin to add new patient record.
  2. System must allow an admin user to create an account.
  3. Admin must be allowed by the system to search for information.
  4. The system must allow admin to update patient information.
  5. The system must allow admin to delete duplicate patient information.
  6. The system allows an admin to generate daily report for new upcoming vaccine receiver.
  7. System must allow an administrator to log out.

**2.2 NON-FUNCTIONAL REQUIREMENT**

* **Performance Requirements**: the server would be able to perform desired tasks in reasonable unit of time.
* **Reliability**: the server would perform desired task as expected. The system does it work with more accuracy.
* **Security**: the system would provide access to only legitimate users. It will be secure and only authorized person can use it.
* **Scalability**: the proposed system would be scalable to support extended number of tasks.
* **Accessibility**: the proposed system would provide graphical user interface desktop application installed on computing mode(server) running the application and support entrance of new acquired vaccine receivers and recording them in the database of a health center.
* **Maintainability**: the proposed system would be easy to maintain and extend. Minor modification to the system would not cause harm to running application.

**CHAPTER 3: DEVELOPMENT**

This system software is developed using JAVA language so as to ensure the implementation of the system and Apache NetBeans IDE 15 as text editor, MYSQL as the database management system language (DBMS) and hence it provides the complete solution for the current system (manual system). this system can be accessed through your laptops, desktop, and even smart phones without networks you just need installation only instead of WIFI networks. This system is composed by 4 different interfaces which are homepage, Login, registration, report which will show the current status of our project.

By use of MYSQL Connector Jar file we were able to connect the back-end code with the database, allowing the system to communicate and perform operations like insert data and retrieve data from database. XAMMP server are used to design MySQL database called vaccination with 2 tables such as **users** (with fields: id, username, password), **Thevaccination** (id, names, idnumber, gender, phone, address, vaccine, dose).

**CHAPTER 4: TESTING**

The vaccination management system was tested throughout its development lifecycle

By using unit testing methods to ensure quick response time and data accuracy. During this stage, we found some defects and bugs and there are some ways to handle it. Forms are able to submit empty records in database to handle this problem we must set the condition that every user must fill data in the text field to processed the process of inserting record in database. To click delete/update buttons without selecting a record to delete /update it can cause bugs in the system, to handle this problem before running update/delete code we must check a condition that if there are a record selected and if yes that record would be deleted/updated and if there is no record selected the message displayed telling a user to select a record to delete/update. After fixing the above two bugs system now runs correctly without any bug and it have high accuracy of data as we expected before developing this vaccination management system.

**CHAPTER 5: DEPLOYMENT**

Vaccination management system are deployed on a local laptop for testing and performance monitoring. Starting from login form it authorize only user who type in username and password that matches any user database record if not it gives you error telling you that you enter incorrect username and or password but if username and are correct it gives you access to enter into a system. The system should be installed by use of WIFI network in supporting system to work efficiently and effectively. The vaccination management system track patient who gets vaccination and record information of him/her and dose he/she got automatically.