Software Requirements Specification

Wakanda - NCMS

(Wakanda – National COVID Management System)

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# Software Requirements Specification (SRS Document)

# 1. Introduction

### 1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for the “Wakanda – National COVID Management System” (Wakanda - NCMS) software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications.

### 1.2 Scope

Wakanda is a small island nation having only five districts. It maintains a good healthcare system having one base hospital per district. As the COVID19 is spreading all over the world so fast, the Ministry of Health (MoH) wants to build a National COVID Management System (NCMS) immediately to efficiently manage the situation. It should involve citizens, hospitals, doctors, and authorities of the country.

Wakanda – National COVID Management System” (Wakanda - NCMS) is a web application, which helps citizens to admit to the nearest hospital with beds available if anyone shows COVID 19 symptoms. Citizens can provide their information and register on the Wakanda – NCMS using the web portal. Citizens are notified by the system about hospital allocated, bed number, unique serial number and if there are no beds available in all the hospitals, a queue number and the serial number

And it also helps doctors of the hospitals to manage the patients. Doctors can register, log in to the system and update patient data.

It helps MoH authorities to build new hospitals if the number of beds in the hospitals are not enough for the newly registering patients. The web application also provide statistics for citizens and MoH authorities regarding the current situation of the COVID 19 in the country.

# 2. Requirements

### 2.1 Functional Requirements

1. The citizens should be able to register in Wakanda – NCMS with their information and geo location coordinates of their home.
2. For doctors and MoH authorities, a special interface should be there to register.
3. A single login interface should be visible for all the users (citizens, doctors, MoH authorities, system administrator) who visit the Wakanda – NCMS main URL.
4. The system should verify the user as citizen, doctor, and MoH authority or system administrator.
5. The administrator should be able to add, edit, and delete users on the system.
6. Wakanda – NCMS should allocate a bed from the nearest hospital for newly registering patients if available. Search for a bed should be done going through all the hospitals in the whole country.
7. The system should assign a unique serial number to each and every patient who registers on the system.
8. If no beds are available in the hospitals of whole country, the patient should be put into a queue with a queue number and status should be updated as ‘in the queue’.
9. The system should send the serial number, hospital information (name, address coordinates) with bed number to the patient.
10. The user accounts should be created under email address and the password protection.
11. User notifications should be sent through the email address used to register on the system.
12. For the patients who put into the queue, should be informed by sending a notification that they are in the queue and also the queue number and also they should be shown on the web interface.
13. When a patient is getting registered, the patient information (name, email address, password, age, gender, address coordinates, district, phone number), serial number should be visible to the hospital staff.
14. The system should provide an interface to the hospital staff to update patient illness severity (low, moderate, critical) and patient status as ‘under-investigation’ when patients are admitting to a hospital. The system should provide search options to search patients using serial number, phone number, email or district.
15. Once a patient is fully recovered, the doctors should be able to update the patient status as ‘discharged’.
16. Once a patient is deceased, the doctors should be able to update the patient status as ‘deceased’.
17. If the queue of the patients exceeds more than 4 allocations, MoH authorities must be notified, with information on district which the majority of patients are from.
18. If the number of patients are equal with different districts, the new hospital should be built in the district where the first patient in the queue belongs to. The district information for the new hospital should be given to the MoH authority.
19. If a new hospital should be built, it should add 10 more beds to the system.
20. When the new hospital is built, MoH authorities should be able to update the system.
21. All the patients in the queue should be allocated to the new hospital when the system is updated.
22. The patients who were in the queue should be notified with the hospital information (name, address coordinates), bed number with the same serial number sent earlier when they were registering on the system, when the system is updated by the MoH regarding newly built hospital. And also it should be visible to the hospital staff of new hospital, the allocation of patients to their hospital.
23. The system administrator should be able to update hospital and bed information.
24. The system should show the patient statistics to the MoH authorities, when logged in.

|  |  |  |  |
| --- | --- | --- | --- |
| Daily Update (Today) | Country Level | District Level | Hospital Level |
| New cases |  |  |  |
| Deaths |  |  |  |
| Recovered and discharged |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Overall status until now | Country Level | District Level | Hospital Level |
| Total cases |  |  |  |
| Active cases |  |  |  |
| Total deaths |  |  |  |
| Recovered and discharged |  |  |  |

1. The system should show the hospitals and bed statistics to the MoH authorities, when logged in.

|  |  |  |  |
| --- | --- | --- | --- |
| Daily Update (Today) | Country Level | District Level | Hospital Level |
| Total hospitals |  |  |  |
| Hospitals allocated |  |  |  |
| Hospitals available |  |  |  |
| Total beds |  |  |  |
| Beds allocated |  |  |  |
| Beds available |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Overall status until now | Country Level | District Level | Hospital Level |
| Total hospitals |  |  |  |
| Hospitals allocated |  |  |  |
| Hospitals available |  |  |  |
| Total beds |  |  |  |
| Beds allocated |  |  |  |
| Beds available |  |  |  |

1. The system should show the patient statistics to the public when visited the web interface.

|  |  |  |  |
| --- | --- | --- | --- |
| Daily Update (Today) | Country Level | District Level | Hospital Level |
| New cases |  |  |  |
| Deaths |  |  |  |
| Recovered and discharged |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Overall status until now | Country Level | District Level | Hospital Level |
| Total cases |  |  |  |
| Active cases |  |  |  |
| Total deaths |  |  |  |
| Recovered and discharged |  |  |  |

### 

### 2.2 Non-functional Requirements

1. Hospital and bed statistics should not be showed to the public (citizens), it should be only shown to the MoH authorities.
2. Secure connection should be established with client when creating all kinds of accounts (registering on the system) on the system.
3. The system should work without lags when multiple users interact with the web application in the same time.
4. The user interface should be simple and clear. Guidelines should be provided to assist the users when creating accounts and login in.
5. The response time should be less than 2 seconds.
6. All the communication between system and server should be encrypted,
7. If a user (citizen, doctor, and MoH authority or system administrator) tries to log in to the system using non-existing account, they should not be logged in. And the user should be notified about log-in failure.
8. If a user wants to create an account and the desired email is occupied, the user should be asked to re-check.