Software Requirements Specification

for

<UNMA WEBSITE >

Version 1.0 approved

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# INTRODUCTION

## Purpose

This Software Requirements Specification (SRS) document specifies requirements of the Uganda National Meteorological Authority (UNMA) website. The Document covers the scope of the project, perspective, functions of the system, user classes and characteristics, operating environment of the system, design and implementation constraints, the system intended audience, interface requirements, functional and non-functional requirements of the UNMA website

## Document Conventions

This SRS document is written using Times New Roman as the font family, font size of 12, line spacing of 1.5, use of bold styling to signify importance of certain statements especially titles.

## Intended Audience and Reading Suggestions

The SRS is intended for the following:

Development team which needs to ensure that the team is kept aligned with the project goals and objectives.

UNMA staff which will use this document as a reference to understand what the application (Website) does and how it works.

System maintainers/developers who will use this document to understand the different components of the system in order to ease maintenance work.

Table 1: Intended Users for SRS Document

|  |  |
| --- | --- |
| **Intended user** | **Section(s) the user should read and why** |
| Development team | Product scope, overall description, External interface requirements, system features and other requirements. To ensure that they develop the right product. |
| UNMA staff | Overall description (product functions, operating environment), System features. To ensure that the software product will meet their expectations and to understand more about the system after it has been deployed. |
| System maintainers | Overall description, external interface requirements, system features. To understand the different functionalities of the system. |

## Product Scope

**Purpose**

To provide timely weather information to the public and relevant information about UNMA

**Goal**

To provide the public with both daily and seasonal forecasts in time

## References

The references for this document are contained in the appendices section, Appendix B.

# Overall Description

## Product Perspective

UNMA is a body in Uganda responsible for weather forecasts, predictions and dissemination.

Over the years, UNMA has been issuing forecast reports and alerts about weather phenomena through radios and televisions which made it hard for other citizens to get timely information about their weather thus creating a gap between those with radios and those without. Alternatively, getting weather reports and other important information about the organization has been manually done. Nevertheless, due to the growth of internet in Uganda, many people spend a lot of time surfing and reading information over the web. This would make it easier for people to get weather updates through the web. This system comes in to provide timely information over the internet such that people are always aware of their weather and the climatological phenomena occurring in their country irrespective of country and state they are in.

## Product Functions

The system shall provide an interface for administrator to add daily and seasonal forecasts

The system shall provide disaster warnings to the users

The system shall provide latest news to the public

The system shall provide alerts for the users

The system an interface for administrator to add reports

## User Classes and Characteristics

Table 2: User classes and characteristics

|  |  |
| --- | --- |
| **User role** | **Responsibilities** |
| 1. System administrator
 | * upload daily and seasonal forecasts
* provided alerts to the user
* provide other relevant information to the user of the system
 |
| 1. System User
 | * View information uploaded on the system
 |

## Operating Environment

The system shall be run on all environments that support the modern web browsers since it (the system) is a web-based application. Common operating environments shall be Windows, Linux, Mac OS and on Android and iOS platforms.

## Design and Implementation Constraints

## User Documentation

The user manual will be delivered together with the software. The document will be in a pdf format or word document format and will provide guidelines on how the system user will use the system. System maintainers who will use the user manual to understand different system components for easy system maintenance.

## Assumptions and Dependencies

The system users shall have reliable internet connection and with a computer the have modern web browsers installed.

# External Interface Requirements

## User Interfaces

The system runs on a web browser all the user interfaces are accessible, and upon navigating to the web address of the UNMA web application, the users a presented with the general user’s home page and on administrator log in, the admin is presented with the admin dashboard. The main home page shall present a navigation menu for all the different system features where the user can select and view for general users. The common interfaces include those in figures below.

## Hardware Interfaces

The system will be web based thus it is going to be hosted on the server. Thus, the user must have a computer with good keyboard, a pointing device and a monitor or a scalable screen. The user will just need access to internet and a web browser to access the system. The server hardware must have a network connection.

## Software Interfaces

The UNMA web application must function properly in almost all the modern web browsers for instance Google Chrome version 40 and above, Mozilla Firefox version 27 and above, Microsoft edge latest version, Safari among other browsers that support HTML5. The server must support database software, the database software must support multiple and concurrent connections. The server must support web application hosting and the hosting software must support concurrent connections.

## Communications Interfaces

The system will communicate with database management system through a web browser using standard http protocols. It will also support downloading of data-files through FTP. The web application will utilize the networking hardware of the user’s device through network communications services provided by the operating system. Network communications capability will be used to connect to make connection with the database and web services for authentication and importing the information.

# System Features

The features of the UNMA website are described using the use case diagram below, the features include upload reports, add daily and seasonal forecasts, add disaster warnings, add latest news and weather alerts, download and view reports, view daily and seasonal forecasts, view weather alerts, disaster warnings.



## User Class: Administrator

### Admin Login

**Description and Priority**

In order to access the system functionalities with elevated access level, system user with an administrator privileges shall have to login.

Priority: High

Table 3: Admin login Use Case

|  |  |
| --- | --- |
| **Use case:** | Admin Login |
| **ID:** | 1 |
| **Brief Description:** | This use case describes the steps taken for admin to login to the system |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | User has navigated to administrator’s login page |
| **Main flow:** | 1. Enter correct username and password
2. Click on the login button
3. If the login is successful, display the admin home page (Dashboard)
4. Else, display the error message and ask the user for correct details
 |
| **Post Condition:** | Login successful, admin dashboard displayed |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-1: The system shall allow the administrator to login to the system

### Admin Logout

**Description and Priority**

Once the system administrator has logged into the system and after all the task has been completed, admin should be able to log out for security purposes.

Priority: High

Table 4: Admin logout Use Case

|  |  |
| --- | --- |
| **Use case:** | Admin logout |
| **ID:** | 2 |
| **Brief Description:** | This use case describes the steps of logging admin out |
| **Primary Actors:** | User with administrator privileges |
| **Precondition:** | User has logged in and has clicked on logout button |
| **Main flow:** | 1. Admin selects logout button
2. System prompt user for a confirmation of logging out
3. Admin confirms the logout intent
4. The system logs admin out and redirect to the general user’s homepage and displays the home page.
 |
| **Post Condition:** | The system has logged admin out and displayed home page |
| **Alternative flow:** | None |

**Functional Requirement**

REQ-2: The system shall allow system admin to log out of the system

### Add/edit user

**Description and Priority**

The main system admin shall be able to assign other users privileges as well as add users with administrative rights.

Priority: High

Table 5: Use case for Add/edit System User

|  |  |
| --- | --- |
| **Use case:** | Add/edit user |
| **ID:** | 2 |
| **Brief Description:** | This use case describes process of adding new users and editing their info |
| **Primary Actors:** | User with administrator privileges |
| **Precondition:** | User has logged in and has navigated to administrator’s page |
| **Main flow:** | 1. Admin selects Add/Edit user
2. System presents the options for adding or removing the user
3. Admin chooses either to add or edit user
4. Admin fills the information and submits the form
5. The system verifies the information and alert the admin whether the operation was successful and displays the new user’s login details.
 |
| **Post Condition:** | The system respondent with the new users’ details |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-2: The system shall allow new users to added and edit users Info

### Update Directorate Info

**Description and Priority**

The system administrator shall be able to update important information in the system including among others the current heads of the directorates for instance weather forecasting services, networks and observations as well as the members of the respective directorates.

Priority: High

Table 6: Use case for Update Directorate Info

|  |  |
| --- | --- |
| **Use case:** | Update Directorate Info |
| **ID:** | 3 |
| **Brief Description:** | This use case describes the steps taken in update specific information, for instance the current heads of directorates |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and has navigated to the admin page |
| **Main flow:** | 1. Admin selects to Update specific information
2. The system presents a list of different directorates
3. Admin selects the directorate and whether to update head or members Info
4. The Admin Updates the Info and submits the form
5. The system verifies the details and on success, displays success message.
 |
| **Post Condition:** | The Info had been updated |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-3: The system shall allow the user with administrative privileges to update directorates Info

### Update Forecast

**Description and Priority**

The different forecasts such as daily or city should be made available for the different users each and every day. Thus, the system administrator or any user with administrative privileges should be able to either add these forecasts or update the forecasts. The forecasts can either be daily or a major city or a seasonal forecast.

Priority: High

Table 7: Use case for Update Forecast

|  |  |
| --- | --- |
| **Use case:** | Update Forecast |
| **ID:** | 4 |
| **Brief Description:** | This use case describes the steps taken in updating the weather forecasts |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and has opted to update forecasts |
| **Main flow:** | 1. Admin selects to Update weather forecasts
2. The system presents a choice for adding or updating forecasts
3. Admin chooses to add or update forecasts
4. The system presents a choice for daily, city or seasonal forecasts
5. Admin chooses either daily, city or seasonal.
6. Depending on step 5, the system displays a list of places, or cities, or regions for the forecasts
7. Admin chooses the desired location for the forecast and adds or updates the forecast
8. The system updates and displays the current weather forecast for the target location
 |
| **Post Condition:** | The particular weather forecast for a given location has been updated successfully |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-4: The system shall allow user to update weather forecast information

### Update Climate Info

**Description and Priority**

Climate information can be categorized either as a decadal, a seasonal and others. Other formats such as audio formats can also be provided. Thus, the system administrator shall have to consistently and constantly update such information.

Priority: High

Table 8: Use case for Update Climate Info

|  |  |
| --- | --- |
| **Use case:** | Update Climate Info |
| **ID:** | 5 |
| **Brief Description:** | This use case describes the steps taken in updating the climate information  |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and navigated to the admin main page |
| **Main flow:** | 1. Admin selects to Update climate information
2. The system presents a choice for adding or updating climate information
3. Admin chooses to add or update climate information
4. The system presents a choice for different climate info available
5. Admin chooses the desired climate information to be updated or added.
6. The system displays a page for updating or adding the climate info.
7. Admin fills the information and uploads a file if necessary and submit the form.
8. The system verifies the information including the file and displays the update climate info on success
 |
| **Post Condition:** | The particular climate information has been updated successfully |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-5: The system shall allow admin to update or add the different climate information

### Update Weather Alerts

**Description and Priority**

Specific alerts, warnings and information for particular users shall be provided by the system. For instance, information relevant to farmers shall be made available, weather information that affect fishing and also other disaster warnings shall be provided for the different users. Thus, the system administrator shall have to keep updating and/or adding these alerts whenever it is necessary.

Priority: High

Table 9: Use case for Update Weather Alerts

|  |  |
| --- | --- |
| **Use case:** | Update Weather Alerts |
| **ID:** | 6 |
| **Brief Description:** | This use case describes the steps taken in updating the different alerts (warnings) |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and has opted to update alerts |
| **Main flow:** | 1. Admin selects to Update alerts
2. The system presents a choice for adding or updating alerts
3. Admin chooses to add or update alerts
4. The system presents a choice for different alerts available
5. Admin chooses the specific alert to be added or updated.
6. Depending on step 5, the system displays a page corresponding to the that choice.
7. Admin fills the information and submit the form
8. The system updates and displays the current alert the had been updated.
 |
| **Post Condition:** | The particular alert has been updated successfully |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-6: The system shall allow admin to add and update the given alerts available

### Update Careers

**Description and Priority**

Career opportunities maybe available for a particular period of time and these information needs to be made available for the users. Thus, careers such as tenders, jobs, internship and others should be added or deleted whenever necessary and or available.

Priority: High

Table 10: Use case for Update Career

|  |  |
| --- | --- |
| **Use case:** | Update Career |
| **ID:** | 7 |
| **Brief Description:** | This use case describes the steps taken in updating career opportunities |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and has navigated to the main admin page |
| **Main flow:** | 1. Admin selects to Update career opportunities
2. The system presents a list of different career opportunities available
3. Admin chooses either to add or remove a career(s)
4. If admin opted to remove a career, the system asks for a confirmation before removing the career
5. The system displays a success method indicating that the career was removed successfully.
6. Depending on step 3, if the choice is to add a new career, the system displays a page for adding career
7. Admin adds the career information and submits the form
8. The system updates and displays the current weather forecast for the target location
 |
| **Post Condition:** | The career opportunity has been updated successfully |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-7: The system shall allow admin to add and/or remove career opportunities

### Update Media Info

**Description and Priority**

Users needs to be updated of the current activities taking place and as such information including among others photos, latest news, different newsletters, and also press releases shall be made available to the users. Thus, the system administrator shall have to update such information, adding photos, news and other activities.

Priority: High

Table 11: Use case for Update Media Info

|  |  |
| --- | --- |
| **Use case:** | Update Media Info |
| **ID:** | 8 |
| **Brief Description:** | This use case describes the steps taken in updating media information |
| **Primary Actors:** | Users with administrator privileges |
| **Precondition:** | Admin has successfully logged in, and has opted to update media info |
| **Main flow:** | 1. Admin selects to Update media information
2. The system presents a list of different media options supported
3. Admin chooses either to add or update media info
4. If admin opted to remove a media info, the system asks for a confirmation before removing the media info
5. The system displays a success method indicating that the media info was removed successfully.
6. Depending on step 3, if the choice is to add a particular media info, the system displays a page for adding media information
7. Admin adds the media information and submits the form
8. The system updates and displays the media information available
 |
| **Post Condition:** | The media information has been updated successfully |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-8: The system shall allow system administrator to update media information

## User Class: Viewer

### View Weather Forecast

**Description**

Every user including the administrators shall be able to view weather forecasts whether daily or city or seasonal. For quick access, the system shall display the daily forecast on the home page, thus whenever a user navigates to UNMA homepage, they shall be able to view the daily forecast. For other forecasts, user shall have to navigate to weather forecast and choose a particular forecast of interest.

Table 12: Use case for View Weather Forecast

|  |  |
| --- | --- |
| **Use case:** | View Weather Forecast |
| **ID:** | 9 |
| **Brief Description:** | This use case describes the process involved in viewing weather forecast |
| **Primary Actors:** | All users |
| **Precondition:** | User has navigated to the systems home page using the default URL |
| **Main flow:** | 1. User navigates to UNMA home page using URL
2. The user selects to view weather forecast
3. System displays a list of different weather forecast available
4. The user chooses the forecast of interest
5. The system displays the forecast for the user to view.
 |
| **Post Condition:** | The user is viewing the weather forecast |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-9: The system shall allow users to view weather forecast information

### View Climate Info

**Description**

Climate information can be audio formatted weather information and forecast, seasonal forecast, decadal and others. Users shall be able to view such information, stream the audio and as well as download the files.

Table 13: Use case for View Climate Info

|  |  |
| --- | --- |
| **Use case:** | View Climate Info |
| **ID:** | 10 |
| **Brief Description:** | This use case describes the process involved in viewing climate information |
| **Primary Actors:** | All users |
| **Precondition:** | User has navigated to the systems home page using the default URL |
| **Main flow:** | 1. User navigates to UNMA home page using URL
2. The user selects to view climate information
3. System displays a list of different climate information available
4. The user chooses the climate info of interest
5. The system displays the climate information with a download option if it can be downloaded.
6. If its downloadable, the user clicks on download, the download process begins and the file will be downloaded
 |
| **Post Condition:** | The user is viewing the climate information |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-10: The system shall allow users to view the climate information available

### View Alerts

**Description**

Warnings such as disaster warnings and information relevant to farmers and others shall be provided for the users by the system and the users shall be able to view them.

Table 14: Use case for View Alerts

|  |  |
| --- | --- |
| **Use case:** | View Alerts |
| **ID:** | 11 |
| **Brief Description:** | This use case describes the process involved in viewing alerts |
| **Primary Actors:** | All users |
| **Precondition:** | User has navigated to the systems home page using the default URL |
| **Main flow:** | 1. User navigates to UNMA home page using URL
2. The user selects to view alerts
3. System displays a list of different alerts available
4. The user chooses an alert of interest
5. The system displays the alert for the user to view.
 |
| **Post Condition:** | The user is viewing the alert |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-11: The system shall allow users to view the available weather information alerts

### View Media Info

**Description**

Different media shall be provided for the user by the system. For instance, photos, latest news and letters. Users shall be able to view this information on interest.

Table 15: Use case for View Media Info

|  |  |
| --- | --- |
| **Use case:** | View Media Info |
| **ID:** | 12 |
| **Brief Description:** | This use case describes the process involved in viewing media information |
| **Primary Actors:** | All users |
| **Precondition:** | User has navigated to the systems home page using the default URL |
| **Main flow:** | 1. User navigates to UNMA home page using URL
2. The user selects to view media information
3. System displays a list of different media information available
4. The user chooses the media information of interest
5. The system displays the media information with a download option if it can be downloaded.
6. If its downloadable, the user clicks on download, the download process begins and the file will be downloaded
 |
| **Post Condition:** | The user is viewing the media information |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-12: The system shall allow users to view and download media information available

### View Careers

Career opportunities available at UNMA shall be enlisted to the users by the system. The system users shall be able to check the available career opportunities and/or apply for a particular career of interest

Table 16: Use case for View Career Info

|  |  |
| --- | --- |
| **Use case:** | View Career Info |
| **ID:** | 13 |
| **Brief Description:** | This use case describes the process involved in viewing career information |
| **Primary Actors:** | All users |
| **Precondition:** | User has navigated to the systems home page using the default URL |
| **Main flow:** | 1. User navigates to UNMA home page using URL
2. The user selects to view career information
3. System displays a list of different career information available
4. The user chooses the career information of interest
5. The system displays the career information with a download option if it can be downloaded.
6. If its downloadable, the user clicks on download, the download process begins and the file will be downloaded
 |
| **Post Condition:** | The user is viewing the career information |
| **Alternative flow:** | None |

**Functional Requirements**

REQ-13: The system shall allow users to view available career opportunities and apply for where necessary

## Other Nonfunctional Requirements

### Performance Requirements

The system response time is under 5 seconds since user interaction with the system does not require loading of much data except the gallery. The system response for export request shall also be under 5 seconds. The actual download time of gallery and other files for instance, reports may vary depending on the internet connection speed. The system response time is expected to be less than 10 second loading, saving and updating data, but this may vary depending on the internet connection speed.

### Safety Requirements

System server and firewalls should be safe guarded from external extruders so as to eliminate cases of theft.

### Security Requirements

Access to the system is open to two particular categories of users. Viewers shall be able to view all the information made available on the system. The second category of users, that is the administrators, in addition to viewer’s privileges, shall be able to update the different system information and components. This category of users shall need to be authorized each time the access the system. Access to databases is restricted only to main system administrator who assigns admin rights to other users.

### Software Quality Attributes

System server and firewalls should be safe guarded from external extruders so as to eliminate cases of theft.

# Appendices

## Appendix A: Glossary

|  |  |
| --- | --- |
| **Acronym/Abbreviation** | **Full Description/Form** |
| UNMA | Uganda National Meteorological Authority |
| SRS | Software Requirements Specification |
| REQ | Requirements |
| FTP | File Transfer Protocol |
| HTTP | Hypertext Transfer Protocol |

## Appendix B: References