

**COLLEGE OF COMPUTING AND INFORMATION SCIENCES**

**DEPARTMENT OF NETWORKS**

**BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING (YEAR 2) RECESS TERM 2 (BSE 2301)**

**REPORT FOR:**

**CHART ANALYSIS WITH NSSF CUSTOMER SUPPORT DEPARTMENT**

**PROJECT MEMBERS (GROUP 23)**

|  |  |  |  |
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SUBMITTED IN TOTAL FULFILLMENT OF THE REQUIREMENTS FOR THE SOFTWARE ENGINEERING RECESS PROJECT BSE 2301

25TH JULY, 2018

PROJECT REPORT

For

CHART ANALYSIS WITH NSSF CUSTOMER SUPPORT DEPARTMENT

PROJECT

Version 1.0

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GROUP 23

July-25th-2018

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1. R Project is the project undertaken as a mandatory requirement for the course “**Professional Software Engineering Mini Practical Project II**” that is being conducted mutually by College of Computing and Information Sciences at Makerere University. The aim of the course is to provide a hands-on experience in building software products using R programming language.
2. In this course we have to develop a chart analysis system with NSSF customer support department. We are working as a team of 4 using GIT as our version control of the code such that we provide this project in time.

# **Introduction**

## Purpose

The document contains the overall project description. It includes where, when and what we did and the work experiences gained throughout the development of this system. The whole description of the designing phase and cost is included in the document.

## Intended Audience

This document is to be read by the project managers, the development team, the documentation writers, testers, the agency stake holders associated with manufacturing hardware and providing the necessary software and the agency shareholders to learn about the project and understand the requirements of the system.

Also the department of Networks of the College of Computing and Information Sciences (**COCIS**) at Makerere University, Marketing staff as well as anyone who intends to further develop on this project and developers, such as students.

## Scope

The chat analysis with NSSF customer support department system will analyze and visualize the chat history between the clients and the customer care department to determine problems faced by the clients and how the customer care department interacts with the clients towards helping to solve their problems. It will be based as a computer that has RStudio, a free and open source integrated development environment for R programming language installed on it together with the Shiny packages and other relevant packages.

The objective of the system is to provide a visual and statistical representation of the Chat history to the NSSF agency which will assist the agency in making operational plans, strategic planning and decision making to improve communication rate between the customer care department and the client.

## Definitions and acronyms

### Keyword Definition

|  |  |
| --- | --- |
| **Key words** | **Definition** |
| Bar graph | Is a chart or graph that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent. |
| Sentimental Analysis | It is the process of computationally identifying and categorizing opinions expressed in a piece of text, especially in order to determine whether the writer’s attitude towards a particular topic. |
| Data Analysis | it is the process of inspecting, transforming, cleansing and modelling data with a goal of discovering useful information, informing conclusion and supporting decision |
| Data visualisation | It involves the study and creation of the visual representation of data e.g. points, lines or bars contained in graphics. |
| Word cloud | It is a summary of the most commonly used words in a chart history with emphasis given to the most commonly used words. |
| R studio | It allows a user to run R in a more user-friendly environment. |
| Scores | This shows the emotions as expressed by the customers during the chat history. |
| Performance | The performance shows the percentage at which the customer support department attends to the various clients. |

|  |  |
| --- | --- |
| **Acronym** | **Definition** |
| NSSF | National Social Security Fund |
| Csv | Comma separated values |
| CAS | Chart Analysis System |

### Acronyms and Abbreviations

# **Background and Objectives**

NSSF signifies National Social Security Fund a national saving program mandated by the Ugandan government for the provision of social security facilities to workers in Uganda. It was created in 1985 with an aim of protecting employees from the unpredictability of economic and social life. Further down are benefits of NSSF in Uganda which were explicitly expressed in the Concept Paper.

* 1. **Survivor benefits**
  2. **Age benefits**
  3. **Emigration grants**
  4. **Invalidity benefits**

**Below are the Objectives of the system.**

* To analyse the email content and identify the most queried subject or what visitors complained of most.
* To get rid of inapplicable data.
* To also analyse employee efficiency because it is not the same for the different employees.
* To use this data and predict the time periods when visitors use the system most so that NSSF customer care is prepared.
* To visualize this data and based on the feedback of visitors on certain issues, NSSF can know how better to sensitize the services it offers.
* To visualize this data and know which search engines that the visitors use most to access their system.
* To also visualize this data and know where most visitors come from.

# **Organization**

## Project Manager

SSEMAKULA JULIUS is the manager of Group 23

## Project Group

|  |  |
| --- | --- |
| **Name** | **Responsibility** |
| OCIBA JAMES | Documentation, Analysis, Implementation, Designing |
| ISAAC BUYINGA NAMBAAFU | Documentation, Analysis, Implementation, Designing |
| SSEMAKULA JULIUS | Project Manager, Documentation and Review, Implementation, Designing, Analysis |
| NUWAGABA MILTON DRAKE | Documentation, Implementation, Designing, Testing |

## Supervisor

MBABAZI ISAAC

# **Milestones**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Milestone Description** | **Responsible dept./Initials** | **Finished Week** | | **Metr** | **Remarks** |
| **Start Date** | **End Date** |
| M-001 | Concept paper | All team members | **18th June** | **21st June** | y | Excellent |
| M-002 | Software requirements Specification (SRS) | All team members | **22nd June** | **28th June** | y | Good |
| M-003 | Software Design Document | All team members | **22nd June** | **28th June** | y | Good |
| M-004 | Implementation | All team members | **29th June** |  | y | Good |
| M-005 | Project report | All team members | **20th July** | **25th June** | y | Good |
| M-006 | Final presentation and Delivery | All team members |  |  | y | Good |

# **Project Results**

## Requirements

### Requirements Compliance Matrix

|  |  |  |
| --- | --- | --- |
| **Id** | **Requirement Description** | **Completed** |
| MASS-1 | Upload file | Yes |
| MASS-1.1 | System user should be able to upload a csv file containing data to analyse. | Yes |
| MASS-2 | Display information | Yes |
| MASS-2.1 | The system will display the system description | Yes |
| MASS-2.2 | The system will display summaries from the analysis on the dataset. | Yes |
| MASS-2.3 | The system will display the help options and controls to the users regardless whether the dataset is uploaded or not. | Yes |
| MASS-2.4 | The system will not display anything if the dataset is not uploaded. | Yes |
| MASS-3 | Sentiment Analysis | Yes |
| MASS-3.1 | The system should be able to show emotions for example Anger, Joy, Disgust, Anticipation, Sadness, Surprise, Fear and Trust present within the uploaded data file. | Yes |
| MASS-3.2 | The system should be able to deduce the level of a given review i.e. If a review is Negative or Positive. | Yes |
| MASS-4 | The system should be able to be display results in Visual form. | Yes |
| MASS-4.1 | The system should be able to display a wordcloud which is a summary of the most commonly used words | Yes |
| MASS-4.2 | The system should be able to display graphics of the visualised data like bar graphs. | Yes |
| MASS-4.3 | From our system we will be able to make a prediction from the visualised data uploaded from the csv files. | Yes |

### Requirements Compliance Summary

|  |  |
| --- | --- |
| Total number of Requirements | 14 |
| Number of Requirements implemented | 14 |
| Requirements partially fulfilled | 0 |
| Requirements not fulfilled | 0 |
| Requirements dropped | 0 |

# **Project Experiences**

## Positive Experiences

The main experience we learn from this Recess Term is to work as a team. We also learnt how to use Version control software such as Git Hub and other new software such R studio as the Integrated Development Environment.

## Improvement Possibilities

We have experience that if we organize our resources according to the requirements then we can make the project more successful.

# **Financials**

## Project Cost summary

|  |  |
| --- | --- |
| **Item** | **Cost** |
| Printing and compact disc copies | 30,000 UGX |
| Internet | 20,000 UGX |

# **Metrics**

## Milestone metrics

|  |  |  |
| --- | --- | --- |
| Completed as planned or earlier | Total | Timeliness |
| 14 | 14 | Achieved |

## References

Books [1] Gary B Sherry, Harry J Rosenblatt, System analysis and design ninth edition, Library of -8,ISBN-10: 0-538-481617,Course Technology, 20 Channel Centre Street, Boston, MA 02210, US

<https://nssfug.org>