Software Requirements Specification

For

WhatsApp Data Analysis With R programming

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1 Introduction

1.1 Purpose

The purpose of this document is to present requirements for a detailed data analysis based on conversations made with a WhatsApp chat platform using R programming with the aid RStudio IDE. It will explain and give analysis of peoples feelings expressed while communicating with others via the chat application and this will be carried using a history of a group chat and a chat conversation between two individuals that use the platform.

1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents

1.3 Intended Audience and Reading Suggestions

1. Typical Users, such as students, who want to use the data analysis for study purposes.

2. Advanced/Professional Users, such as researchers, who want to use the data analysis for more demanding research works

1.4 Study Scope

The study will mainly focus on two types of chat conversations, one-to-many chat conversation which is also known as a group chat conversation and a chat that is between two individuals that use the platform. The study will provide both quantitative and visual analysis using objects like graphs and other visual representations. The study will go on to portray the most used type of communication among members that make up a WhatsApp group and as well as between two individuals.

References

[1] K. Willems, "This r data import tutorial is everything you need," jul 2015.

[2] Jovial, "Exploratory data analysis with r," jul 2014.

2 Overall Description

2.1 Product Perspective

Data and analytics is part of Bachelor of Science in software Engineering training done at every for every recess term of second year of this course. This year analysis of WhatsApp data is the task done as part of this training. This analytic study is dependent on R programming language[1]. Different R packages will be used according the needs.[2]

2.2 Product Functions

2.2.1 Main Function

1. The analysis shall give different visual representations of the data as supported by Rstudio.

2. The analysis shall give quantitative results of graphical representations of the most used type of communication used in a group chat by the group members.

3. The analysis shall give quantitative results of graphical representations of the time at which the group members are mostly active.

4. The analysis shall give quantitative results of graphical representations of the total number of messages in a chat conversation.

5. The analysis shall give emotions analysis basing on the messages in a both a one to one type of conversation and a one to many type of conversation (group chat) .

2.2.2 Other functions

1. The analysis shall give clear differences between a one to many conversation (group chat) and a one to one conversation. These differences shall mainly base on;

2. The most used type of communication

3. The times of being active while using the WhatsApp application

2.3 User Classes and Characteristics

1. Typical Users, such as students, who want to use the data analysis for study purposes

2. Advanced/Professional Users, such as researchers, who want to use the data analysis for more demanding research works

2.4 Operating Environment

1. Operating system (Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10, Mac OS X, Linux)

2. R platform.

2.5 Design and Implementation Constraints

The data analysis will be done using R programming with Rstudio that is actually supported by most of the operating systems such as Windows 10, 7, 8, Linux operating system.

In order for one to use R programming, they first install R platform, then install R studio and lastly be able to import all the necessary packages required for operation.

The data that will be used will be a history chat conversation of a certain WhatsApp group and another set of data to be used will be the chat history between the chosen two individuals.

2.6 User Documentation

A user manual will be developed and it will be hosted on internet alongside the developed blog of the data analysis where it will be accessed and this user manual will be printable and available to anyone in need of the study.

2.7 Assumptions and Dependencies

The data analysis will be performed using Rstudio and so it requires one to install Rstudio on their personal computers together with any of the listed operating systems that were specified earlier. This will also require the user to learn basics of R programming.

3 External Interface Requirements

3.1 Hardware Interfaces

The minimum hardware requirements of the data analysis using R programming are:

1. **500 Megahertz CPU**
2. **128 megabytes of RAM**
3. **10 gigabytes of hard disk storage space**
4. R studio uses mostly graphical and other visual representations consequently, **a compatible graphics card** is required.

3.2 Software Interfaces

For data analysis using R programming, one needs to first install R platform and later install Rstudio the integrated development Environment and lastly the packages that will support the user operations.

3.3 Communications Interfaces

In order to carry out the data analysis Rstudio might require an internet connection to install new plugins, update already installed ones and update some of its components (For instance: APIs, modules)

4 System Features

This section demonstrates WhatsApp data analysis most prominent features and explains how they can be used and the results they will give back to the user.

4.1 Functional Requirements

REQ-1	This analytic study shall require sentimental analysis of the WhatsApp data.
REQ-2	This analytic study shall require a word cloud of whatsApp data
REQ-3	This analytic study shall find what type of communication media people prefer the most on WhatsApp chat.
REQ-4	This analytic study shall find the most active day of the week.
REQ-5	This analytic study shall find which age group participants are most active on WhatsApp groups and number of messages sent by each age group participant per month, day and hour.
REQ-6	This analytic study shall find whether males are more addicted to WhatsApp or females.
REQ-7	This analytic study shall find the total number of messages sent as per time stamp.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

1. This analytic study requires that the analyst acquires at least 2 Cores, 2.8-3.0 GHz each (2.8 GHz minimum speed) and 200GB RAM.

2. Operating System Windows 10 64 bit.

3. Install R platform, R studio(any version).

Appendix A: Glossary

Definitions, acronyms, and abbreviations

Term	Description
API	application programming interface
IDE	Integrated Development Environment
IEEE	Institute of Electric and Electronic Engineering
Internet	A collection of computers, and software networked
Programming Language	A set of rules and tools required to make computer programs
R Package	Helper program written to extend functionality of R programming language.
R Script	Document that contains R code or instructions. Interpretable by the R engine.
SDLC	software Development Life Cycle
SRS	Software Requirements Specification
Windows	Operating System by Microsoft corporation