  
   
Software Requirements   
 Specification (SRS)

BabbleBot

Version 1.0

Prepared by:

Group 6

Mad DJs

|  |  |  |
| --- | --- | --- |
| * Morgan McKeithan |  | mckeithanm15@students.ecu.edu |
| * Ashley Fraley |  | <e-mail> |
| * Jeremiah Smith |  | <e-mail> |
| * Eric Sengmany |  | <e-mail> |
| * Daehan Barnes |  | <e-mail> |

|  |  |
| --- | --- |
| Instructor: | Dr. Kamran Sartipi |
| Course: | CSCI 3030 (Software Engineering I) |
| Date: | 10/02/2017 |

Contents

Revisions iii

1 Introduction 1

1.1 Document Purpose 1

1.2 Product Scope 1

1.3 Intended Audience and Document Overview 1

1.4 Definitions, Acronyms and Abbreviations 1

1.5 Document Conventions 1

1.6 References and Acknowledgments 2

2 Overall Description 3

2.1 Product Perspective 3

2.2 Product Functionality 3

2.3 Users and Characteristics 3

2.4 Operating Environment 3

2.5 Design and Implementation Constraints 4

2.6 User Documentation 4

2.7 Assumptions and Dependencies 4

3 Specific Requirements 5

3.1 External Interface Requirements 5

3.2 Functional Requirements 6

3.3 Behaviour Requirements 6

4 Other Non-functional Requirements 7

4.1 Performance Requirements 7

4.2 Safety and Security Requirements 7

4.3 Software Quality Attributes 7

5 Other Requirements 8

Appendix A – Data Dictionary 9

Appendix B - Group Log 10

Revisions

| Version | Primary Author(s) | Description of Version | Date Completed |
| --- | --- | --- | --- |
| Draft Type and Number | Full Name | Information about the revision. This table does not need to be filled in whenever a document is touched, only when the version is being upgraded. | 00/00/00 |

# *<In this template you will find text bounded by the “<>” symbols. This text appears in italics and is intended to guide you through the template and provide explanations regarding the different sections in this document. There are two types of comments in this document. These comments that are in black are intended specifically for that course. These comments that are in blue are more general and apply to any SRS. Please, make sure to delete all of the comments before submitting the document.*

# *The explanations provided below, do not cover all of the material, but merely, the general nature of the information you would usually find in SRS documents. It is based on the IEEE requirements and was adapted specifically for the needs of Software Engineering courses. Most of the sections in this template are required sections, i.e. you must include them in your version of the document. Failure to do so will result in marks deductions. Optional sections will be explicitly marked as optional. If you have any questions regarding this document please refer to the MiniThermostat SRS example on the course web-site.>*

# Introduction

*BabbleBot is a machine-learning chat bot that answers educational questions. In this section the reader will get a brief overview of BabbleBot along with an overview of this documents and terminology that will be used.*

## Document Purpose

The software requirements of BabbleBot 1.0 are specified in this document. All subsystems of Babble Bot will be introduced and described.

## Product Scope

The software being specified in this document will respond to user inquiries in regard to educational questions. It will be beneficial in helping to answer questions that users happen to have in regard to simple to average Math questions or English sentence structure questions.

## Intended Audience and Document Overview

This document is intended for the client of our system as well as Dr. Sartipi and his reviewers. The remainder of this Software Requirements Specification documents contains specific details regarding our system and how it should be implemented and used. Section 1 provides an overall view of the purpose of this document and a very short look at what our program will entail. Section 2 goes into the details of our project, including the functions and intended users of the program. Section 3 takes an even deeper look into our project by looking at the software and hardware sides. Section 4 discusses performance requirements of our project, safety and security measures, and other non-functional requirements. In order to understand uncommon language or acronyms used in this document, one should refer to section 1.4 Definitions - Acronyms and Abbreviations. To view the functions that our program performs, one should refer to section 2.2 – Product Functionality. To see the intended users of our program, refer to section 2.3.

## Definitions, Acronyms and Abbreviations

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.

TO DO: Please provide a list of all abbreviations and acronyms used in this document sorted in alphabetical order.>

## Document Conventions

<In general this document follows the IEEE formatting requirements. Use Arial font size 11, or 12 throughout the document for text. Use italics for comments. Document text should be single spaced and maintain the 1” margins found in this template. For Section and Subsection titles please follow the template.

TO DO: Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. Sometimes, it is useful to divide this section to several sections, e.g., Formatting Conventions, Naming Conventions, etc.>

## References and Acknowledgments

<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document.

TO DO: Use the standard IEEE citation guide for this section. An example citation guide is posted for you on the website.>

# Overall Description

## Product Perspective

<Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. In this part, make sure to include a simple diagram that shows the major components of the overall system, subsystem interconnections, and external interface. In this section it is crucial that you will be creative and provide as much information as possible.

TO DO: Provide at least one paragraph describing product perspective. Provide a general diagram that will illustrate how your product interacts with the environment and in what context it is being used.>

## Product Functionality

* Website – Babblebot will be showcased on an aesthetically pleasing platform in order to capture user attention and allow for easier searching.
* Accepting User Input - whether it be the query or adding queries/responses to the database, BabbleBot will read in user input and further analyze it.
* Analyze Queries – BabbleBot will look at each portion of the given query in order to analyze sentence structure to add to its database and to reach an appropriate response.
* Formulate Responses – BabbleBot will use its knowledge to provide an appropriate response to the user.
* Perform arithmetic – BabbleBot can solve math problems inputted by the user.
* Explain Sentence Structure – BabbleBot can analyze sentence structure and explain it to a user of our program.
* Send Responses – BabbleBot will respond to user in designated space.

## Users and Characteristics

<Identify the various users that you anticipate will use this product. Users may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience.

TO DO:

1. Describe the pertinent characteristics of each user. Certain requirements may pertain only to certain users.

3. Distinguish the most important users for this product from those who are less important to satisfy.>

## Operating Environment

The environment will work on any internet enabled browser to which no other components is needed, as it would connect to a website that this would be hosted on, this is the requirements to access it. In reference to where it would be hosted at, the code and software will be on an website and server to hold all of this thus, which will be connected to the user on their internet browser, and the website hosting this would need to have a sufficient bandwidth and able to properly handle large amounts of responses and process at once so that everything can run properly and smoothly.

## Design and Implementation Constraints

5 constraints would be:

1. Internet Access
2. Knowledge and ability to type in the English language.
3. Storage limit on learned words and phrases with a minimum of a gigabyte
4. Requires a database of common words, and their grammatical meanings
5. For programming standards, the code will not be nested in each other and will be broken up into parts so that they may function individually.

## User Documentation

On-line help will be provided to users in the form of on-screen instructions on the home page of our website, this would also include a troubleshooting section incase that any problems should arise as well. So the given manuals will, be the set up tutorial, how it works and it’s algorithm, and trouble shooting help upon encountering an error.

## Assumptions and Dependencies

Some assumed factors are that the database if it becomes full or overloaded will automatically de-load the least uses words/phrases. Dependency on internet connection as well as on the website that would be hosting said database and server, there fore if there were too many users at once it would cause a delay and latency upon the AI that would slow it down massively, there fore there will be a limit on the amount that this can handle at once or a que to which each query will be handled if access from several different points such that it could effectively handle large amounts of users at once. So for the time being until this is finalized the baseline assumption should be no more then 10 due to the limitations of the software used.

# Specific Requirements

## External Interface Requirements

### User Interfaces

<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., Cancel) that will appear on every screen, error message display standards, and so on. Define the software components for which a user interface is needed.

TO DO: The least you can do for this section is to describe in words the different User Interfaces and the different screens that will be available to the user. Those who will be able to provide optional Graphical User Interface screenshots, will be rewarded by extra marks.>

### Hardware Interfaces

<Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware. You are not required to specify what protocols you will be using to communicate with the hardware, but it will be usually included in this part as well.

TO DO: Please provide a short description of the different hardware interfaces. If you will be using some special libraries to communicate with your software mention them here. In case you have more than one hardware interface divide this section into subsections.>

### Software Interfaces

<Describe the connections between this product and other specific software components (name and version), including databases, operating systems (Windows? Linux? Etc…), tools, libraries, and integrated commercial components. Identify the data items or messages coming into the system and going out and describe the purpose of each. Describe the services needed and the nature of communications. Identify data that will be shared across software components. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), specify this as an implementation constraint.

TO DO: The previous part illustrates some of the information you would usually include in this part of the SRS document. To make things simpler, you are only required to describe the specific interface with the operating system.>

### Communications Interfaces

<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms.

TO DO: Do not go into too much detail, but provide 1-2 paragraphs were you will outline the major communication standards. For example, if you decide to use encryption there is no need to specify the exact encryption standards, but rather, specify the fact that the data will be encrypted and name what standards you consider using. >

## Functional Requirements

*< Functional requirements capture the intended behavior of the system. This behavior may be expressed as services, tasks or functions the system is required to perform. This section is the direct continuation of section 2.2 where you have specified the general functional requirements. Here, you should list in detail the different product functions with specific explanations regarding every function.*

*TO DO: Brake the functional requirements to several functional areas and divide this section into subsections accordingly. Provide a detailed list of all product operations related to these functional areas.*

## Behaviour Requirements

### Use Case View

<A use case defines a goal-oriented set of interactions between external actors and the system under consideration. Since sometimes we will not be able to specify completely the behaviour of the system by just State Diagrams, we use use-cases to complete what we have already started in section 3.3.1.

TO DO: Provide a use case diagram which will encapsulate the entire system and all possible actors. Do not include detailed use case descriptions (these will be needed when you will be working on the Test Plan), but make sure to include a short description of what every use-case is, who are the actors in your diagram. For more information please refer to your UML guide and the MiniThermostat SRS example file.>

# Non-functional Requirements

## Performance Requirements

<If there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features.

TODO: Provide at least 5 different performance requirements based on the information you collected from the client. For example you can say “1. Any transaction will not take more than 10 seconds, etc…>

## Safety and Security Requirements

<Specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product’s design or use. Define any safety certifications that must be satisfied. Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements.

TODO:

* Provide at least 3 different safety requirements based on your interview with the client or, on your related research about the project, and again you need to be creative here.
* Describe briefly what level of security is expected from this product by your client and provide a bulleted (or numbered) list of the major security requirements.>

## Software Quality Attributes

<Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.

TODO: Use subsections (e.g., 4.3.1 Reliability, 4.3.2 Portability, etc…) provide requirements related to the different software quality attributes. Base the information you include in these subsections on the material you have learned in the class. Make sure, that you do not just write “This software shall be maintainable…” Indicate how you plan to achieve it, & etc… Do not forget to include such attributes as the design for change. Please note that you need to include at least 2 quality attributes, but it is the mere minimum and it will not receive the full marks.>

# Other Requirements

<This section is **Optional.** Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>

Appendix A – Data Dictionary

*<Data dictionary is used to track all the different variables, states and functional requirements that you described in your document. Make sure to include the complete list of all constants, state variables (and their possible states), inputs and outputs in a table. In the table, include the description of these items as well as all related operations and requirements.>*

Appendix B - Group Log

<Please include here all the minutes from your group meetings, your group activities, and any other relevant information that will assist the Teaching Assistant to determine the effort put forth to produce this document>

GroupMe discussion – September 25, 2017: discuss final decisions on additional two functions to be included in project

Group Meeting – September 27, 2017: agree on overall details to be discussed in each section and subsection. Assign subsections to be completed by each group member.

Group Meeting – September 29, 2017: review subsections written by each group member. Provide input from all group members and edit.

GroupMe Discussion – October 2, 2017: discuss final submission and talk about any last-minute edits that need to be completed before submission.