**Executive Summary**

This program will be a very basic chat bot. Essentially it will simulate very basic Artificial Intelligence (AI) through interaction with the user. The program will accept input in the form of grammatically correct English and respond appropriately—also in English.

The program will utilize dictionary files to detect words and determine the part of speech they belong to. (i.e. noun, verb, article, etc.) It will then attempt to construct a comprehensible sentence by analyzing how those parts of speech should interact based on a set of rules.

The program will then attempt to construct an appropriate response to the user’s input. It will use the words received from the user as well as words in its dictionary files to formulate a response in the form of a statement or question related to the user input.

The program will not be required to handle incorrect grammar, slang, profanity, obscure vocabulary or non-English words. Once the minimum requirements are met adding that functionality is optional.

**Scope and Purpose**

The scope is very simple to explain, and small compared to more intelligent chat bots. We only need it to accept English statements that are grammatically correct and respond. The responses don’t have to be dynamic or highly intelligent. They will simply comment on or ask a question about something the user has said. It will than repeat this process until the user ends the conversation.

The purpose of this project is to process natural language and respond. We would like to eventually see a program that can have a very eloquent and intelligent conversation with anyone, but because of the scope, we will stick to responding with sentences that make sense. We want the user to have a conversation with our chat bot without confusing them, even if it is a simple conversation.

**Limitations and Exclusions**

Our program will be much more limited than we would have hoped because of time. There are things we would like to implement, but will most likely have to exclude. These are: remembering new words that are not stored in the dictionary files for later, decipher unknown words base on context, interacting through a GUI, detecting errors in spelling and grammar, and conjugating words. These are ambitious goals and we would like to implement them if possible.

**Requirements**

* Must accept a sentence from the user
* Must detect parts of speech
* Must respond with a relevant statement or question
* Must at least interact through the console
* Must tell the user when it doesn’t understand

**References and Appendices**

Joshua Holzworth

The Alchemy of Computational Theory by Steve Halladay

Steve Halladay