# CREATING A SPEECHWEB APPLICATION

## SpeechWeb Developers Manual Version 06/08

## Category QI/AO

This manual has been written to help developers create a SpeechWeb application of category QI/AO

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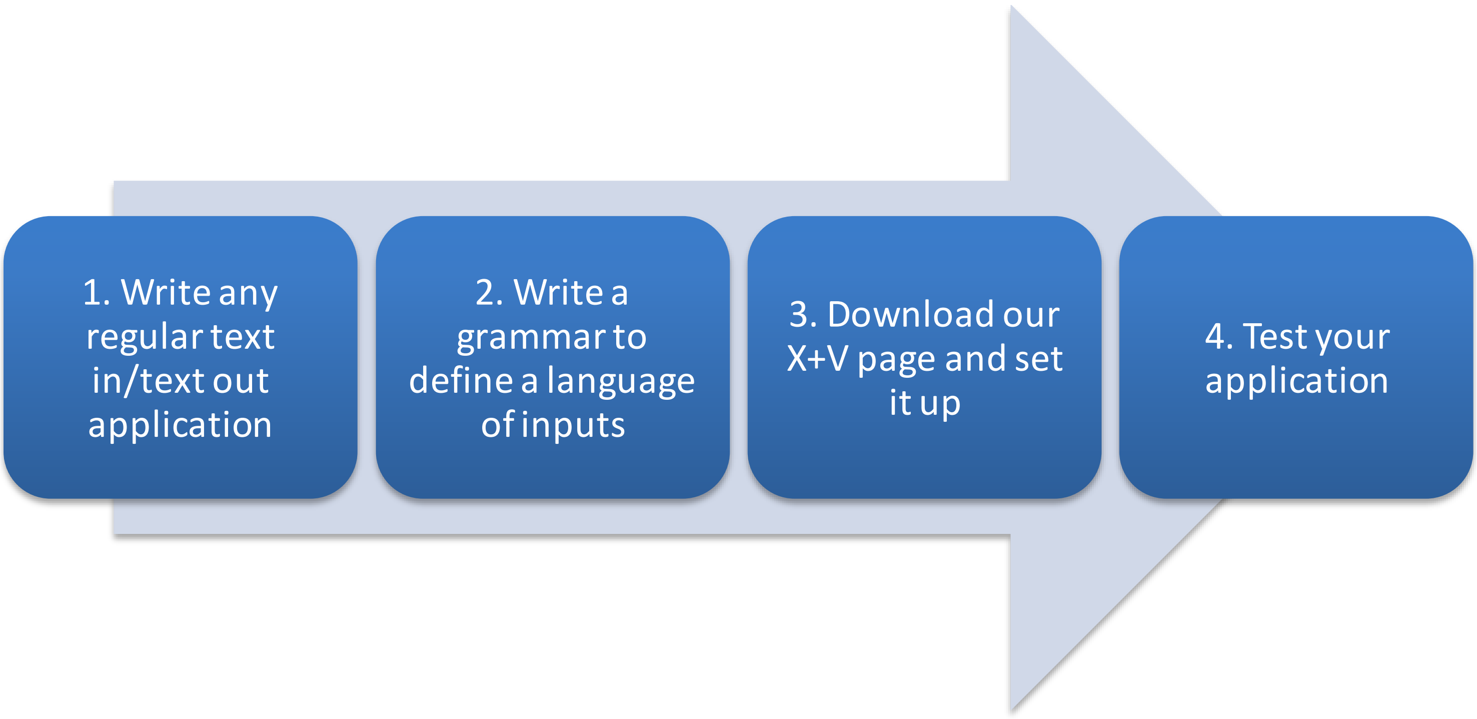
# CREATING A SPEECHWEB APPLICATION CATEGORY QI/AO

## Introduction

There are many categories of SpeechWeb applications. This document gives instructions on how to create a SpeechWeb application of category QI/AO (Question In/Answer Out). Other documentation for other categories is available on the SpeechWeb developers' webpage [1].

## The Process

In this manual, we give instructions on how to create a complete SpeechWeb application. The process is as simple as creating a regular text in/text out application with a little bit more work involved for expanding your application to a SpeechWeb application.



1. Write any regular text in/text out application

2. Write a grammar to define a language of inputs

3. Download our X+V page and set it up

4. Test your application

## 1. Write any regular text in/text out application

To make a SpeechWeb application, you would need a typical text in/text out application. That is an application that takes a string as input and returns a string output as a response to the input. Such an application can be written in any programming language and could be about anything as long as it can take an input string and respond with a string. Only one thing to mention out is that the input string coming from the X+V page will be in the form “question=Input string”, so there are 9 characters “question=” that are added to the original string by the X+V page.
Example SpeechWeb applications written in different programming language can be found in Useful Links [1].

## 2. Write a grammar to define a language of inputs

Speech recognition systems provide computers with the ability to listen to user speech and determine what is said. Current technology does not yet support *unconstrained* speech recognition: the ability to listen to any speech in any context and transcribe it accurately. To achieve reasonable recognition accuracy and response time, current speech recognizers constrain what they listen for by using *grammars*.[1]

Therefore, any SpeechWeb application has to have a grammar. The Java Speech Grammar Format (JSGF) is currently used in all of our SpeechWeb applications as a rule grammar. A rule grammar specifies the types of *utterances* a user might say (a spoken utterance is similar to a written sentence).

Defining a rule grammar is fairly simple, we have a created an interactive tool to help you create a simple grammar, the tool is available on the developers webpage [1], there are also more sophisticated grammars [1] and a link to a document on how to write rule grammars in Useful Links [3].

## 3. Download our X+V page and set it up

This is the simplest part of the process:

1) Go to the SpeechWeb developers webpage [1]
2) Click on download X+V page
3) Open the X+V page and modify the following three variables (marked with a lot of stars in the page):
   a) The greeting at REFERENCE #2, this is said when you first open your application
   b) The link to the grammar file that you wrote at REFERENCE # 3
   c) The link to the .cgi file at REFERENCE # 1. The cgi file can be the executable for your application renamed with a .cgi extension or it can be a written cgi script to run your program. Links to some example cgi scripts can be found in the Useful Links [2].

4) Save and close the X+V page. Rename as *name_of_your_application.xml*

[1] Introduction taken from: http://java.sun.com/products/java-media/speech/forDevelopers/JSGF/JSGF.html#11803

## 4. Test your application

After you have completed setting up the X+V page, upload to a web server the following components: the grammar file, the cgi program, the executable program (if needed) and the X+V page. Make sure that the links in the X+V page refer to your files at the correct location(s) and that the permission mode is set to 755 for all the files.

Your SpeechWeb application should be ready to test. You can test your application by using the Opera 9.27 browser (installed on your Windows XP) to go to the X+V page and start talking your application. If you encounter any problems while testing your application, you can go to the troubleshooting section on the SpeechWeb developers' webpage [2].

## Useful Links

[1] The developers' webpage is at: http://cs.uwindsor.ca/~speechweb/developers.html
The page includes documentation for all the SpeechWeb applications developed by the SpeechWeb project team members. The applications are written in different programming languages. The documentation for each application contains links to the code and the grammar; it also contains useful information to help developers create similar application.

[2] The SpeechWeb developers webpage is at:
http://cs.uwindsor.ca/~speechweb/developers.html
The SpeechWeb website is at:
http://www.myspeechweb.org

[3] A document on how to write rule grammars provided by Sun Developer Network (SDN):
http://java.sun.com/products/java-media/speech/forDevelopers/JSGF/JSGF.html#11803
Simple rule grammars written using JSGF:
http://cs.uwindsor.ca/~speechweb/p_d_speechweb/judy/judy.jsgf
http://cs.uwindsor.ca/~speechweb/p_d_speechweb/monty/monty.jsgf
More sophisticated rule grammars written using JSGF:
http://cs.uwindsor.ca/~karabi/andros/andros.jsgf
http://cs.uwindsor.ca/~dufour11/PeTE/PeTE.jsgf
http://cs.uwindsor.ca/~karabi/geoman/geoman.jsgf