ChatBot Technology to Support the Acquisition of Active Listening Skills

Overview
The task of this project was to develop a chatbot. The chatbot should be able to interface with a user on a website that supports conversations that are 3-5 minutes in length. It should be able to play out multiple different scenarios which are learned through an administrative site. The administrative site should allow the admin to add/edit/remove scenarios to improve the performance of the chatbot.

Objectives
- The user and admin site must be user-friendly.
- The code must be modular to ensure that future improvements can be easily made.
- The chatbot must reply appropriately to the user.

Approach
- Gathered details for the use of this chatbot
  - Chatbot will be replacing/augmenting 3-5 minute student to student role-plays.
  - This led to the need to create a retrieval-based chatbot with pre-scripted responses to questions rather than a generative-based chatbot.
- Chose to write our own a.i. rather than using a web service such as Watson because of the added flexibility.
- Decided on a Naive Bayes classifier to use for the a.i because it doesn’t require a lot of data to perform well.
- Decided on using Python to develop the project due to its rich libraries.
- Used Flask framework to support the user and admin websites.
- Stored scenario data by using MongoDB because of ease of use and compatibility with Python.
- Extensively planned out how the components will work together (database, user site, admin site, scenario objects)
- Used documentation for Python, Flask and MongoDB to properly develop the program.
- Wrote clean and well documented code to ensure future improvements are easy to make.
- Performed testing to ensure the components all link up correctly.
- Completed a mockup of a finished project, and made changes to it based on the sponsor’s needs.
- After sponsor was satisfied with the product, we sent the project to the server admin to install the system for use.

Outcomes
- User site which provides an interface to chat with the bot along with other useful information about the scenario.
- Chatbot is very accurate in our testing.
- Admin site which provide administrator with the ability to add/edit/remove Scenario objects.
- Scenario object includes example dialog, name, description, image, and youtube video.
- The system is in the process of being deployed on a server and then will be ready to be used in our sponsor’s research on the effectiveness of chatbot technology to teach pre-service professionals active listening skills.