

Assignment 10 – Chatbot Project

Human Language Technologies

CS 4395.001

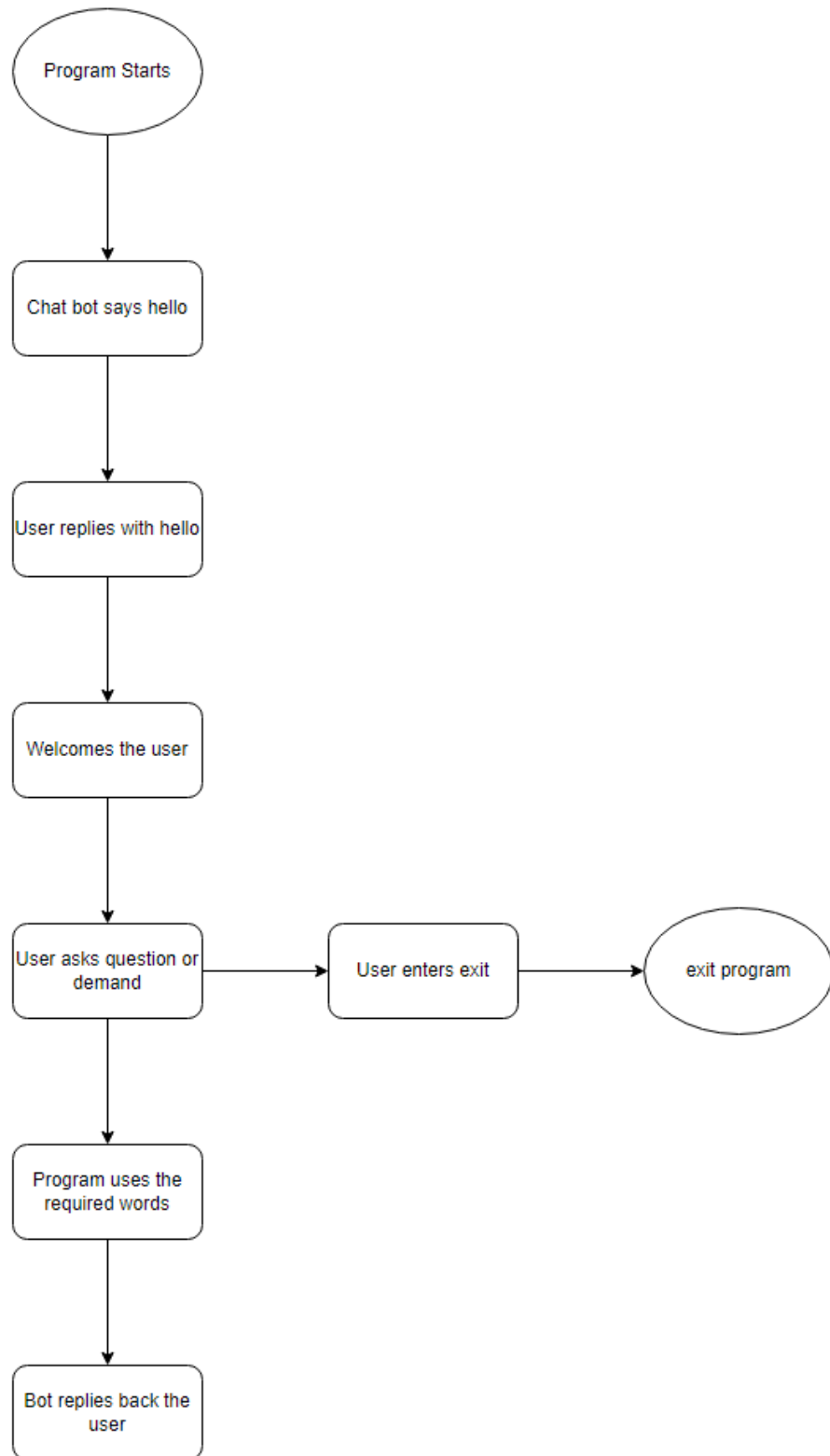
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## **System Description**

For The chatbot, I decided to create my own chatbot system instead of using a preexisting one like the one that were provided on the PDF. This is because I've done something similar to this before using Intents (required\_words and response). The bot accepts the users input and uses keyword that the user specifies. The program then uses those specific words and the Chatbot replies back with a question or a statement for the user.

The chatbot utilizes Stemming, tokenizing and lemmatizing. This allows the program to be able to break up the user input. Then it gets POS tagged. Pos tagged because there are going to be many nouns and verbs that have the same form. So This would allow it to be distinguished a lot easier and faster.

I made this bot so It can tell use about the US geography is that it will tell the user the city and state with the population and etc. When a user inputs a city it would reply back the state that it correlates to. The bot will also remember the user's input and saves it and if the user comes back the bot will remember and displays the user favorite city the user has visited. When a user ask the bot "Where should I go next?" The bot will pick a random place and the bot will reply with a city and state for the user.



## Sample

```
ChatBot: Hello, My name is ChatBot
You: Hello
ChatBot: Hi, What is your name?
You: My name is Ethan
```

Below 2: Shows user favorite city they visit

```
ChatBot: Hello, My name is ChatBot
You: Hello
ChatBot: Hi, What is your name?
You: My name is SAM
ChatBot: How may I help you SAM ?
You: My favorit city to visit is Las Vegas
ChatBot: This is also my favorite city
You: |
```

```
ChatBot: Hello, My name is ChatBot
You: Hello
ChatBot: Hi, What is your name?
You: My name is Ethan
ChatBot: Nice to see you again, Ethan ... What do you need help with?
ChatBot: Your favorite city is Los Angeles
You: |
```

Below: Give the user a random city and information about that city

```
You: random
ChatBot: Here is a Random City you could visit:
      city city_ascii state_id state_name  county_fips county_name \
11530 Pikeville Pikeville      TN  Tennessee      47007      Bledsoe

      lat      lng  population  density   source  military  incorporated \
11530  35.6027 -85.1984      1741      275  polygon     False           True

      timezone  ranking   zips      id
11530  America/Chicago      3  37367  1840014532
You:
```

```

ChatBot: Hello, My name is ChatBot
You: Hello
ChatBot: Hey, What is your name?
You: My name is Ethan
ChatBot: Nice to see you again, Ethan ... What do you need help with?
ChatBot: Your favorite city is Los Angeles
You: random
ChatBot: Here is a Random City you could visit:
      city  city_ascii state_id state_name  county_fips county_name \
22406  St. Hilaire  St. Hilaire      MN  Minnesota      27113  Pennington

      lat    lng  population  density   source  military  incorporated \
22406  48.0135 -96.2137      264     130  polygon    False        True

      timezone  ranking  zips      id
22406  America/Chicago      3  56754  1840008826
You: Thanks
ChatBot: You are welcome.
You: |

```

Below: Give the user with a city of their choosing and information about that city

```

You: cit Dallas
ChatBot: The state of this city is:
      city  city_ascii state_id  state_name  county_fips county_name \
7755  Dallastown  Dallastown      PA  Pennsylvania      42133      York

      lat    lng  population  density   source  military  incorporated \
7755  39.8996 -76.641      3857     1912  polygon    False        True

      timezone  ranking  zips      id
7755  America/New_York      3  17313  1840001439
You: |

```

Below: User quits the program

```

ChatBot: Hello, My name is ChatBot
You: Hello
ChatBot: Hey, What is your name?
You: My name is Ethan
ChatBot: Its good To talk to you again, Ethan ... What would you like to know this time?
ChatBot: Your favorite city is San Diego
You: exit
ChatBot: See you next time!

```

## Knowledge Base

```
"city","city_ascii","state_id","state_name","county_fips","county_name","lat","lng","population","density","source","military","incorp
New York","New York","NY","New York","36061","New York","40.6943","-73.9249","18713220","10715","polygon","FALSE","TRUE","America/New
Los Angeles","Los Angeles","CA","California","06037","Los Angeles","34.1139","-118.4068","12750807","3276","polygon","FALSE","TRUE","
Chicago","Chicago","IL","Illinois","17031","Cook","41.8373","-87.6862","8604203","4574","polygon","FALSE","TRUE","America/Chicago","1
Miami","Miami","FL","Florida","12086","Miami-Dade","25.7839","-80.2102","6445545","5019","polygon","FALSE","TRUE","America/New_York",
Dallas","Dallas","TX","Texas","48113","Dallas","32.7936","-96.7662","5743938","1526","polygon","FALSE","TRUE","America/Chicago","1",
Philadelphia","Philadelphia","PA","Pennsylvania","42101","Philadelphia","40.0077","-75.1339","5649300","4554","polygon","FALSE","TRUE
Houston","Houston","TX","Texas","48201","Harris","29.7863","-95.3889","5464251","1399","polygon","FALSE","TRUE","America/Chicago","1"
Atlanta","Atlanta","GA","Georgia","13121","Fulton","33.7627","-84.4224","5449398","1441","polygon","FALSE","TRUE","America/New_York",
Washington","Washington","DC","District of Columbia","11001","District of Columbia","38.9047","-77.0163","5379184","4457","polygon",
Boston","Boston","MA","Massachusetts","25025","Suffolk","42.3188","-71.0846","4688346","5532","polygon","FALSE","TRUE","America/New_Y
Phoenix","Phoenix","AZ","Arizona","04013","Maricopa","33.5722","-112.0891","4219697","1253","polygon","FALSE","TRUE","America/Phoenix
Seattle","Seattle","WA","Washington","53033","King","47.6211","-122.3244","3789215","3469","polygon","FALSE","TRUE","America/Los_Ange
San Francisco","San Francisco","CA","California","06075","San Francisco","37.7562","-122.4430","3592294","7256","polygon","FALSE","TR
Detroit","Detroit","MI","Michigan","26163","Wayne","42.3834","-83.1024","3506126","1864","polygon","FALSE","TRUE","America/Detroit",
San Diego","San Diego","CA","California","06073","San Diego","32.8312","-117.1225","3220118","1686","polygon","FALSE","TRUE","America
Minneapolis","Minneapolis","MN","Minnesota","27053","Hennepin","44.9635","-93.2678","2977172","3071","polygon","FALSE","TRUE","Americ
Tampa","Tampa","FL","Florida","12057","Hillsborough","27.9942","-82.4451","2908063","1353","polygon","FALSE","TRUE","America/New_York
Denver","Denver","CO","Colorado","08031","Denver","39.7621","-104.8759","2876625","1831","polygon","FALSE","TRUE","America/Denver","1
Brooklyn","Brooklyn","NY","New York","36047","Kings","40.6501","-73.9496","2559903","14221","polygon","FALSE","TRUE","America/New_Yor
Queens","Queens","NY","New York","36081","Queens","40.7498","-73.7976","2230722","7885","polygon","FALSE","TRUE","America/New_York",
Riverside","Riverside","CA","California","06065","Riverside","33.9381","-117.3948","2107852","1574","polygon","FALSE","TRUE","America
Baltimore","Baltimore","MD","Maryland","24510","Baltimore","39.3051","-76.6144","2106068","2830","polygon","FALSE","TRUE","America/Ne
Las Vegas","Las Vegas","NV","Nevada","32003","Clark","36.2333","-115.2654","2104198","1773","polygon","FALSE","TRUE","America/Los_Ang
Portland","Portland","OR","Oregon","41051","Multnomah","45.5372","-122.6500","2074775","1894","polygon","FALSE","TRUE","America/Los_A
San Antonio","San Antonio","TX","Texas","48029","Bexar","29.4658","-98.5253","2049293","1231","polygon","FALSE","TRUE","America/Chica
St. Louis","St. Louis","MO","Missouri","29510","St. Louis","38.6358","-90.2451","2024074","1879","polygon","FALSE","TRUE","America/Ch
```

## Evaluation

1. Chatbot was able to identify favorite city to visit

Average Score: 3

Feedback: Could be have an easier way of

2. Chatbot gave random city to visit

Average Score: 4

Feedback:

3. Chatbot was able to give me city and state

Average Score: 3.5

Feedback: "Bot was not always able to understand what I was trying to ask"

4. Chatbot was able to remember who I was

Average Score: 5

Feedback: "The required\_word could be better in that could use others instead of just name"

5. Chatbot was able to give me the population of certain city

Average Score: 4

Feedback: