FUTURE
UNIVERSITY IN EGYPT
جامعة المستقبل

Voice Translator (English-Arabic)

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Problem Definition:

When anyone wants to translate any word he will take the word to the dictionary and write it to get the result, but when you want to translate a voice word IMMEDIATELY, this will be hard. So we created a ‘beta’ version or voice translator to help people to translate voice notes or translate conversation faster and in any where, just speak .

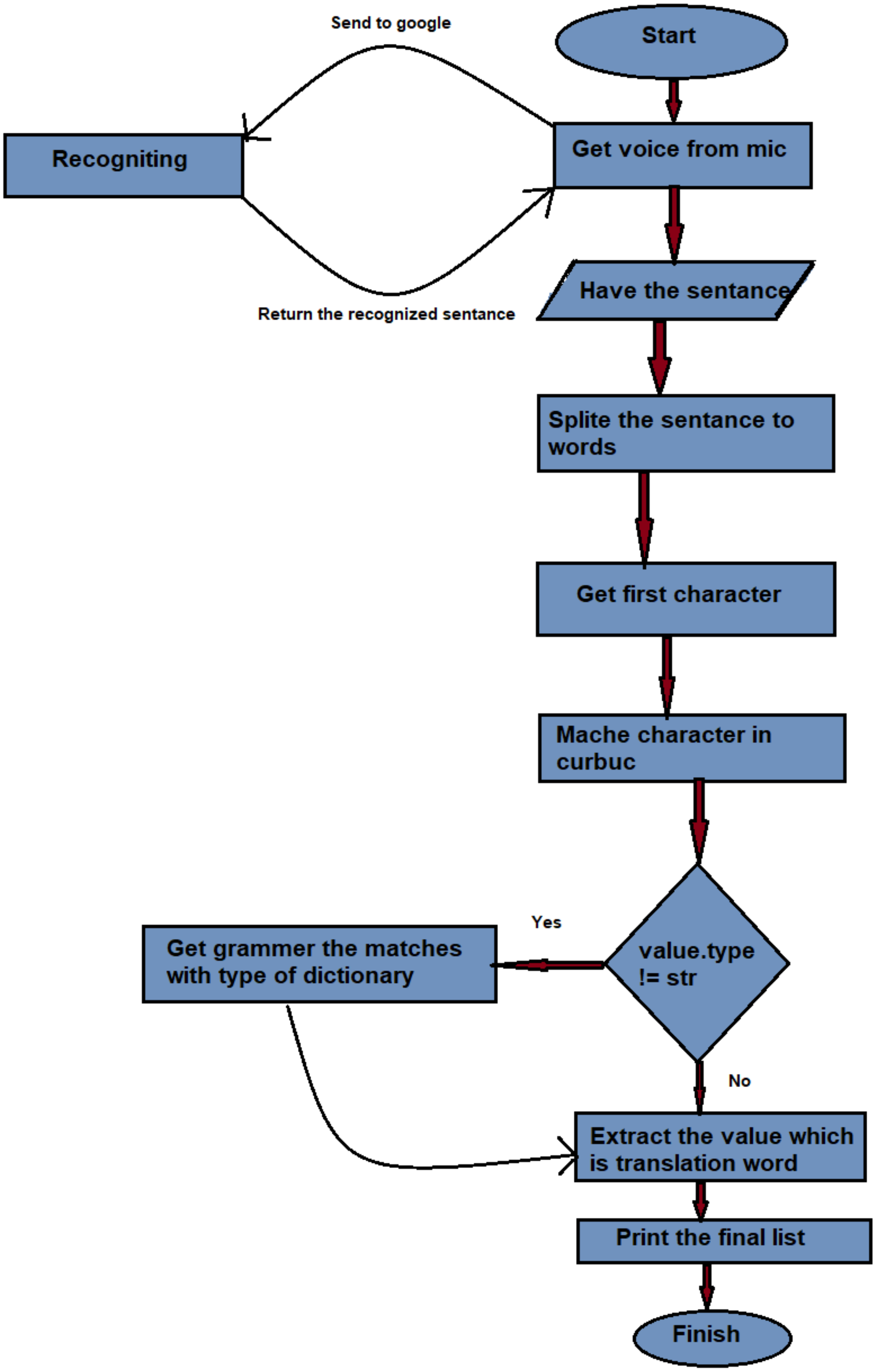
Project Objectives:

The target of this program is to make communication easy between different languages by taking words and doing some processes as a grammar and return the final result which is a useful sentence.

Input: voice “your words as speaking”.
Output: Sentence which was that voice after translation.

Steps:
1- Speak to input your voice word to program.
2- The program will parse this voice to google to recognize it.
3- The program will get the result of recognition as a sentence.
4- The program will split the sentence into a list of words.
5- Every word will get the first character from it to be matched with its dictionary by curbus as a key.
6- Get the value from that key which will be a string or dictionary.
7- Check if this result is a string or a dictionary.
8- If this result is string, the result will be overridden with the matched Arabic word “which is the translation of this word”.
9- If the result is a dictionary, then the flags of grammar will be changed depending on the type of this dictionary “name, pp, verb, adj, …, etc” and return the translation of this word.
10- Finally, all words will be printed in the right sequence to appear as an Arabic translation.

Flow chart:


Send to google
Start
Recogniting
Get voice from mic
Return the recognized sentance
Have the sentance
Splite the sentance to words
Get first character
Mache character in curbuc
Yes
Get grammer the matches with type of dictionary
value.type != str
No
Extract the value which is translation word
Print the final list
Finish

Intelligent system methodology:

1- You will run the program and say your sentence.
2- program has 3 classes
2.1- NLP: which is the main class that the program runs and has all microphone functions.
2.2- translate_process: which is the process class where all translation and grammar processes will be performed.
2.3- dectionary_words: which is a class containing all words and its translation.
3- Voice recognition library “`speech_recognition`”: which used to get data from mic and send/recv to/from google from recognizing.
4- Microphone identification “`pyttsx3`”: which is for starting up the mic driver.
5- Dictionary methodology: which is the way to store the words and its translations.
6- Translation is dependent on matching the key with value in pre-prepared dictionary words.

Description of implementation:

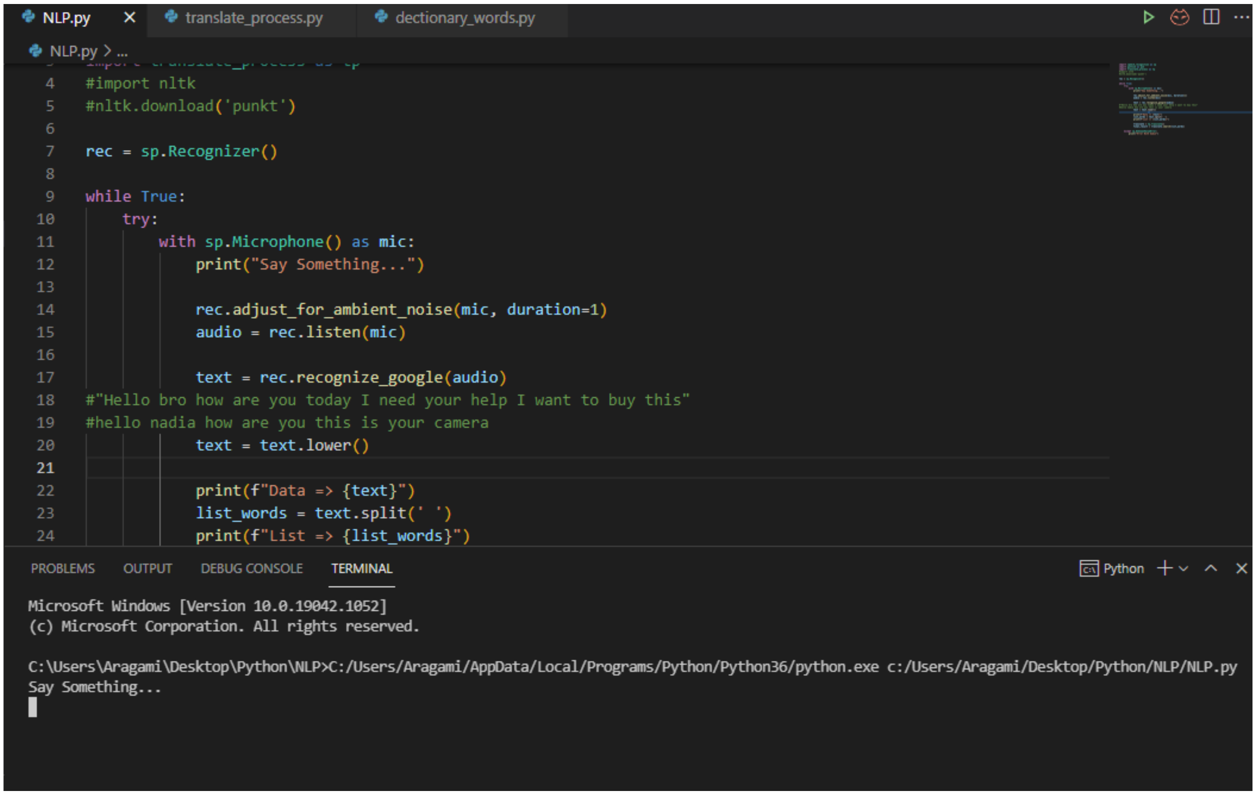
We used “dictionary matching” as a way to translate English word to Arabic words.

1- prepare English word list: by splitting.
2- matching & recognize type: to translate immediately or implement grammar first.
3- collect and print: the final list of Arabic words.
No training data but testing.

Testing and results:

“hello nadia I’m your friend” => “اهلا ناديه أنا صديقكِ”
Screens:

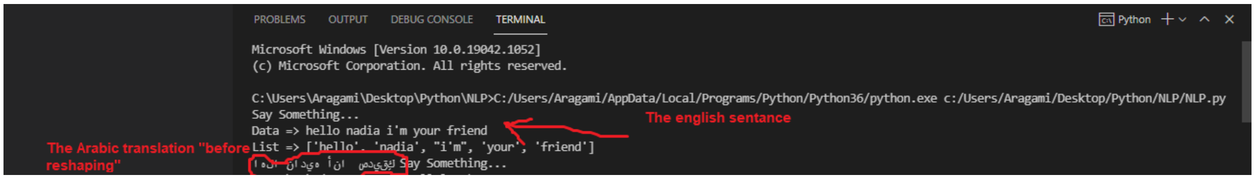
First run:



```python
import translate_process as tp
#import nltk
#nltk.download('punkt')

rec = sp.Recognizer()

while True:
    try:
        with sp.Microphone() as mic:
            print("Say Something...")

            rec.adjust_for_ambient_noise(mic, duration=1)
            audio = rec.listen(mic)

            text = rec.recognize_google(audio)
#"Hello bro how are you today I need your help I want to buy this"
#hello nadia how are you this is your camera
            text = text.lower()

            print(f"Data => {text}")
            list_words = text.split(' ')
            print(f"List => {list_words}")
```

```
Microsoft Windows [Version 10.0.19042.1052]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Aragami\Desktop\Python\NLP>C:/Users/Aragami/AppData/Local/Programs/Python/Python36/python.exe c:/Users/Aragami/Desktop/Python/NLP/NLP.py
Say Something...
█
```

Say the voice sentence:

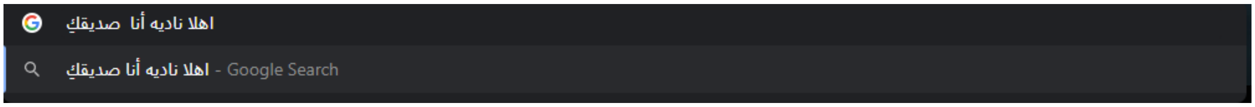


```
Microsoft Windows [Version 10.0.19042.1052]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Aragami\Desktop\Python\NLP>C:/Users/Aragami/AppData/Local/Programs/Python/Python36/python.exe c:/Users/Aragami/Desktop/Python/NLP/NLP.py
Say Something...
Data => hello nadia i'm your friend
List => ['hello', 'nadia', "i'm", 'your', 'friend']
اهلا ناديه أنا صديقك Say Something...
```

The english sentance

The Arabic translation "before reshaping"

Arabic word after reshaping ‘copy the Arabic and paste in another place:



اهلا ناديه أنا صديقك

اهلا ناديه أنا صديقك - Google Search

Discussion and Comments :

The grammar is NOT perfect and need to be enhanced and need to increase the number of words and add some grammars (“will”, “did”, ‘wish’, … , ‘etc’)