Wit.AI

This Project was done by me at Curvelogics Advanced Technology Solutions (http://www.curvelogics.com/) as an Intern, after my training at Data Science Academy (http://datascience.one). Thanks to everyone there for their Continuous Support and Guidance

- Wit.Ai is a Chatbot/NLP(Natural Language Processing) Engine provided by Facebook it is a tool which can be used to build the NLP side of Chatbots
- It was introduced in 2013 and has received Upgrades throughout the Years has received Support and Improvements
- One of the Advantages of Wit.AI is its Seamless Integration with Facebook Messenger as Facebook Provides Options for Developers to Utilise Wit within Messenger
- Wit.AI Also Supports Analysis of Voice

Wit.AI Steps

- Go to https://wit.ai/
- Click either Login Using Github or Facebook and Provide Adequate Details
- The Rest of the App Building Process is Given Here(https://wit.ai/docs/quickstart)

Some Key Terms are

1. Entity: a thing with distinct and independent existence.
   Eg: Let us Consider Multiple Sentences
   I Want Chocolate Ice Cream
   I Want Pista Ice Cream
   I Want Vanilla Ice Cream

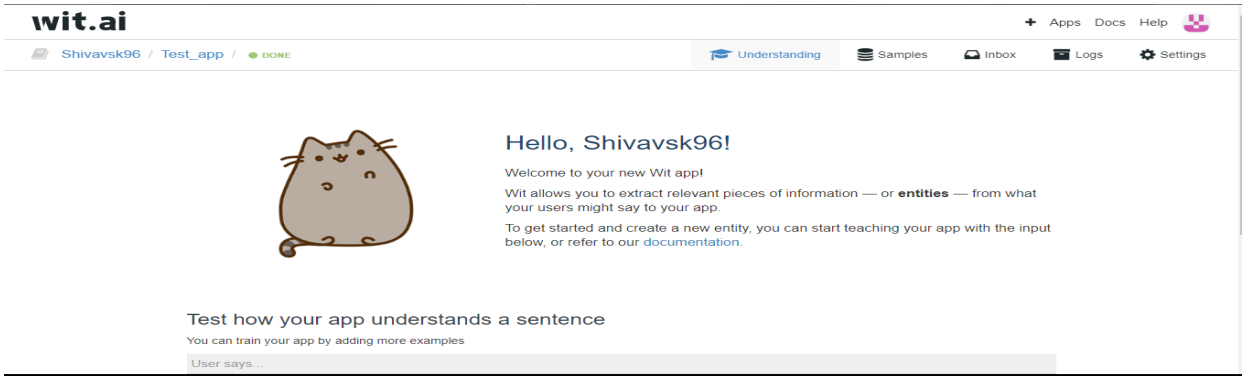
Here Chocolate, Pista and Vanilla can be categorized as a Entity called Flavours in the case of Wit whenever it sees Any of the Above Sentences it identifies that they have an entity called Flavours,

2.Intent: Something that is Intended
Eg: Let us Consider some Examples
I want Vanilla Ice Cream
Get me Ice Cream
Where can i get Ice Cream

Here All the Above 3 Examples Mean the Same thing which is the “User Wants Ice Cream” Hence in Wit when it sees the above examples it understands that the user wants Ice Cream and does the Necessary Actions

Now Let us Create a Wit.AI Bot for our Project

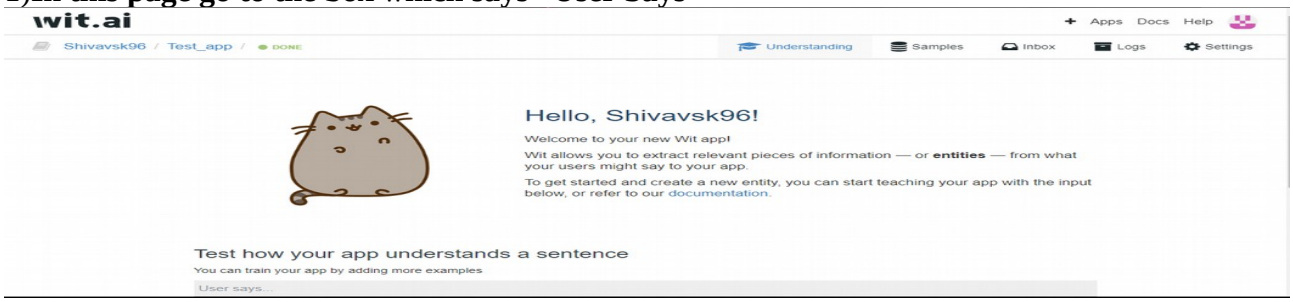
- ➔ I am Assuming that you have Created a Wit Account and Created your first app Refer(https://wit.ai/docs/quickstart)
- ➔ Now once your App is created you will reach a page like this(Ps:the name of the app dosent impact the Project)



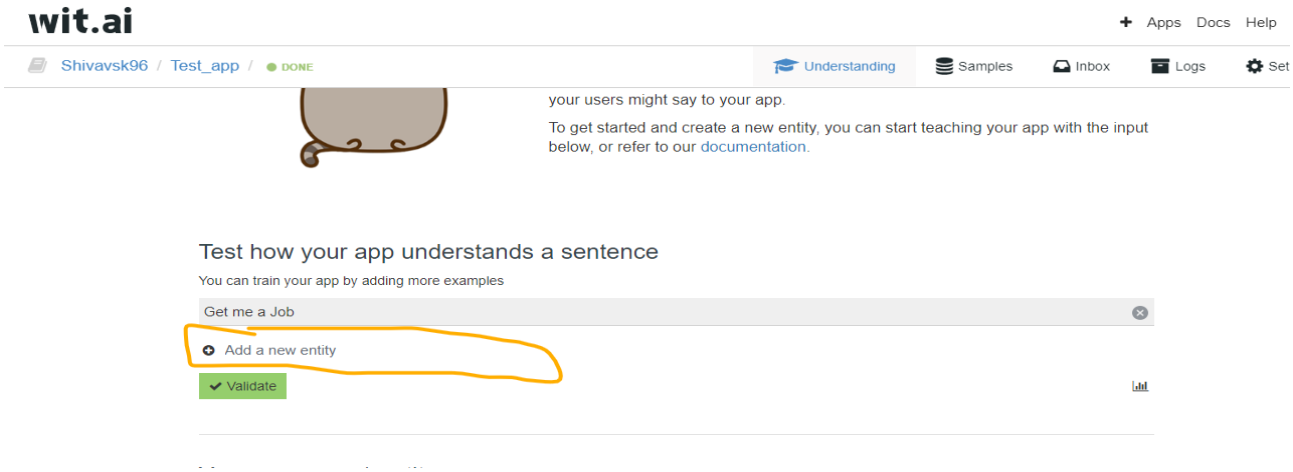
➔ Now you need to train Wit for your necessary task Since you are building a job Searching Chatbot you need to Train Wit for that

Lets train Wit to recognise a Intent Job_Search

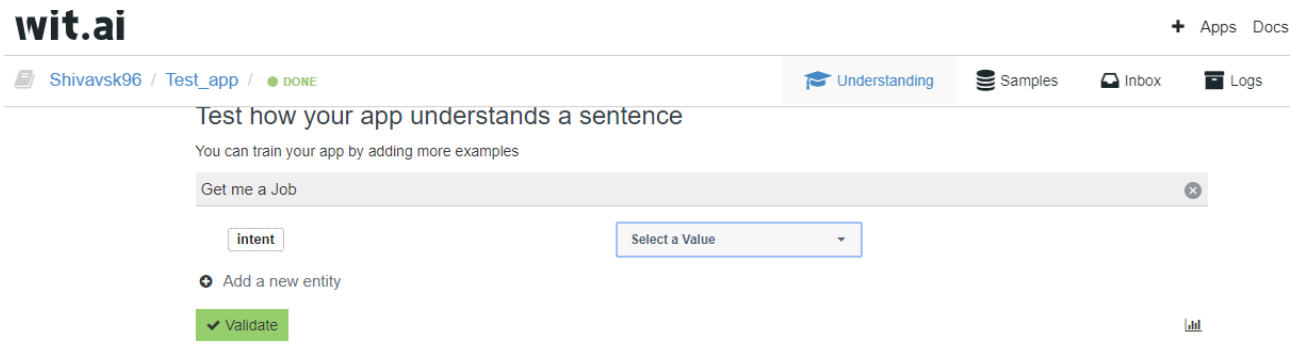
1)**In this page go to the box which says "User Says"**



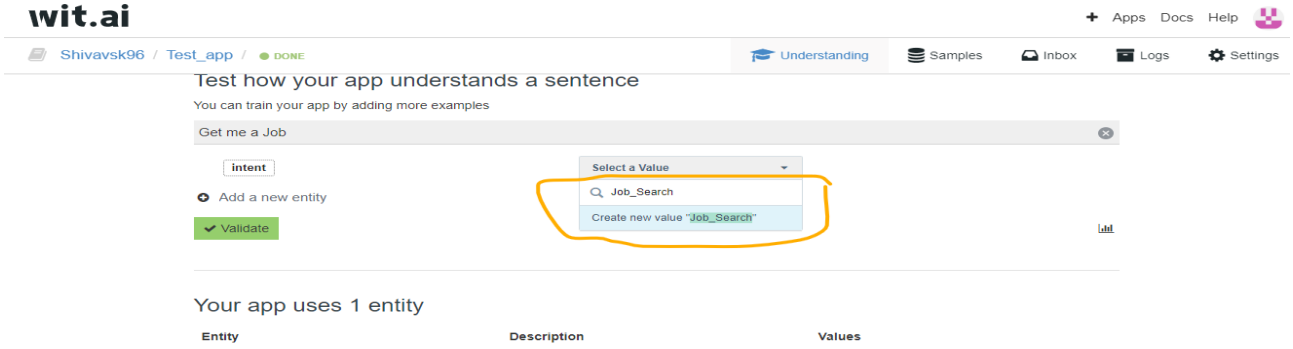
2)**Now type Any Sentence which you want Wit to identify as a intent i am going to type "Get me a Job" for the intent Job_Search Once you have typed "Get me a Job". Go on to type intent in the following Area and hit Enter**



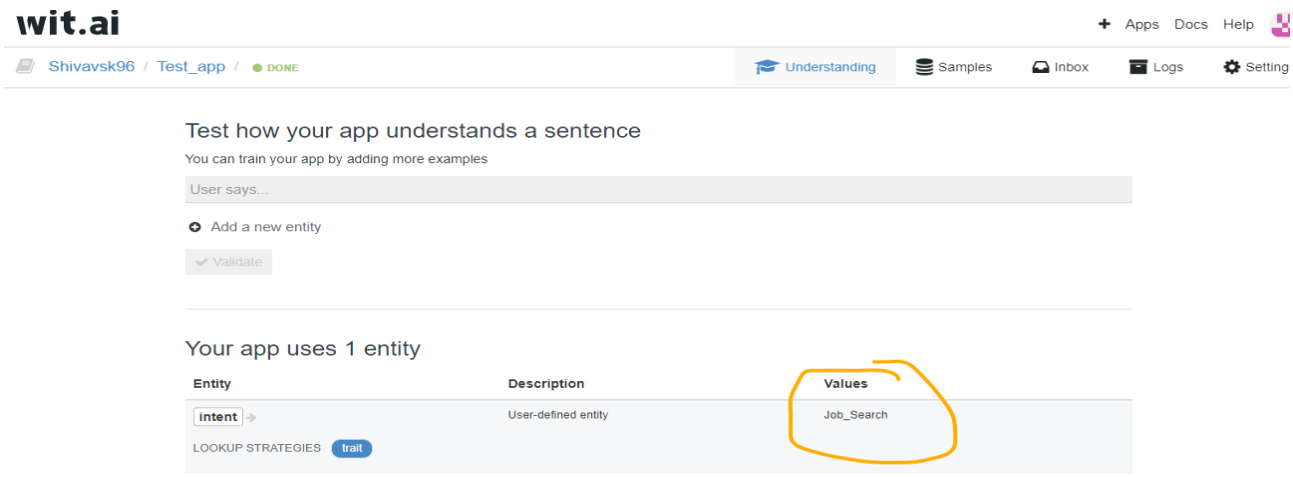
3)**Once you hit a enter you will see a similar page In this click the dropdown "Select the Value"**



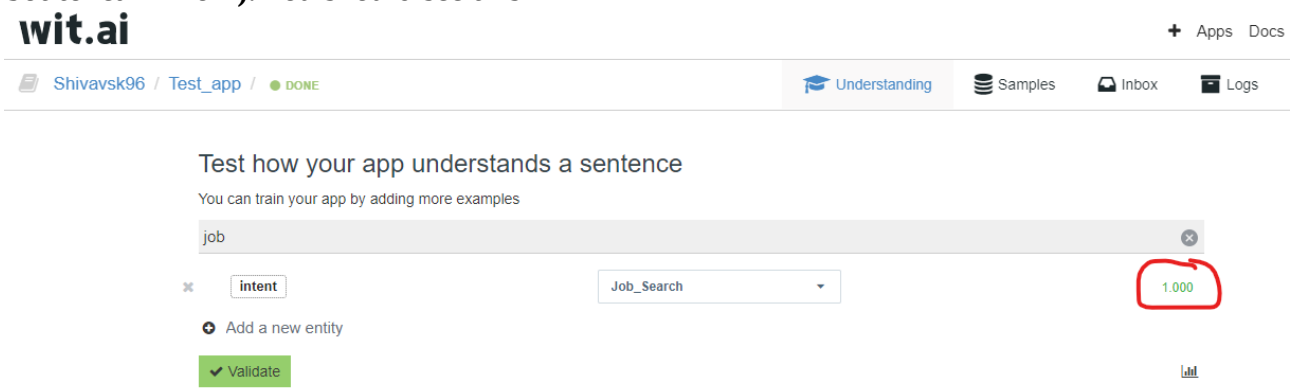
4)**Now type the name of your intent(“my intents name is Job_Search type yours there”) and Hit Enter and Hit Validate**



5)**Great now you have Created your first Intent if everything goes well then when you Scroll down you should see a similar Section with the name of the Intent**

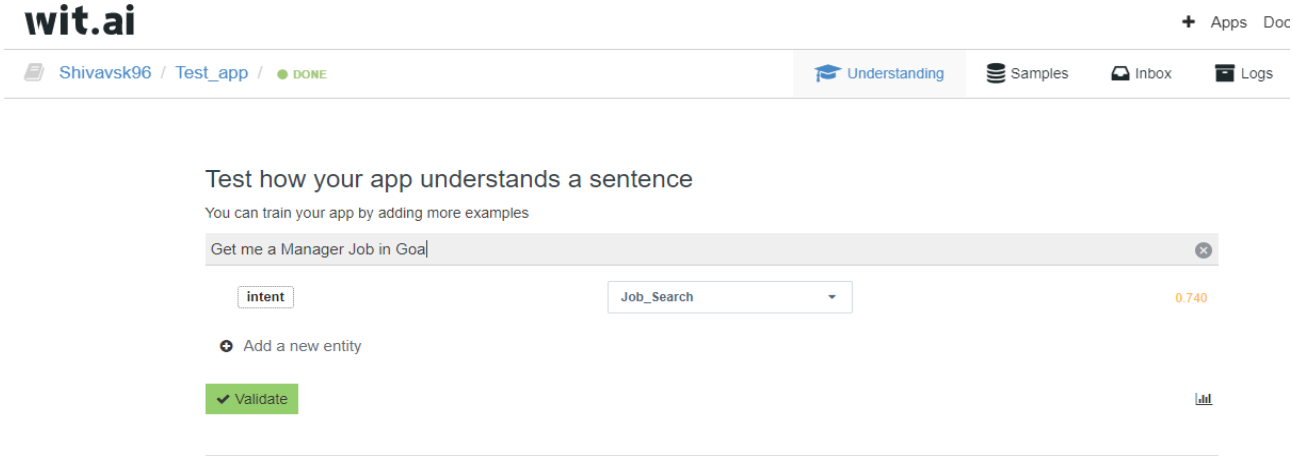


6)**Now to add more Sentences to your intent(The more you give Wit learns better) type your desired Sentence in the user Says Box and Hit Enter(try and give a lot of examples for your bot to learn from). You should see this**

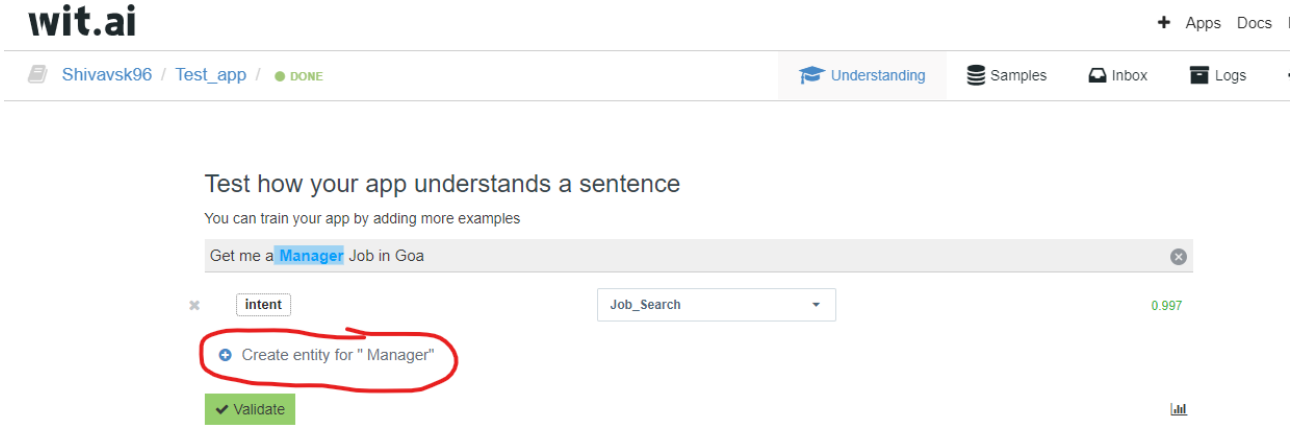


then hit Validate(Since your bot has seen only one intent so far it will most likley classify anything it sees under that intent if you got multiple intents then in the drop-down box select your intent and click validate if you want to assign it to a new intent in the drop-down menu type the name of new intent and hit validate as you did in step 4 . the value marked in Red is the Agents Confidence it basically represents how confident your agent is that a specific Sentence belongs to a Specific Intent

7)**Now we need to Specify Various entities to Wit to do that first type Something like "Get me a Manager Job in Goa"(The objective here is to have a sentence where the post and place is given) type and wait for Wit to recognise it as out intent Job_Search since Wit has only seen one Intent it will classify this text as that Intent)**

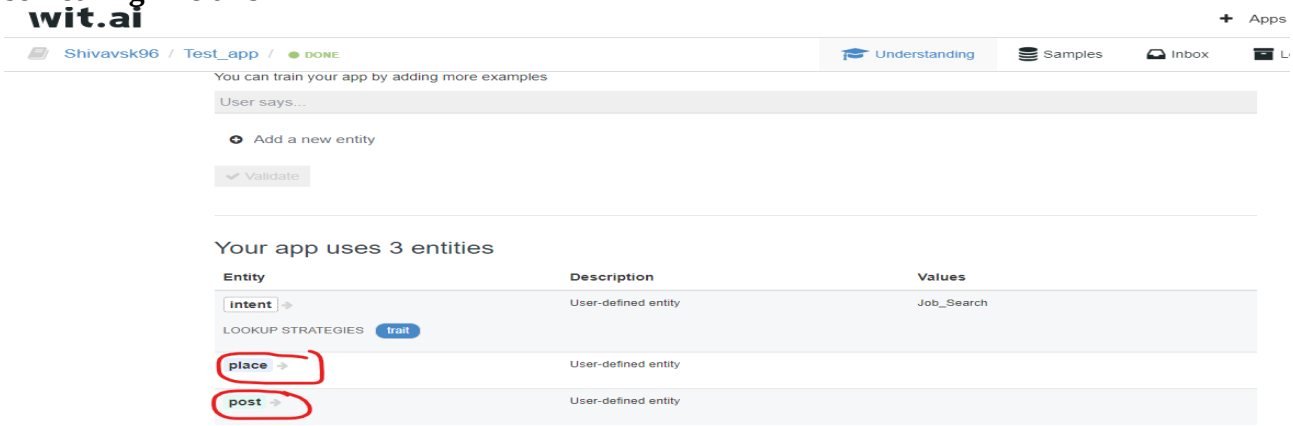


8) **Now Highlight the word manager which is our post and enter the name of your required entity in the marked area in the picture and hit enter twice and Click validate to create the entity(for our project Manager comes under the intent post)**

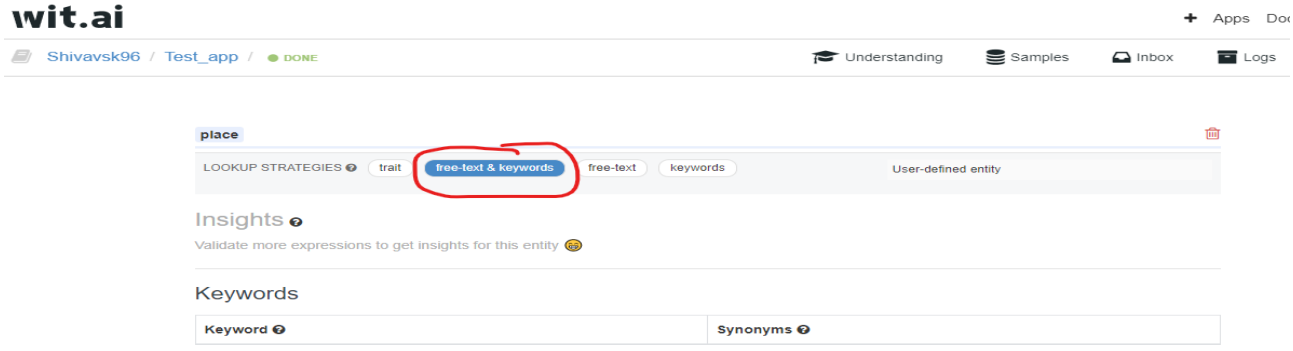


9)**Similarily Highlight Goa and create a entity called place for some more info visit(**https://wit.ai/docs/recipes)

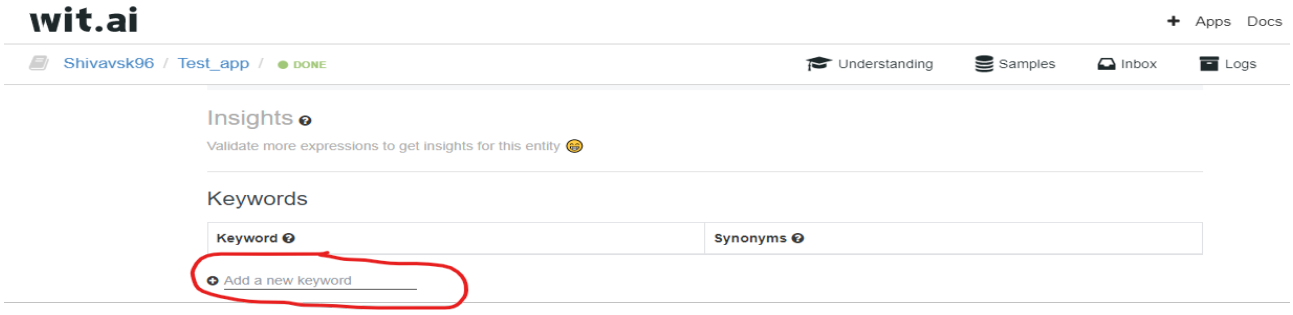
10) **Now if everything goes well when you scroll down in the Understanding tab you should see something like this**



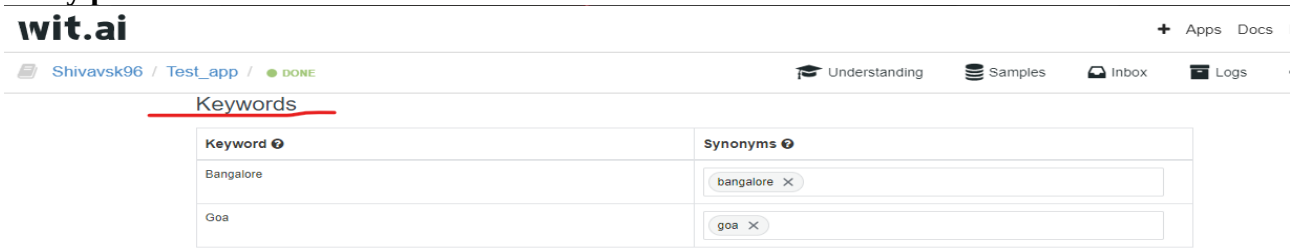
11)**now click on one of the entities and select free_text and keywords here(this is to specify that we are looking for Wit to identify the Keywords**



12)**Now you need to add more and more Keywords like other Job names “HR Manager”,”Foreman”,”Doctor”,”Teacher” etc... You can add it one by one in the highlited area in the picture and hit enter after each entry**

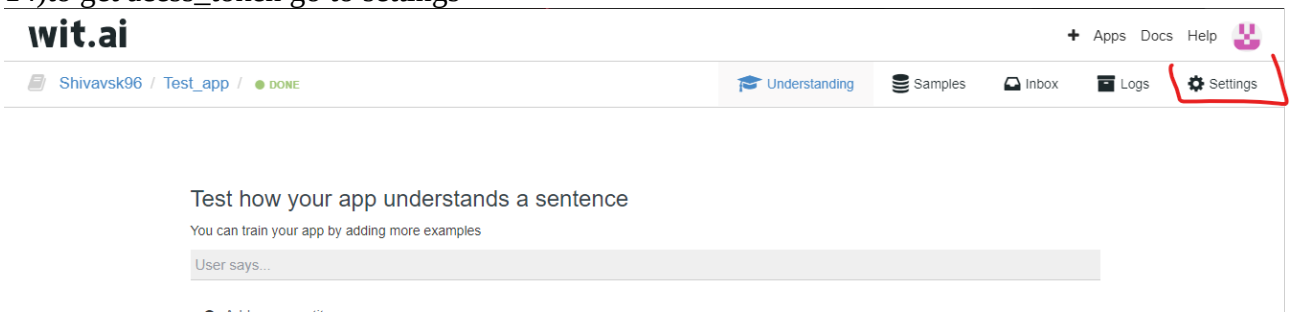


All the words you enter should appear here (similar to one in bottom picture) this is mine for entity post

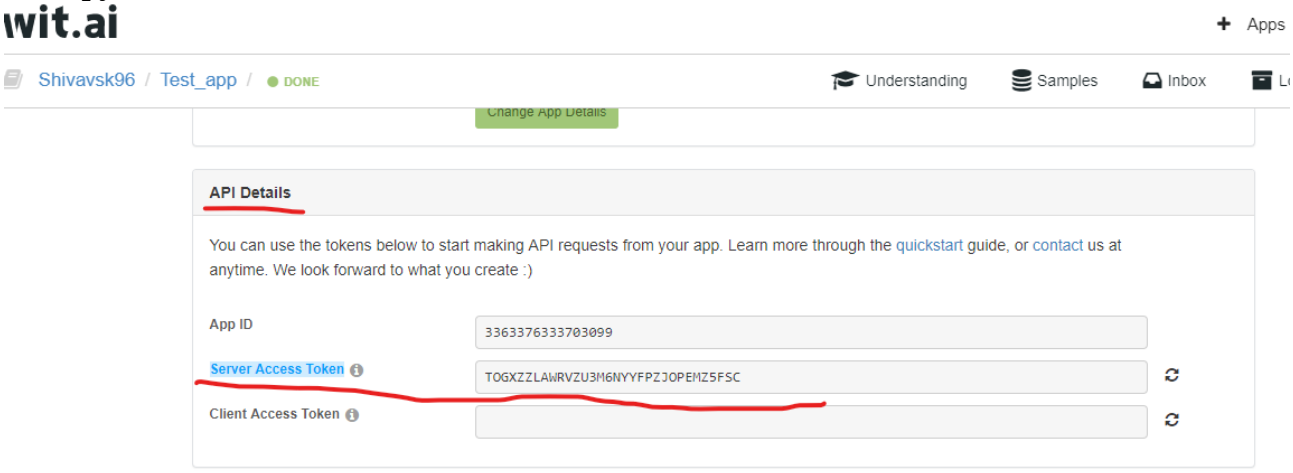


13)Similarly **Repeat steps 11 and 12 for the entity place once you have entered for Place your work in the Wit is done. Before we get into handling of the Wit.ai Json lets see how we can get the Acess_token for our Wit(this acess token is used in line 12 in main.py)**

14)to get acess_token go to settings



15)**Scroll down Under Api Details you will find "Server Access Token" Use it in line 12 in main.py**



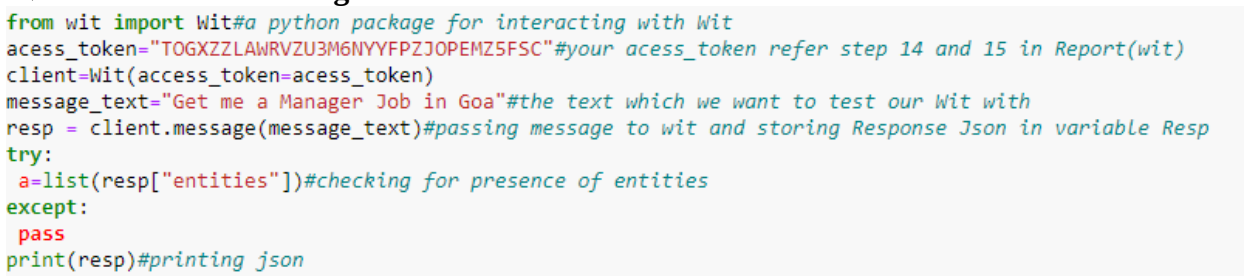
You can take a look at this link (https://wit.ai/docs/recipes#which-entity-should-i-use) also to know more about Wit

Wit.AI JSON

- **Wit Communicates with your python Script using Json(JavaScript Object Notation) (https://en.wikipedia.org/wiki/JSON)**
- **Given Below is a code to understand json of wit**
- **It is recommended that you use Jupyter_notebook(https://jupyter.org/)**
- **Here are Some tutorials about Jupyter(https://www.geeksforgeeks.org/getting-started-with-jupyter-notebook-python/)(https://www.dataquest.io/blog/jupyter-notebook-tutorial/)**
- **Now back to our json here is the code**

```
from wit import Wit#a python package for interacting with Wit
acess_token="TOGXZZLAWRVZU3M6NYYFPZJOPEMZ5FSC"#your acess_token refer step 14 and 15 in Report(wit)
client=Wit(access_token=acess_token)
message_text="Get me a Manager Job in Goa"#the text which we want to test our Wit with
resp = client.message(message_text)#passing message to wit and storing Response Json in variable Resp
try:
 a=list(resp["entities"])#checking for presence of entities
except:
 pass
print(resp)#printing json
```

- **I am also attatching a screenshot**



- **Now when you run this code Wit will reply with a Json Message**
  In my Case it Returned a Json like this


```
{'_text': 'Get me a Manager Job in Goa', 'entities': {'post':
[{'confidence': 1, 'value': 'Manager', 'type': 'value'}], 'place':
[{'confidence': 1, 'value': 'Goa', 'type': 'value'}], 'intent':
[{'confidence': 0.99814630020538, 'value': 'Job_Search'}]}, 'msg_id':
'1c7FglJu3YGAShBhY'}
```


where ‘text’ is the message ‘entities’ are the list of entities and ‘post’ and ‘place’ are the respective entities and ‘value’ inside post and place are the words which made Wit think that this sentence has this entity and ‘intent’ is our Intent

you can parse through this json to use the values to
Play around with different text by replacing the value in ‘message_text’ in your code and see how the Json differs by doing so you can test various Scenarios

Now let us try and access the elements inside our json for usage
again our Json is

```
{'_text': 'Get me a Manager Job in Goa', 'entities': {'post':
[{'confidence': 1, 'value': 'Manager', 'type': 'value'}], 'place':
[{'confidence': 1, 'value': 'Goa', 'type': 'value'}], 'intent':
[{'confidence': 0.99814630020538, 'value': 'Job_Search'}]}, 'msg_id':
'1c7FglJu3YGAShBhY'}
```

- **Lets start by trying to get data out of our json**
  The snippets of code which i give below should be added with the code given earlier

1. **Lets start by getting '_text' which is "Get me a Manager Job in Goa"**
   for that the code is

```
a=resp['_text']#resp is your json
print(a)
```

```
'Get me a manager job in Goa'
```

the underlined portion is the Output

2.Now lets get entities

```
a=resp['entities']#syntax: resp["Name of what you want to acess inside Json"]
print(a)
```

```
{'post': [{'confidence': 1, 'value': 'Manager', 'type': 'value'}], 'place': [{'confidence': 1, 'value': 'Goa', 'type': 'valu
e'}], 'intent': [{'confidence': 0.99814630020538, 'value': 'Job_Search'}]}
```

See now if you compare the original Json you can see it got whatever is inside 'entities'

3. Similarly lets trying getting post, place and intent

```
a=resp['entities']['post']#syntax: resp["Name of what you want to acess inside Json"]["under that what you want to acess"]
b=resp['entities']['place']
c=resp['entities']['intent']
print(a)
print(b)
print(c)
```

```
[{'confidence': 1, 'value': 'Manager', 'type': 'value'}]
[{'confidence': 1, 'value': 'Goa', 'type': 'value'}]
[{'confidence': 0.99814630020538, 'value': 'Job_Search'}]
```

4.Now lets get the Values from post,place and Intent

```
a=resp['entities']['post'][0]['value']#synt
b=resp['entities']['place'][0]['value']
c=resp['entities']['intent'][0]['value']
print(a)
print(b)
print(c)
```

resp["entities"]['post'] is a list so we give[0] to access it

```
Manager
Goa
Job_Search
```

Now thats it regarding handling of json of Wit

Now let me explain how the Wit Section of main.py works(lines 41-78)

```
41                resp=client.message(my_text)#storing client message in
42                entity=None# get entity#in case entity is none
43                value=None
44                intent=None#in case value is none
45                try:
46                    a=list(resp["entities"])#where resp["entities"] i
47                except:
48                  pass
49                z=len(a)#storing length of list
50                if z==1:#if length of list is 1
51                 r=list(resp["entities"])[0]#to get first entity
52                 print(r)
53                 if r=="post":#if entity post is detected
54                   m=list(resp["entities"])[0]#to get the value of ent
55                   entity=resp["entities"]["post"][0]["value"]#to get
56                   print(entity)
57                 elif(r=="place"):#if entity place is detected
58                    m=list(resp["entities"])[0]#to get the value of en
59                    entity=resp["entities"]["place"][0]["value"]#to ge
60                 elif(r=="intent"):#if the text is a intent in Wit
61                    value=list(resp["entities"]["intent"])[0]["value"]
62                    m=resp["entities"]["intent"][0]["value"]
63                    print("value")
64                 elif(r=="Yes"):#When the entity Yes is Recognised
65                    entity=resp["entities"]["Yes"][0]["value"]
66                    m=0#passing initial value to m
67                 elif(r=="no"):#When the entity No is Recognised
68                     entity=list(resp["entities"]["no"])[0]["value"]
69                     m=0#passing initial value to m
70                if z==3:#when more than 1 entity is detected
71                 r1=resp["entities"]["post"][0]["value"]#check wether
72                 r2=resp["entities"]["place"][0]["value"]#check wether
73                 r3=resp['entities']["intent"][0]['value']#check wethe
74                 m=0
75                 print(r1)
76                 print(r2)
77              if z==0:#if the Text Is not Recognised by Wit at all
78                 m=None
```

line by line
41) format of Wit refer Wit Json section above
42,43,44 if entity, value and intent does not exist
45,46 try block checks for existence of entity exist
47,48 if the entity does not exist then continue the program
49 checking length of “a” which is entities (refer line 46)(the length will give you a indication of how many entities exist)(eg: if post and place come at the same time)
50 if the length is 1(ie: only one entity exists)
51 storing the value of entity in variable ‘r’
53 if the value of ‘r’ is post
54 storing the entity which is (Post here in variable ‘m’)
55 storing the value of post in a variable ‘entity
57 if the value of ‘r’ is place
58 storing the entity which is (Place here in variable ‘m’)
59 storing the value of place in a variable ‘entity
60 if the value of ‘r’ is intent

61 storing value in a variable “value”
62 storing value in a variable ‘m’
64 if the value of r is “Yes”
65 storing the value in a variable entity
66 assigning m as 0
67 if the value of r is “No”
68 storing the value in a variable entity
69 assigning m as 0
70 if z=3(ie: if multiple entities and intent come at same time)
71 storing value of post in variable “r1”
72 storing value of place in variable “r1”
73 storing value of intent in variable “r1”
74 assigning m as 0
77 if z=0 which means the Sentence is not identified by Wit
78 Then Assign a value None to m

So thats the code explained