

# DOCUMENTATION

## RESTAURANT RECOMMENDATION CHATBOT

### ChatBot

The chatbot was built with the intention to help people filter out the best possible restaurants which match their preferences like budget and can help them save time, money and possibly bad experiences.

It has several features including:

- *Accepts user input regarding location, cuisine preferences, and budget constraints.*
- *Asks for additional clarification if required.*
- *Retrieves and displays a list of restaurants that match the user's preferences.*
- *Allow users to filter the results based on specific criteria (e.g., ratings, price range, distance).*
- *Provides details such as restaurant names, addresses, contact information, and user ratings for each recommendation.*

### Implementation

The chatbot was written in python language using several in built libraries like pandas, spacy, nltk ,numpy, sklearn, IPython.display, colorama and timeit. It uses several techniques some of which include entity recognition and content-based filtering.

### Dataset

Dataset used for running this chat bot was scrapped from TripAdvisor and available on the website: <https://www.kaggle.com/datasets/mikhailpustovalov/scraped-data-from-ta>

Size: I had to restrict the dataset to 8000 valid entries as Jupyter kept crashing with larger sizes (Due to memory issues)

### Limitations

Due to memory issues the dataset used was limited and the chatbot may not provide accurate information each time. The chatbot provides several best matchings and top-rated restaurants matches but at a time it can provide only 800 best matches.

### TEST CASES

# 1) Invalid User Inputs:

## a) For number of recommendations:

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 2 minutes ago (unsaved changes) Python 3 (ipykernel)

File Edit View Insert Cell Kernel Widgets Help Not Trusted

Name? Aisha

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Aisha !
You may enter exit anytime to end
How may I help you?
Find restaurants in Paris with a budget of $50 per person & French kinda food

How many recommendations do you wish to receive? 0
ERROR! Please enter a valid number above 0!
How many recommendations do you wish to receive? -1
ERROR! Invalid Input. Enter a number
How many recommendations do you wish to receive? how many
ERROR! Invalid Input. Enter a number
How many recommendations do you wish to receive? 801
```

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 2 minutes ago (unsaved changes) Python 3 (ipykernel)

File Edit View Insert Cell Kernel Widgets Help Not Trusted

ERROR! Invalid Input. Enter a number
How many recommendations do you wish to receive? 801

ERROR! System can handle maximum 800 best matching recommendations.
How many recommendations do you wish to receive? 5

Getting your recommendations...

Showing Top 5 Recommended Restaurants Results (in 0.1948 seconds)



|      | name              | address                              | tel               | cuisines                        | pricing | rating | reviews                                           | features                                       |
|------|-------------------|--------------------------------------|-------------------|---------------------------------|---------|--------|---------------------------------------------------|------------------------------------------------|
| 6690 | Le Pré            | 4 rue du Four, 75006 Paris France    | +33 1 40 46 93 22 | French, Brew Pub, Bar, European | — \$    | 4.0    | With a friend, we went to have a coffee at aro... | French, Brew Pub, Bar, European<br>\$ 4 rue... |
| 7593 | Cafe Notre Dame   | Paris France                         | +33 1 43 25 97 27 | French, Cafe                    | — \$    | 3.0    | We stopped in for a quick light breakfast and ... | French, Cafe<br>\$ Paris France 3.0            |
| 83   | Chez Julien       | 2 rue Lepic, 75018 Paris France      | +33 1 42 64 21 20 | French, Bar, Cafe, European     | — \$    | 4.0    | We were hungry and randomly walked in to grab ... | French, Bar, Cafe, European<br>\$ 2 rue Lep... |
| 76   | Pomme de Pain     | 20 Rue de France, Paris France       | +33 1 64 22 18 36 | French                          | \$      | 4.0    | On a lunch break on a journey through Picardy ... | French \$ 20 Rue de France, Paris France 4.0   |
| 6685 | L'esplanade Saint | 1 rue de Turbigo, 75001 Paris France | +33 1 45 08 22 22 | French, Bar, European           | — \$    | 3.5    | Lunch here today and it always                    | French, Bar, European                          |


```

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 3 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted | Python 3 (pykernel)

Code

6690	Le Pré	4 rue du Four, 75006 Paris France	+33 1 40 46 93 22	French, Brew Pub, Bar, European	—	\$	4.0	With a friend, we went to have a coffee at aro...	—	European
										\$ 4 rue...
7593	Cafe Notre Dame	Paris France	+33 1 43 25 97 27	French, Cafe	—	\$	3.0	We stopped in for a quick light breakfast and ...	—	French, Cafe
										\$ Paris France 3.0
83	Chez Julien	2 rue Lepic, 75018 Paris France	+33 1 42 64 21 20	French, Bar, Cafe, European	—	\$	4.0	We were hungry and randomly walked in to grab ...	—	French, Bar, Cafe, European
										\$ 2 rue Lep...
76	Pomme de Pain	20 Rue de France, Paris France	+33 1 64 22 18 36	French	—	\$	4.0	On a lunch break on a journey through Picardy ...	—	French \$ 20 Rue de France, Paris France 4.0
6685	L'esplanade Saint Eustache	1 rue de Turbigo, 75001 Paris France	+33 1 45 08 53 03	French, Bar, European	—	\$	3.5	Lunch here today and it always ok. Steak and f...	—	French, Bar, European
										\$ 1 rue de Turbig...

Would you like to save your recommendations in excel file for future use? (yes/no) no

Your Recommendations won't be saved

How may I help you?

exit

Thank You for using our Chatbot!

## b) For saving preference:

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 5 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted | Python 3 (ipykernel)

Code

6685	L'esplanade Saint Eustache	1 rue de Turbigo, 75001 Paris France	+33 1 45 08 53 03	French, Bar, European	—	\$	3.5	Lunch here today and it always ok. Steak and f...	—	French, Bar, European
										\$ 1 rue de Turbig...
4649	Dupont Café Bibliothèque	84 avenue de France, 75013 Paris France	+33 1 44 97 41 84	Bar, French, European, Pub	—	\$	2.5	Very nice staff and of course good food. They ...	—	Bar, French, European, Pub
										\$ 84 avenue ...

Would you like to save your recommendations in excel file for future use? (yes/no) waht

ERROR! Invalid Input. Try Again

Would you like to save your recommendations in excel file for future use? (yes/no) 0

ERROR! Invalid Input. Try Again

Would you like to save your recommendations in excel file for future use? (yes/no) yes

Recommendations saved to file named userRecommendations1.xlsx

How may I help you?

exit

Thank You for using our Chatbot!

## 2) User Preferences testing:

### a) Proper statements by user

### TEST1

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 7 minutes ago (autosaved)
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)
Name? Ayesha

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Ayesha !

You may enter exit anytime to end

How may I help you?

Find me restaurants in London with european food

How many recommendations do you wish to receive? 1

Getting your recommendations...

Showing Top 1 Recommended Restaurants Results (in 0.2786 seconds)

name address tel cuisines pricing rating reviews features
6690 Le Pré 4 rue du Four, 75006 Paris France +33 1 40 46 93 22 French, Brew Pub, Bar, European $ 4.0 With a friend, we went to have a coffee at aro... French, Brew Pub, Bar, European $ 4 rue...
```

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 7 minutes ago (autosaved)
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

How many recommendations do you wish to receive? 1

Getting your recommendations...

Showing Top 1 Recommended Restaurants Results (in 0.2786 seconds)

name address tel cuisines pricing rating reviews features
6690 Le Pré 4 rue du Four, 75006 Paris France +33 1 40 46 93 22 French, Brew Pub, Bar, European $ 4.0 With a friend, we went to have a coffee at aro... French, Brew Pub, Bar, European $ 4 rue...

Would you like to save your recommendations in excel file for future use? (yes/no) no


Your Recommendations won't be saved

How may I help you?

exit

Thank You for using our Chatbot!
```

## TEST 2 (With Backend mode on i.e displays working of nlp):

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 27 minutes ago (unsaved changes)  Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

Code

```
Name? Aisha

~~~~~ Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Aisha ! ~~~~~

You may enter exit anytime to end


How may I help you?

Find restaurants with European food in France

User Input is: Find restaurants with European food in France
Natural Language Understanding Module Running (In Backend Visible Mode)..
Extracted Information-->
Location : France
Cuisine Preferences: European

How many recommendations do you wish to receive? 3

Getting your recommendations...
```

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 28 minutes ago (unsaved changes)  Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

Code

```
How many recommendations do you wish to receive? 3

Getting your recommendations...

~~~~~ Showing Top 3 Recommended Restaurants Results (in 0.1819 seconds) ~~~~~




|      | name            | address                           | tel               | cuisines                        | pricing | rating | reviews                                           | features                                       |
|------|-----------------|-----------------------------------|-------------------|---------------------------------|---------|--------|---------------------------------------------------|------------------------------------------------|
| 6690 | Le Pré          | 4 rue du Four, 75006 Paris France | +33 1 40 46 93 22 | French, Brew Pub, Bar, European | — \$    | 4.0    | With a friend, we went to have a coffee at aro... | French, Brew Pub, Bar, European<br>\$ 4 rue... |
| 7593 | Cafe Notre Dame | Paris France                      | +33 1 43 25 97 27 | French, Cafe                    | — \$    | 3.0    | We stopped in for a quick light breakfast and ... | French, Cafe<br>\$ Paris France 3.0            |
| 83   | Chez Julien     | 2 rue Lepic, 75018 Paris France   | +33 1 42 64 21 20 | French, Bar, Cafe, European     | — \$    | 4.0    | We were hungry and randomly walked in to grab ... | French, Bar, Cafe, European<br>\$ 2 rue Lep... |



Would you like to save your recommendations in excel file for future use? (yes/no) no

Your Recommendations won't be saved
```

## TEST 3 (With Backend mode on .e displays working of nlp)

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 31 minutes ago (unsaved changes)  Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

Run Code

```
Name? Aisha

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Aisha !

You may enter exit anytime to end

How may I help you?

Find pub in France

User Input is: Find pub in France
Natural Language Understanding Module Running (In Backend Visible Mode)..
Extracted Information-->
Location : France
Cuisine Preferences: pub

How many recommendations do you wish to receive? 2

Getting your recommendations...

Showing Top 2 Recommended Restaurants Results (in 0.1655 seconds)

name address tel cuisines pricing rating reviews features
6690 Le Pré 4 rue du Four, 75006 Paris France +33 1 40 46 93 22 French, Brew Pub, Bar, European $ 4.0 With a friend, we went to have a coffee at aro... French, Brew Pub, Bar, European $ 4 rue...
7593 Cafe Notre Dame Paris France +33 1 43 25 97 27 French, Cafe $ 3.0 We stopped in for a quick light breakfast and ... French, Cafe $ Paris France 3.0

Would you like to save your recommendations in excel file for future use? (yes/no) no
Your Recommendations won't be saved

How may I help you?

exit

Thank You for using our Chatbot!
```

## b)Imporper statement by user

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 9 minutes ago (unsaved changes) Logout
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)
userInterface()
Name? Aisha

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Aisha !
You may enter exit anytime to end
How may I help you?
French in Paris

How many recommendations do you wish to receive? 2
Getting your recommendations...

Showing Top 2 Recommended Restaurants Results (in 0.1806 seconds)

name address tel cuisines pricing rating reviews features
```

```
jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 9 minutes ago (unsaved changes) Logout
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)
How many recommendations do you wish to receive? 2
Getting your recommendations...

Showing Top 2 Recommended Restaurants Results (in 0.1806 seconds)

name address tel cuisines pricing rating reviews features
6690 Le Pré 4 rue du Four, 75006 Paris France +33 1 40 46 93 22 French, Brew Pub, Bar, European $ 4.0 With a friend, we went to have a coffee at aro...
7593 Cafe Notre Dame Paris France +33 1 43 25 97 27 French, Cafe $ 3.0 We stopped in for a quick light breakfast and ...

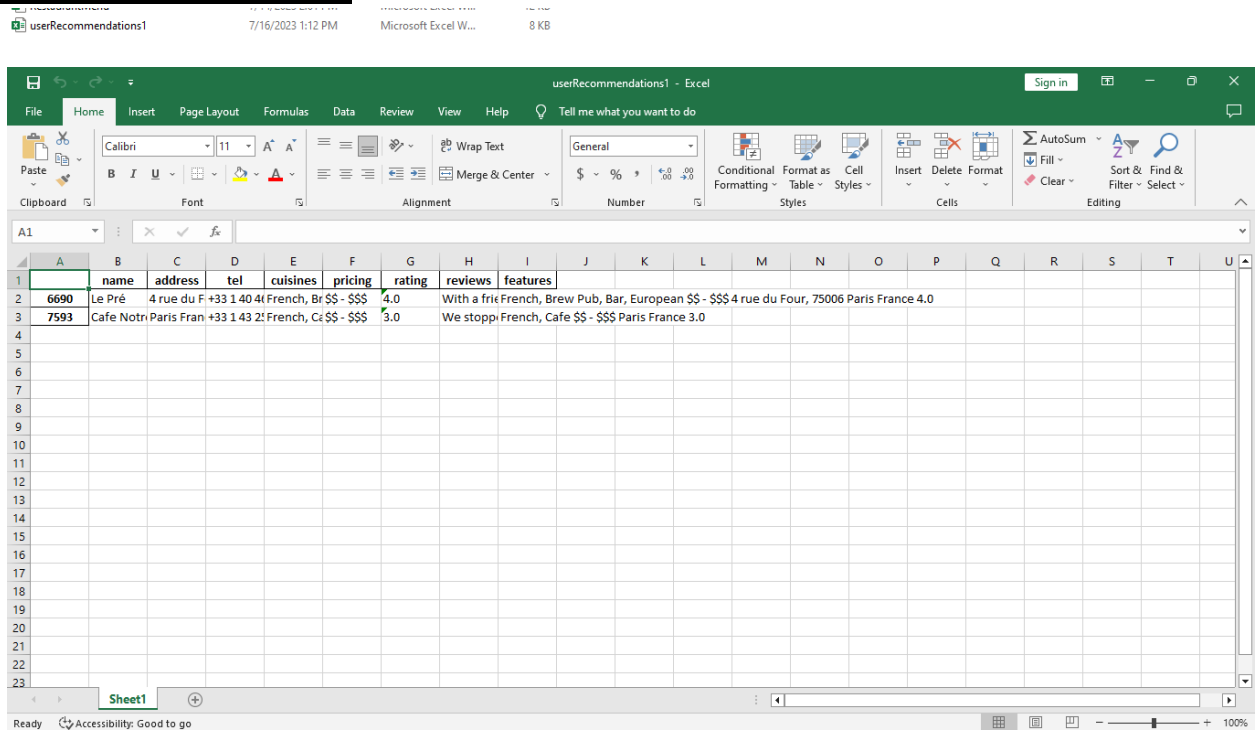
Would you like to save your recommendations in excel file for future use? (yes/no) yes
Recommendations saved to file named userRecommendations1.xlsx

How may I help you?

exit
Thank You for using our Chatbot!
```

### 3) Evidence of file saved

userRecommendations1 7/16/2023 1:12 PM Microsoft Excel W... 8 KB



The screenshot shows a Microsoft Excel spreadsheet titled 'userRecommendations1 - Excel'. The spreadsheet contains a table with 8 columns: name, address, tel, cuisines, pricing, rating, reviews, and features. The data is as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1		name	address	tel	cuisines	pricing	rating	reviews	features												
2	6690	Le Pré	4 rue du F	+33 1 40 41	French, Br	\$ - \$\$\$	4.0	With a frie	French, Brew Pub, Bar, European	\$ - \$\$\$	4 rue du Four, 75006 Paris	France	4.0								
3	7593	Cafe Notri	Paris Fran	+33 1 43 21	French, Ca	\$ - \$\$\$	3.0	We stoppi	French, Cafe	\$ - \$\$\$	Paris France	3.0									
4																					
5																					
6																					
7																					
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23																					

### 4) Exit Button testing

jupyter AishaNawaz-Week03-Day04-5-TASK2 Last Checkpoint: 11 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

```
print('Your recommendations won't be saved')
break
else:
    print('\nERROR! Invalid Input. Try Again')

i=i+1 #For naming file purposes so each recommendation is saved in a different file

userInterface()

Name? Ayeshaa

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Ayeshaa !
You may enter exit anytime to end
How may I help you?
EXIT
Thank You for using our Chatbot

Name? Aishaa

Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot Aishaa !
You may enter exit anytime to end
How may I help you?
EXIT
Thank You for using our Chatbot!
```



Name? aisha

\*\*\*\*\* Welcome to the GlowingSoft Technologies's Restaurant Recommendation Chatbot aisha ! \*\*\*\*\*

You may enter exit anytime to end

How may I help you?

exit

Thank You for using our Chatbot!

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