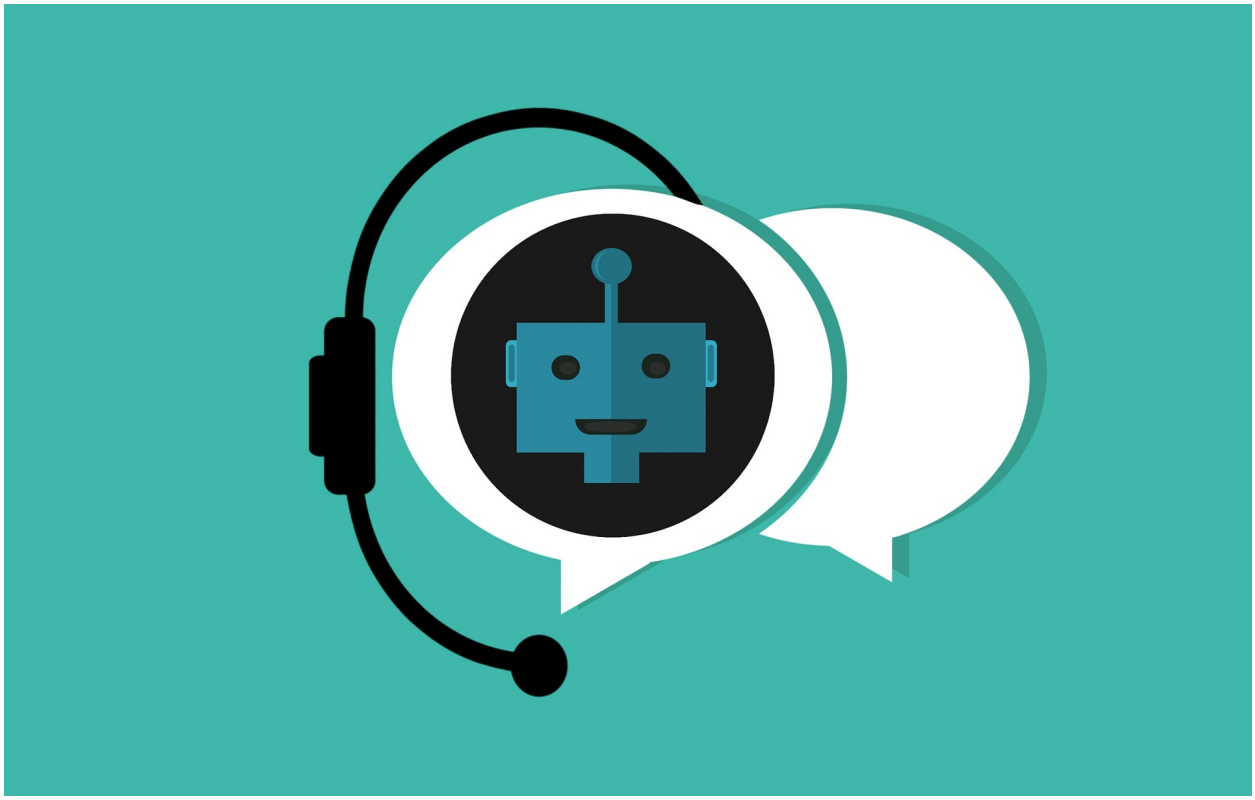
Mini Project - Final Report

Machine Learning & NLP

Chatbot



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Introduction

In our project, we explore how a chatbot can give information and answer queries given to it. A chatbot is an artificial intelligence software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps, or the telephone.

Design and Working

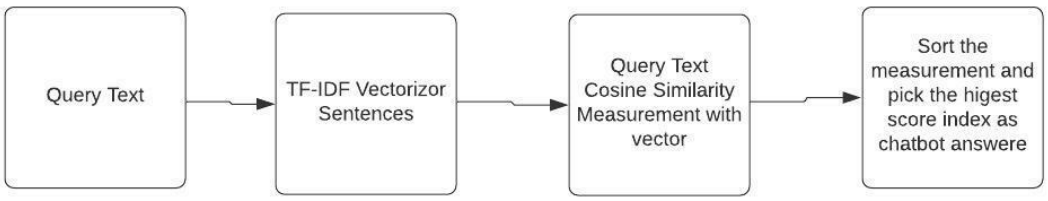
We are trying to implement a rule-based chatbot.

In which, we will be taking a webpage from any website (maybe a text file stored on a web server) based on a particular theme on which we want to build our chatbot. For Example https://en.wikipedia.org/wiki/India.

The main aim of chatbots is still to automate the questions given by humans, so that's why we need data to develop the rules.

Then, we perform vectorization (separation of paragraphs, then forming vectors of sentences) and then calculate Cosine similarity to check the level of similarity between different sentences.

After that, we are making a website, using the backend as Flask server, which we are linking to our main python code for a smooth UI experience of inputting a query and getting the answer (output).



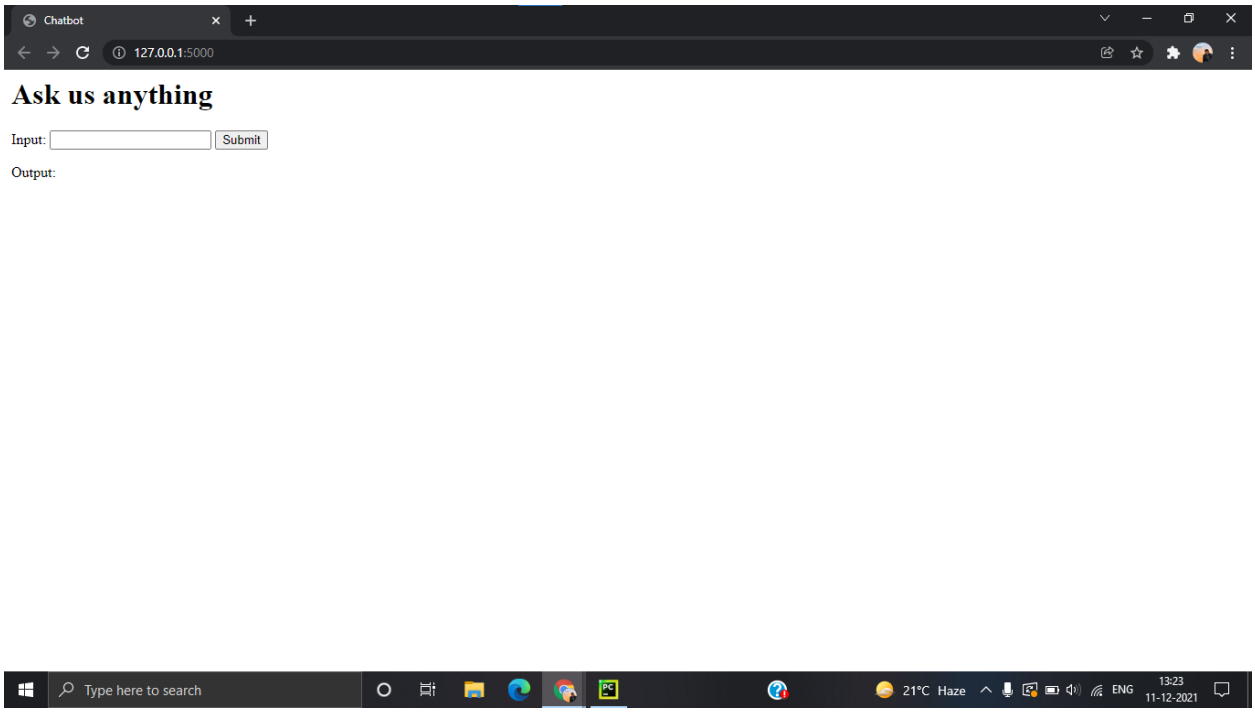
Background Study

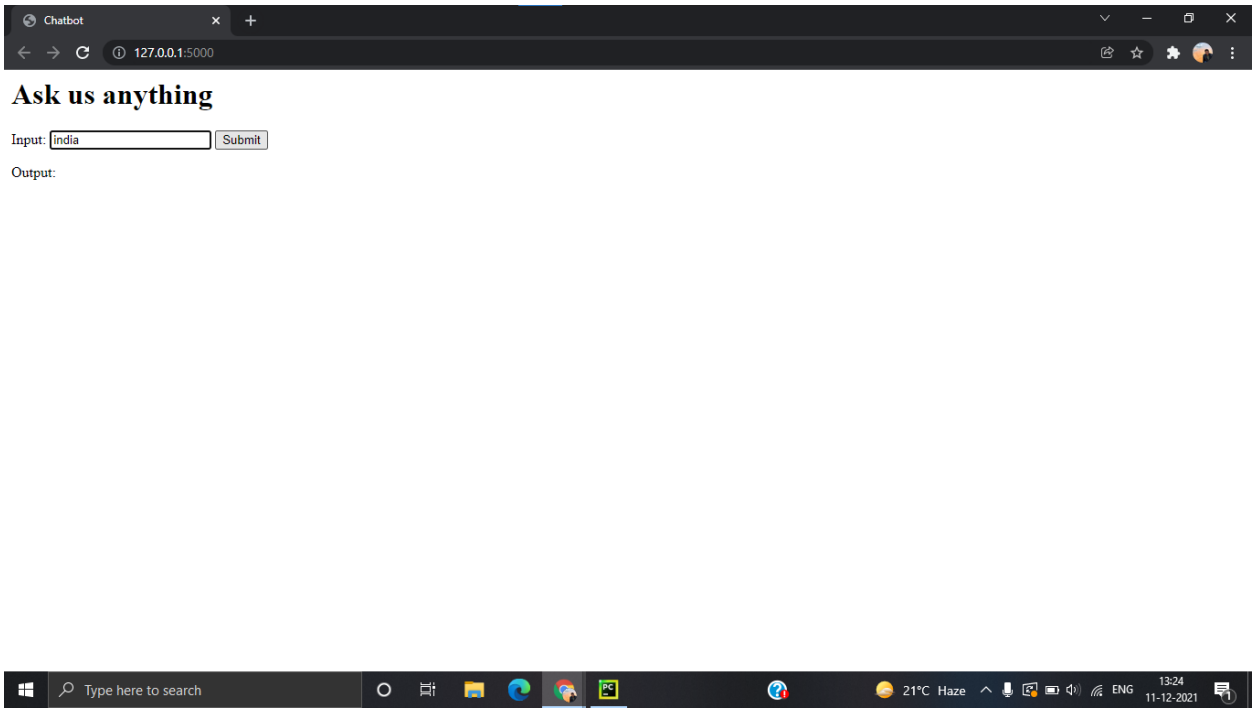
Chatbots have emerged as a hot topic in recent years, and it is used by numerous companies in various areas - help desk tools, automatic telephone answering systems, e-commerce, and so on. Even though the technology has been around since the ’60s (Atwell & Shawar, 2007). But still, we are interested in this technology as This can be explained by recent years’ advancements in messaging applications and AI technology.

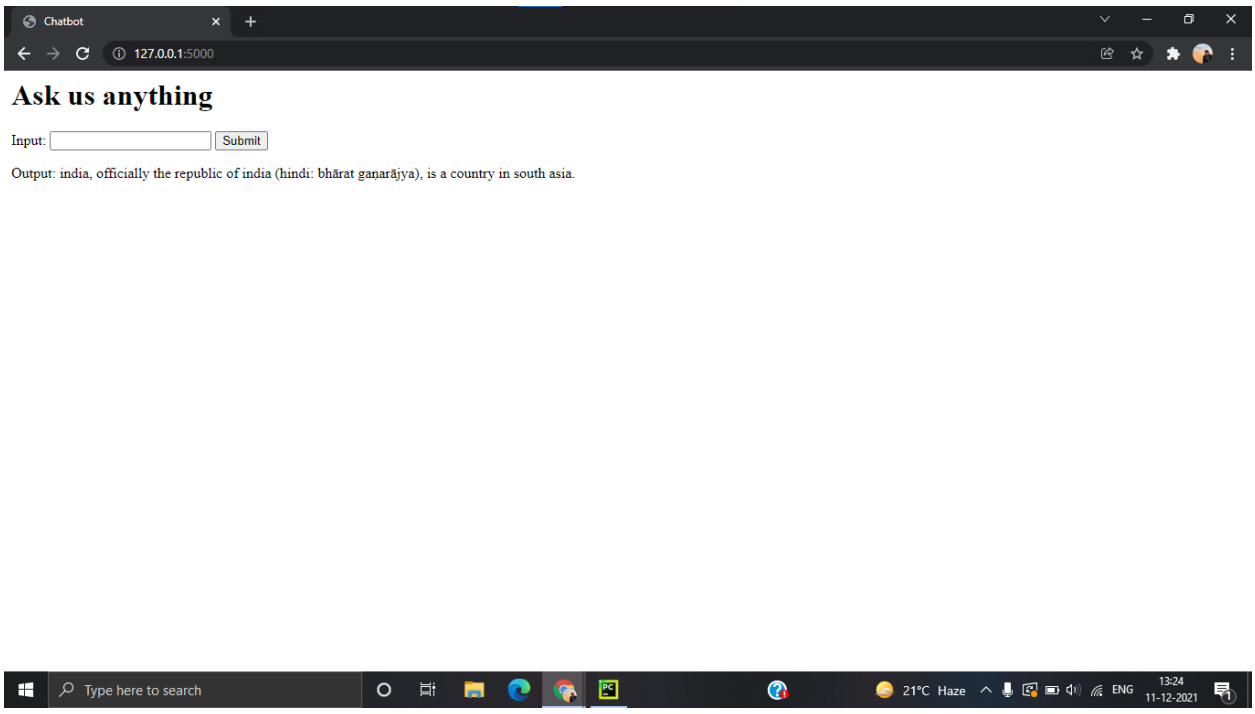
Limitation Of our Project

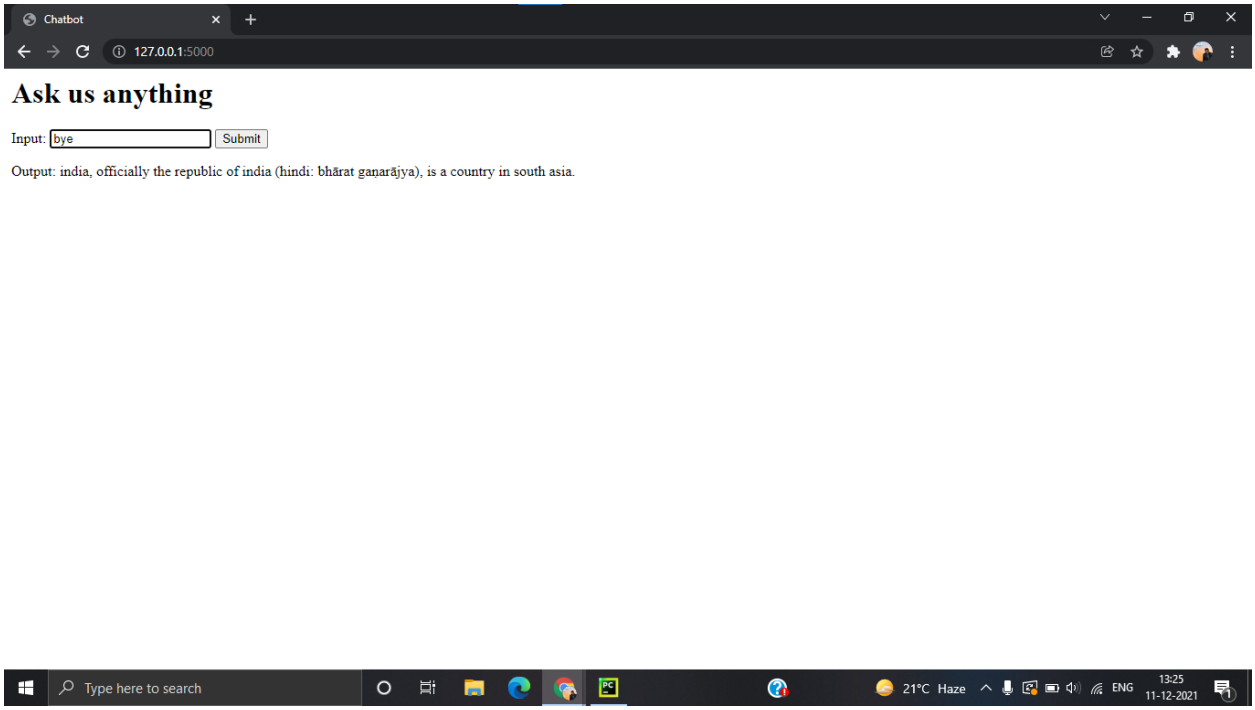
It is a chatbot machine that is based on specific rules to answer the text given by humans. The generated response by this chatbot is near accurate because of the rule it imposed; however, if we were given a query that did not match the rule, the chatbot would not answer it.

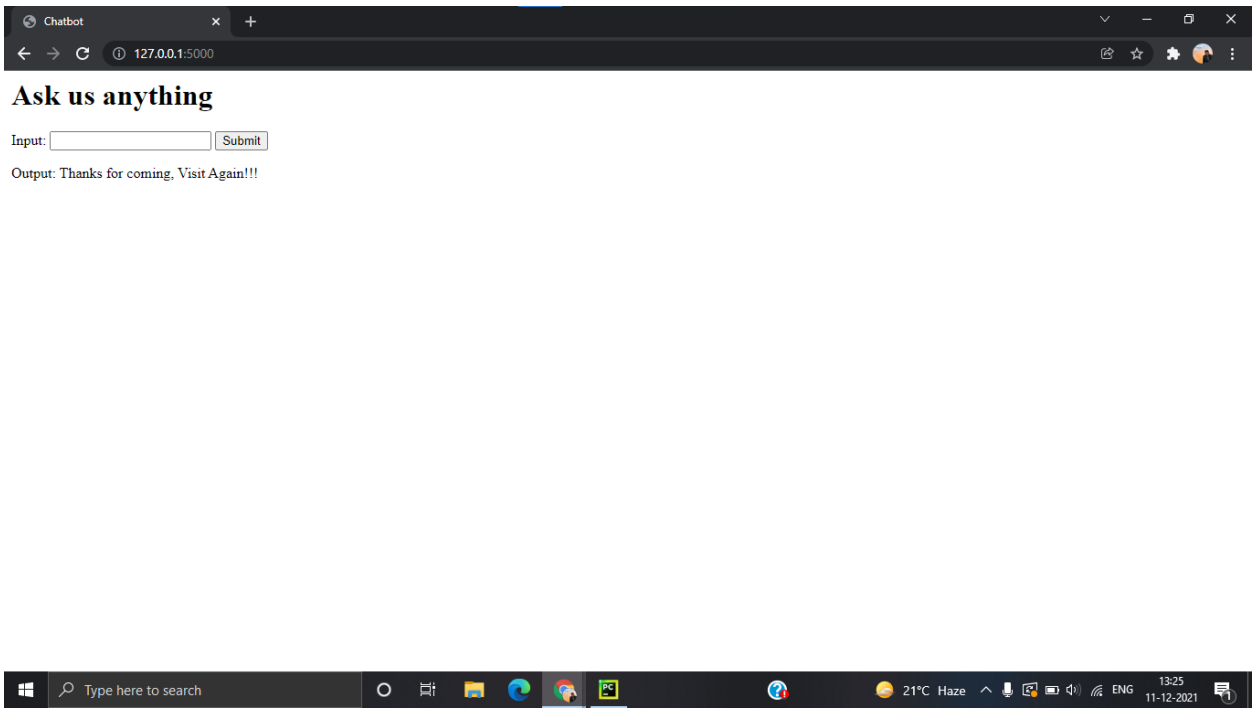
Snapshots of Project

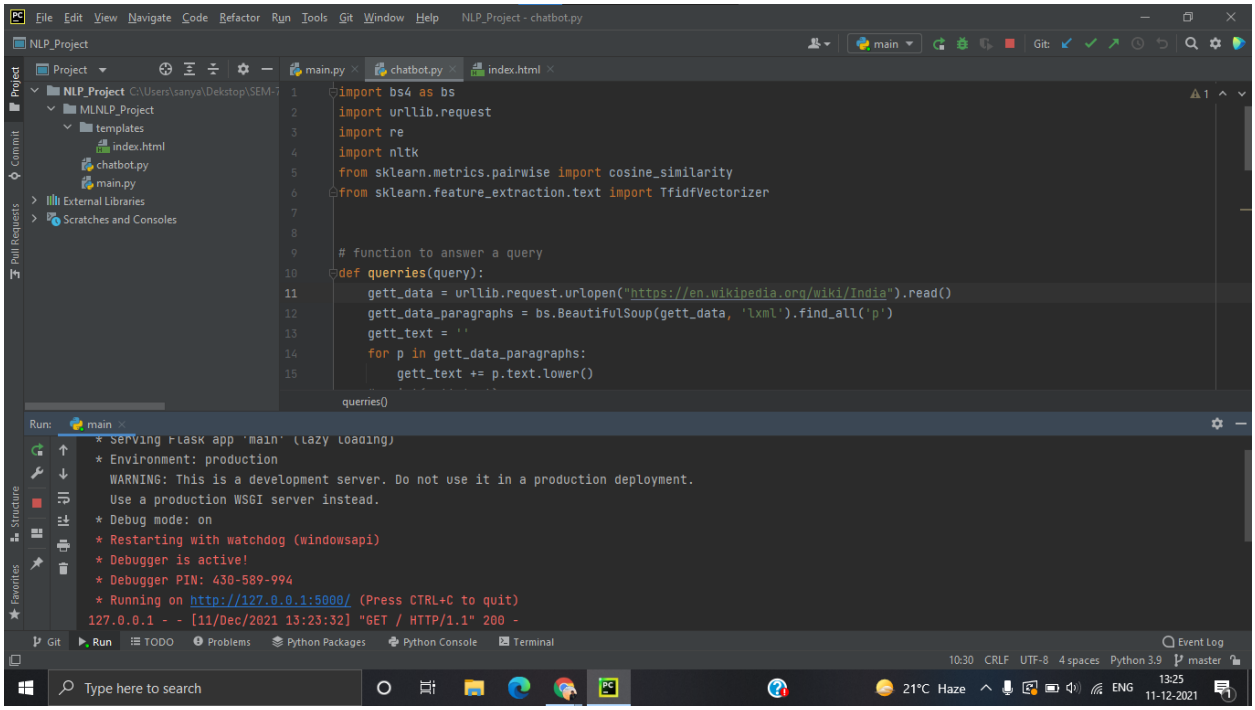


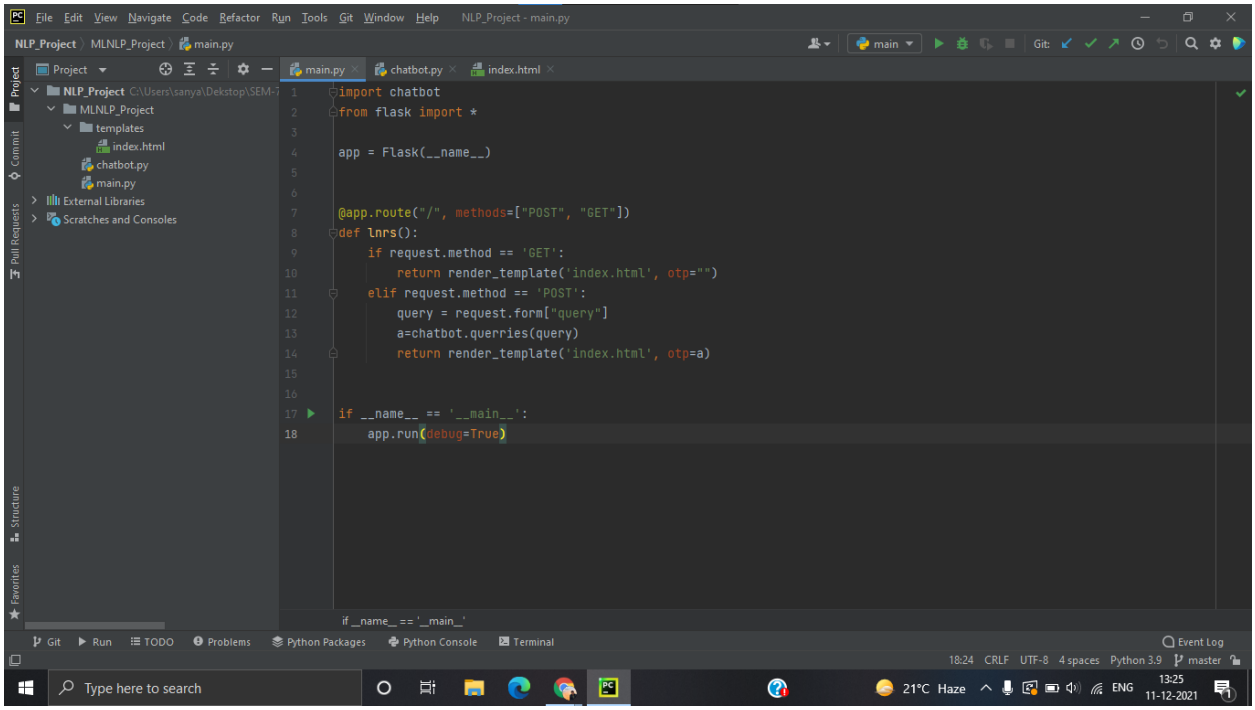

Chatbot
127.0.0.1:5000
Ask us anything
Input: india
Submit
Output:
Type here to search
21°C Haze
ENG
13:24
11-12-2021

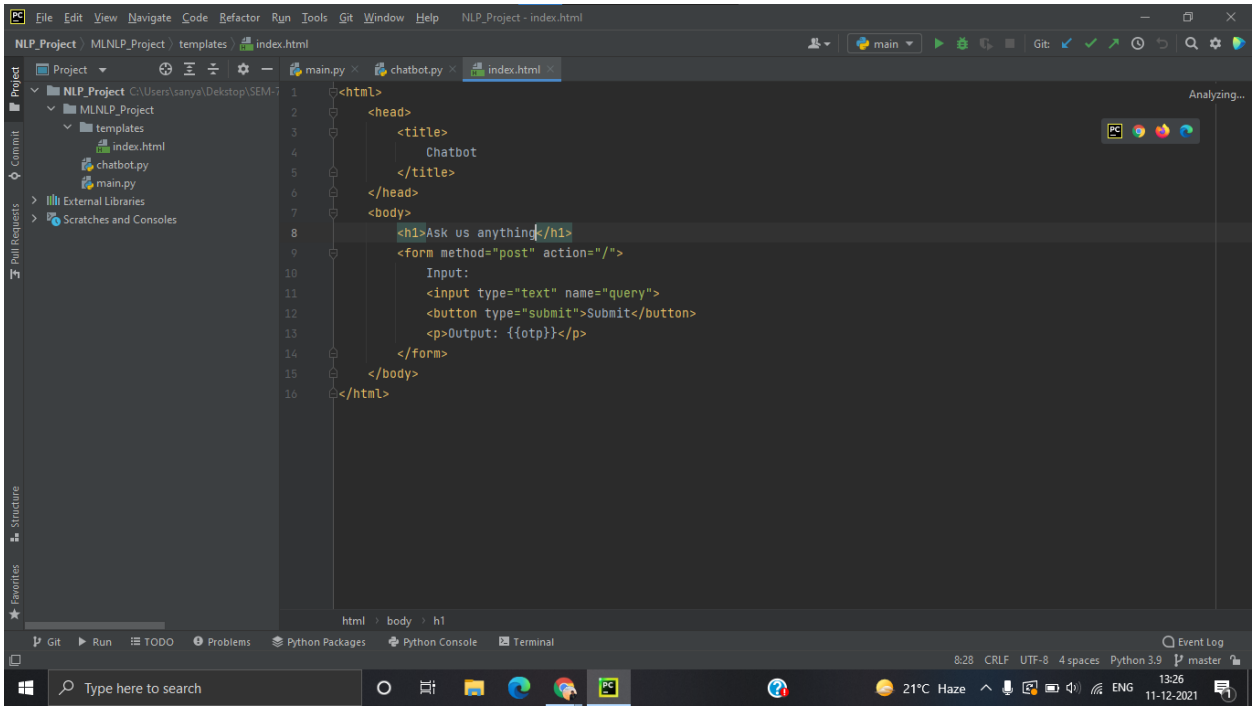

Chatbot
127.0.0.1:5000
Ask us anything
Input:
Submit
Output: india, officially the republic of india (hindi: bhārat gaṇarājya), is a country in south asia.
Type here to search
21°C Haze
ENG
13:24
11-12-2021


Chatbot
127.0.0.1:5000
Ask us anything
Input: bye
Submit
Output: india, officially the republic of india (hindi: bhārat gaṇarājya), is a country in south asia.
Type here to search
21°C Haze
ENG
13:25
11-12-2021


Chatbot
127.0.0.1:5000
Ask us anything
Input:
Submit
Output: Thanks for coming, Visit Again!!!
Type here to search
21°C Haze
ENG
13:25
11-12-2021


File Edit View Navigate Code Refactor Run Tools Git Window Help NLP_Project - chatbot.py
NLP_Project
main
Git:
Project
main.py
chatbot.py
index.html
NLP_Project C:\Users\sanya\Dekstop\SEM-7
MLNLP_Project
templates
index.html
chatbot.py
main.py
External Libraries
Scratches and Consoles
import bs4 as bs
import urllib.request
import re
import nltk
from sklearn.metrics.pairwise import cosine_similarity
from sklearn.feature_extraction.text import TfidfVectorizer
# function to answer a query
def querries(query):
gett_data = urllib.request.urlopen("https://en.wikipedia.org/wiki/India").read()
gett_data_paragraphs = bs.BeautifulSoup(gett_data, 'lxml').find_all('p')
gett_text = ''
for p in gett_data_paragraphs:
gett_text += p.text.lower()
querries()
Run: main
* Serving Flask app 'main' (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Debug mode: on
* Restarting with watchdog (windowsapi)
* Debugger is active!
* Debugger PIN: 430-589-994
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [11/Dec/2021 13:23:32] "GET / HTTP/1.1" 200 -
Git Run TODO Problems Python Packages Python Console Terminal
Event Log
10:30 CRLF UTF-8 4 spaces Python 3.9 master
Type here to search
21°C Haze
ENG
13:25
11-12-2021


NLP_Project - main.py
main.py
chatbot.py
index.html
import chatbot
from flask import *
app = Flask(__name__)
@app.route("/", methods=["POST", "GET"])
def lnrs():
if request.method == 'GET':
return render_template('index.html', otp="")
elif request.method == 'POST':
query = request.form["query"]
a=chatbot.querries(query)
return render_template('index.html', otp=a)
if __name__ == '__main__':
app.run(debug=True)


NLP_Project - index.html
<html>
<head>
<title>
Chatbot
</title>
</head>
<body>
<h1>Ask us anything</h1>
<form method="post" action="/">
Input:
<input type="text" name="query">
<button type="submit">Submit</button>
Output: {{otp}}
</form>
</body>
</html>

Bibliography

- https://nptel.ac.in/courses/106/105/106105158/
- https://nptel.ac.in/courses/106/106/106106211/
- https://doc.lagout.org/science/0_Computer%20Science/3_Theory/Neural%20Networks/Neuro%20Linguistic%20Programming%20WorkBook.pdf
- https://dzone.com/articles/python-chatbot-project-build-your-first-python-pro