CS 6320.001 Natural Language Processing

Project 1 – Chatbot Report (Part 2)

Part 2 – Chatbot

Summary:

The chatbot part of the project involves accessing the knowledge base and responding to the user queries with the help of both hardcoded tailored responses as well as by parsing the knowledge base and returning the best matches.

Program Flow:

- Data Retrieval: It retrieves pre-processed data related to Keanu Reeves' movies and TV shows from pickles, the text data from all corpus files and the tf-idf dictionary.
- User Interaction: The program starts by interacting with the user, asking for their name, favorite color, and birth year and stores it in text and pickle files.
- Query Processing: The program processes user queries, applying NLP techniques to understand and respond to them.
- Response Generation: Based on the processed queries, the program generates and outputs appropriate responses.

Function Descriptions:

- retrieve_data():

Loads pre-processed data from pickle files, including information about Keanu Reeves' movies, TV shows, and other text files.

- preprocess_text(text):

Preprocesses a given text by tokenizing, converting to lowercase, removing stopwords, and keeping only alphanumeric tokens.

- cosim(user_response, sentence):

Calculates the cosine similarity between a user's response and a sentence from the corpus to determine relevance.

- get_sentences(query):

Retrieves relevant sentences from the corpus based on the user's query, using cosine similarity and keyword matching.

- movies_print(user_year, flag) and tvshows_print(user_year, flag):

Prints information about Keanu Reeves' movies or TV shows from a specific year or a random year if the user's input year is not available.

- response_parse(user_name, user_year):

Parses the user's query and generates an appropriate response based on the pre-processed data and the user's input.

- create_user_def():

The main function that initiates user interaction, collects user information, and handles the conversation flow.

NLP Tools Used:

- **NLTK (Natural Language Toolkit):** Used for tokenization, stopwords removal, and other text processing tasks.
- **Autocorrect:** Used to correct spelling errors in user inputs. Additionally, the speller from this library is more accurate than Textblob's autocorrect.
- **TF-IDF Vectorizer:** Used to convert text data into numerical form (vector) for calculating cosine similarity.
- **Cosine_similarity:** Library to calculate the similarity between two vectors to return relevant sentences.
- **Sentiment Analysis (VADER):** Used to analyze the sentiment of user queries to generate positive or negative responses accordingly.
- **Pickle:** Used to store and retrieve pre-processed data for efficient access during runtime.
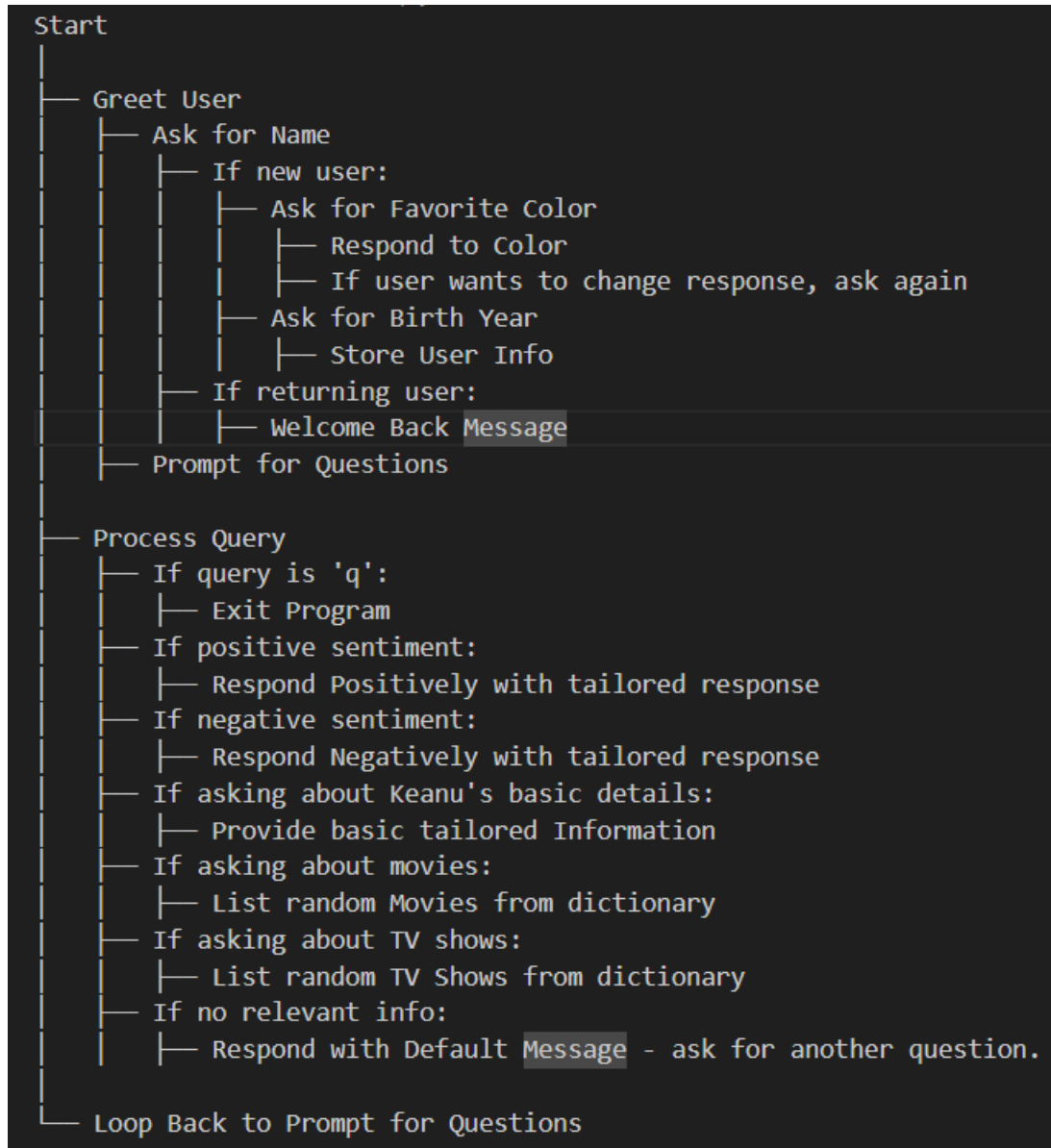
Extra Adjustments:

- Autocorrect changed Keanu's name to 'means' so substituted it back with regex.
- Substituted the terms 'mom', 'dad', 'birthday' to 'mother', 'father', 'born' as the former terms are not available in the corpuses.
- Used tailored responses for questions about chatbot and basic questions about Keanu Reeves.

Project 1 – Chatbot Report (Part 2)

Dialogue Tree:

```
Start
│
├── Greet User
│   ├── Ask for Name
│   │   ├── If new user:
│   │   │   ├── Ask for Favorite Color
│   │   │   │   ├── Respond to Color
│   │   │   │   ├── If user wants to change response, ask again
│   │   │   ├── Ask for Birth Year
│   │   │   │   ├── Store User Info
│   │   ├── If returning user:
│   │   │   ├── Welcome Back Message
│   ├── Prompt for Questions
│
├── Process Query
│   ├── If query is 'q':
│   │   ├── Exit Program
│   ├── If positive sentiment:
│   │   ├── Respond Positively with tailored response
│   ├── If negative sentiment:
│   │   ├── Respond Negatively with tailored response
│   ├── If asking about Keanu's basic details:
│   │   ├── Provide basic tailored Information
│   ├── If asking about movies:
│   │   ├── List random Movies from dictionary
│   ├── If asking about TV shows:
│   │   ├── List random TV Shows from dictionary
│   ├── If no relevant info:
│   │   ├── Respond with Default Message - ask for another question.
│
└── Loop Back to Prompt for Questions
```

Screenshots:

- Usermodel text file:

```
≡ Ashwin.txt ✕

usermodels > ≡ Ashwin.txt
        💡 Click here to ask Blackbox to help you code faster
   1    name : Ashwin
   2    colour : Green
   3    year : 1997
   4
```

```
≡ Swetha.txt ✕

usermodels > ≡ Swetha.txt
        💡 Click here to ask Blackbox to help you code faster
   1    name : Swetha
   2    colour : Blue
   3    year : 2000
   4
```

```
∨ usermodels
    ≡ Ashwin.pickle
    ≡ Ashwin.txt
    ≡ Keanu.pickle
    ≡ Keanu.txt
    ≡ Swetha.pickle
    ≡ Swetha.txt
```

- Usermodel function interaction:

```
|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Hello! I am KeanuBot. Here to help you with anything regarding the Hollywood Actor Keanu Reeves.
 Please be patient as I am not the perfect bot, I am not even a little bit close to GPT model.
     Due to my limited abilities, I would present irrelevant answers, please ignore them.
          You can ask about Keanu's movies, personal life, facts or such.

          If you want to quit the conversation, press 'q' and enter
|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||


May I know your name, please: Swetha
Hello! Swetha. Its great to meet you.

What is your favorite colour?:Blue
Ooff that's close, would've been great if it were Green because that's Keanu's favourite color.
Do you want to change your answer?
Enter y/n y

What is your favorite colour?:Green
Keanu's favourite color is green too!

Which year were you born in? 2000
You can ask any question about Keanu now, his birthday, parents, movies etc...

Ask Anything: █
```

- Remembering user model:

```
May I know your name, please: Swetha
Welcome back Swetha! Its good to see you again!
You can ask any question about Keanu now, his birthday, parents, movies etc...

Ask Anything:
```

- Tailored responses interactions and sentiment analysis score-based responses:

```
Ask Anything: what is your name

 My name is KeanuBot. I am a simple chatbot. You can ask me any questions about Keanu Reeves!

Ask Anything: what do you do?

 I am KeanuBot, I answer queries about him, and do not know anything else.

Ask Anything: who is keanu reeves?

 Keanu Charles Reeves (/kiˈɑːnuː/ kee-AH-noo; born September 2, 1964) is a Canadian[c] actor. Born in Beirut and raised in Toronto, he made his acting debut i
n the Canadian television series Hangin' In (1984), before making his feature film debut in Youngblood (1986). Reeves had his breakthrough role in the science
 fiction comedy Bill & Ted's Excellent Adventure (1989), and he reprised his role in its sequels.

Ask Anything: that sounds cool!
I agree with that!

Ask Anything: You are a bad chatbot
Whoa let's cool down.
```

```
Ask Anything: name some keanu reeves movies

Here are some movies Keanu has acted in:
In the year 2000 , These are the tvshows Keanu starred in: ['The Replacements', 'The Watcher', 'The Gift']

Ask Anything: name some other movies

Here are some movies Keanu has acted in:
In the year 2021 , These are the tvshows Keanu starred in: ['The Matrix Resurrections']

Ask Anything: name some other movies

Here are some movies Keanu has acted in:
In the year 2025 , These are the tvshows Keanu starred in: ['Ballerina \xa0']

Ask Anything: name some tvshows

 Here are some tv shows Keanu has acted in:
In the year 1987 , These are the tvshows Keanu starred in: ['Trying Times']

Ask Anything: name some other tvshows

 Here are some tv shows Keanu has acted in:
In the year 2016-2018 , These are the tvshows Keanu starred in: ['Swedish Dicks']
```

- Queries that provide response with information extracted from the knowledge base.

```
Ask Anything: When is keanu reeves' birthday

 Keanu Charles Reeves (/kiˈɑːnuː/ kee-AH-noo; born September 2, 1964) is a Canadian[c] actor. He plays bass guitar for the band Dogstar and pursued other ende
avours such as writing and philanthropy.Early lifeReeves was born in Beirut, Lebanon, on September 2, 1964, the son of Patricia (née Taylor), a costume design
er and performer, and Samuel Nowlin Reeves Jr. His mother is English, originating from Essex. On December 24, 1999, Syme gave birth eight months into her preg
nancy to the couple's child, who was stillborn. Therefore the earliest that one could reasonably surmise that the personal relationship began is 2018.^ Stillb
orn^ Although he was born in Lebanon to an English mother and an American father, Reeves grew up in Canada, identifies as Canadian, and holds only Canadian ci
tizenship. Keanu's father was born in Hawaii, of British, Portuguese, Native Hawaiian, and Chinese ancestry, and Keanu's mother is originally from England.

Ask Anything: who is keanu reeves mom

 He plays bass guitar for the band Dogstar and pursued other endeavours such as writing and philanthropy.Early lifeReeves was born in Beirut, Lebanon, on Sept
ember 2, 1964, the son of Patricia (née Taylor), a costume designer and performer, and Samuel Nowlin Reeves Jr. His mother is English, originating from Essex.
 Reeves's paternal grandmother is of Chinese and Hawaiian descent. His mother was working in Beirut when she met his father, who abandoned his wife and family
 when Reeves was three years old. Reeves last met his father on the Hawaiian island of Kauai when he was 13.After his parents divorced in 1966, his mother mov
ed the family to Sydney, and then to New York City, where she married Paul Aaron, a Broadway and Hollywood director, in 1970. Reeves's mother married Robert M
iller, a rock music promoter, in 1976; the couple divorced in 1980.

Ask Anything: which country does keanu reeves belong to?

 He added that he was pretty annoyed about the remark, saying:  "I remember I had driven across the country and I remember they told me.
```

```
Ask Anything: what is keanu reeves citizenship

 Reeves holds only Canadian citizenship.CareerMain article: Keanu Reeves filmography1984–1990: Early workReeves in 1986In 1984, Reeves was a correspondent for
 the Canadian Broadcasting Corporation (CBC) youth television program Going Great. Therefore the earliest that one could reasonably surmise that the personal
relationship began is 2018.^ Stillborn^ Although he was born in Lebanon to an English mother and an American father, Reeves grew up in Canada, identifies as C
anadian, and holds only Canadian citizenship.

Ask Anything: what is keanu sad meme

 According to Reeves, this decision caused 20th Century Fox to sever ties with him for a decade.Instead, Reeves toured with his band Dogstar, and appeared in
the drama The Last Time I Committed Suicide (1997), based on a 1950 letter written by Neal Cassady to Jack Kerouac. Stoff said Reeves "is a really private per
son" and keeps his distance from other people.In 2010, an image of Reeves became an internet meme after photographs of him were published, sitting on a park b
ench with a sad facial expression. The images were posted on the 4chan discussion board and were soon distributed via several blogs and media outlets, leading
 to the "Sad Keanu" meme being spread on the internet. While filming Bill & Ted Face the Music in July 2019, Reeves and other cast members came across a house
 with a banner reading "You're Breathtaking" and "Mini Keanu", two memes that had come out of Reeves's appearance at the Electronic Entertainment Expo 2019 fo
r the game Cyberpunk 2077. Keanu's public persona is a bit unusual for Hollywood: He's seen as a friendly, kind, but essentially private and isolated actor so
 well-known for his solitude that it's become a meme.

Ask Anything: that sucks!
That is a bit extreme, we can always say something good.
```

```
Ask Anything: who is keanu reeves father

 His American father is from Hawaii, and is of Native Hawaiian, Chinese, English, Irish, and Portuguese descent. His mother was working in Beirut when she met
 his father, who abandoned his wife and family when Reeves was three years old. Reeves last met his father on the Hawaiian island of Kauai when he was 13.Afte
r his parents divorced in 1966, his mother moved the family to Sydney, and then to New York City, where she married Paul Aaron, a Broadway and Hollywood direc
tor, in 1970. He obtained a green card through his American stepfather and moved to Los Angeles three years later. Described as "over-the-top destruction" by
the Toronto Star, Reeves plays a father, home alone, when two young women show up and start a game of cat and mouse.

Ask Anything: who is keanu reeves mother

 He plays bass guitar for the band Dogstar and pursued other endeavours such as writing and philanthropy.Early lifeReeves was born in Beirut, Lebanon, on Sept
ember 2, 1964, the son of Patricia (née Taylor), a costume designer and performer, and Samuel Nowlin Reeves Jr. His mother is English, originating from Essex.
 Reeves's paternal grandmother is of Chinese and Hawaiian descent. His mother was working in Beirut when she met his father, who abandoned his wife and family
 when Reeves was three years old. Reeves last met his father on the Hawaiian island of Kauai when he was 13.After his parents divorced in 1966, his mother mov
ed the family to Sydney, and then to New York City, where she married Paul Aaron, a Broadway and Hollywood director, in 1970. Reeves's mother married Robert M
iller, a rock music promoter, in 1976; the couple divorced in 1980.

Ask Anything: what is john wick

 Following another commercially down period, Reeves made a successful comeback by playing the titular assassin in the John Wick film series, beginning in 2014
. He played the title role in the action thriller John Wick, directed by Chad Stahelski. In the first instalment of the John Wick franchise, Reeves plays a re
tired hitman seeking vengeance. John Wick proved to be a box office success, grossing $86 million worldwide. Reeves also appeared in Swedish Dicks, a two-seas
on web television series.In 2017, Reeves agreed to reprise his role for a sequel in the John Wick franchise, John Wick: Chapter 2.
```

```
Ask Anything: does keanu reeves have a girlfriend

 Keanu Reeves has a girlfriend, and our hearts are exploding with affection. And, because this is 2019, so too is online debate about who his girlfriend is, h
ow old she is, and what those details all  mean. I don't know why I'm so happy Keanu Reeves has a girlfriend (who is age appropriate no less). — Caroline Minc
ks (@saucymincks)  November 5, 2019      The amount of people assuming that Keanu's new girlfriend Alexandra is a "granny" just because she's got grey hair p
roves how conditioned women are to appear youthful at all times. (The tabloids  tell us  that the 44-year-old DiCaprio and his current girlfriend, 22-year-old
 Camila Morrone, are "pretty serious.
```

```
Ask Anything: keanu hitman movie

 In 1990, Reeves gave two acting performances; he portrayed an incompetent hitman in the black comedy I Love You to Death, and played Martin, a radio station
employee in the comedy Tune in Tomorrow. In the first instalment of the John Wick franchise, Reeves plays a retired hitman seeking vengeance. Image via Trista
r Pictures  In the 1990 comedy  I Love You To Death , Reeves plays a bumbling hitman named Marlon, who is hired alongside his equally-dimwitted cousin Harlan
( William Hurt ) to kill philandering husband Joey ( Kevin Kline ) by Joey's wife Rosalie ( Tracy Ullman ).
```

Knowledge base Appendix:

- corpus1.txt:

```
Corpuses > ☰ corpus0.txt
         💡 Click here to ask Blackbox to help you code faster
   1    1985
   2    One Step Away
   3    1986
   4    Youngblood
   5    Young Again
   6    Young Michael Riley
   7    Flying
   8    Tommy
   9    River's Edge
  10    Matt
  11    1988
  12    The Night Before
  13    Permanent Record
  14    Chris Townsend
  15    The Prince of Pennsylvania
  16    Rupert Marshetta
  17    Dangerous Liaisons
  18    Le Chevalier Raphael Danceny
  19    1989
  20    Bill & Ted's Excellent Adventure
  21    Parenthood
  22    Tod
```

```
 163    ===
 164    1984
 165    Hangin' In
 166    1985
 167    Letting Go
 168    Night Heat
 169    Mugger / Thug #1
 170    Fast Food
 171    Crackers
 172    1986
 173    The Disney Sunday Movie
 174    Babes in Toyland
 175    Jack Nimble
 176    Act of Vengeance
 177    Buddy Martin
 178    Brotherhood of Justice
 179    Derek
 180    Under the Influence
 181    Eddie Talbot
 182    1987
 183    Trying Times
```

- List of documents in a dictionary with keys- 'doc1', 'doc2' etc and sentence tokenized

```
37 )  All digital projection, TV )  Birthday party room, business meeting room, advance ticket sales, Expanded concession menu, baby changing
stations, booster buddy seats, and daily matinees.'], 'doc4': [''" On January 31, 2005, Reeves received a star on the Hollywood Walk of Fame.',
'While Reeves dreamed of becoming an Olympic hockey player for Canada, an injury ended his hopes for a hockey career.', 'Reeves made his scre
en acting debut in a CBC Television comedy series entitled Hangin' In.', 'Stoff has remained Reeves' manager, and has co-produced many of his
films.', 'Reeves is perhaps best known for his role in Bill & Ted's Excellent Adventure as well as Speed, Point Break and the science fiction-
action trilogy The Matrix.', 'Reeves' mother married Robert Miller, a rock promoter, in 1976; the couple divorced in 1980.', 'She subsequently
married her fourth husband, Jack Bond, a hairdresser, a marriage that broke up in 1994.', 'While Reeves dreamed of becoming an Olympic hockey
player for Canada, an injury ended his hopes for a hockey career.', 'Keanu Reeves Pictures        In January 2011 On The BBC Program The One Sho
w Keanu Reeves Spoke  Nov 25th, 2011            A 2006 ET online survey placed him in the "Top Ten of America's Favorite Stars".', 'He abandone
d his wife and family when Reeves was three years old, and Reeves does not currently have any relationship with him.', 'Within a span of five
years, he attended four different high schools, including the Etobicoke School of the Arts, from which he was later expelled.', 'Reeves stated
he was expelled "…because I was greasy and running around a lot.', 'WealthyMen.', 'This is a celebrity fan site.'], 'doc5': ['His roles in be
loved blockbuster movies, relaxed demeanor, and genuine earnestness have made him both an A-list actor and a prince of internet memes.', 'But
despite a high-profile career spanning over three decades, Reeves has remained a very private person.', 'There's a lot you probably don't know
about him, from his early life as a young actor to his behind-the-scenes exploits and work outside of movies.', 'He Was Born in Lebanon  Kean
u Reeves  is known as a quintessentially American actor, thanks to characters like Ted "Theodore" Logan and Johnny Utah, who, outside of a car
toon cowboy, are two of the most American human beings to ever exist.', 'So it might surprise you to learn that Reeves isn't actually American
.', 'Image via Miramax  Reeves was born in Lebanon to an English mother and an American father.', 'He moved to Ontario when he was a kid after
his parents got divorced and his mother remarried a stage and film director.', 'Reeves remains a Canadian citizen, with an American green car
d through his stepfather.', 'He Auditioned to be Bill, Not Ted  According to a long-standing urban legend that has never been fully confirmed,
Reeves actually auditioned for the part of Bill S. Preston, Esq.', 'Meanwhile (according to the rumor),  Alex Winter  tried out for Ted, only
to be cast as Bill.', 'Image via Orion Pictures  Again, the rumor has never been confirmed, and Alex Winter can't even recall if it's true, a
lthough he has a theory about it.', 'He thinks it might come from the fact that the two characters are so similar, he and Reeves lose track ov
er who played who.', 'This is especially true for the  John Wick  series, in which Reeves performs the vast majority of the driving, fighting,
and gunplay himself.', 'But one sequence In the original  John Wick  was more grueling than you realize.', 'Image via Summit Entertainment  D
uring the extended night club sequence, in which John Wick fight-shoots his way through one or two dozen of Theon Greyjoy's henchmen, Reeves w
as actually incredibly sick.', 'According to the director's commentary track on the  John Wick  blu-ray, the actor had a fever of around 103°
while filming that scene, which involved a lot of demanding physical activity and complicated choreography.', 'What can we say?', 'Keanu is a
```

- movies.pickle

```
Movies:
1985 : ['One Step Away']
1986 : ['Youngblood', 'Young Again', 'Flying', "River's Edge"]
1988 : ['The Night Before', 'Permanent Record', 'The Prince of Pennsylvania', 'Dangerous Liaisons']
1989 : ["Bill & Ted's Excellent Adventure", 'Parenthood']
1990 : ['I Love You to Death', 'Tune in Tomorrow']
1991 : ['Point Break', "Bill & Ted's Bogus Journey", 'My Own Private Idaho']
1992 : ["Bram Stoker's Dracula"]
1993 : ['Much Ado About Nothing', 'Even Cowgirls Get the Blues', 'Freaked', 'Little Buddha']
1994 : ['Speed']
1995 : ['Johnny Mnemonic', 'A Walk in the Clouds']
1996 : ['Chain Reaction', 'Feeling Minnesota']
1997 : ['The Last Time I Committed Suicide', "The Devil's Advocate"]
1999 : ['The Matrix', 'Me and Will']
2000 : ['The Replacements', 'The Watcher', 'The Gift']
```

- tvshows.pickle

```
TV Shows:
1984 : ["Hangin' In"]
1985 : ['Letting Go', 'Night Heat', 'Fast Food']
1986 : ['The Disney Sunday Movie', 'Babes in Toyland', 'Act of Vengeance', 'Brotherhood of Justice', 'Under the Influence']
1987 : ['Trying Times']
1989 : ['Life Under Water', 'The Tracey Ullman Show']
1990 : ["Bill & Ted's Excellent Adventures"]
2009 : ['Bollywood Hero']
2016-2018 : ['Swedish Dicks']
2020 : ['A World of Calm']
2023 : ['Ride with Norman Reedus', 'Brawn: The Impossible Formula 1 Story', '']
```

- Important words list:

```
TF-IDF list of words:
 (['reeves', 'keanu', 'film', 'grant', 'first', 'said', 'name', 'like', 'years', 'people', 'would', 'john', 'book', 'one', 'two', 'matrix', 'life', 'ted', 'wi
ck', 'interview', 'movie', 'also', 'time', 'played', 'together', 'star', 'sad', 'role', 'think', 'bill', 'much', 'actor', 'couple', 'toronto', 'films', 'way',
 'school', 'happy', 'speed', 'run'], {'parker', 'test', 'together', 'catches', 'shallow', 'others', 'ago', 'u', 'constant', 'year', 'remember', 'know', 'insid
e', 'played', 'fiercely', 'committed', 'volodymyr', 'trinity', 'unkind', 'blige', 'us', 'handsome', 'stressful', 'reprieve', 'interactions', 'eyes', 'successf
ul', 'day', 'well', 'supported', 'bigger', 'come', 'character', 'kind', 'man', 'something', 'home', 'screen', 'always', 'zelensky', 'characters', 'edit', 'liv
es', 'could', 'need', 'training', 'still', 'count', 'keanu', 'rather', 'become', 'years', 'friendship', 'protective', 'neo', 'listens', 'actor', 'checks', 'in
spired', 'shows', 'intense', 'often', 'hope', 'friend', 'resurrections', 'last', 'essence', 'glimpses', 'kindly', 'felt', 'plays', 'gives', 'met', 'humanity',
 'pedestal', 'ease', 'put', 'world', 'thoughtful', 'time', 'first', 'everyday', 'talented', 'disappointment', 'matrix', 'every', 'way', 'already', 'get', 'ill
uminates', 'post', 'generous', 'actions', 'candace'})
```

Evaluations:

Strengths and Weaknesses:

Weaknesses:

1) Does not produce output if the query contains only stop words.
2) Very limited questions are answered.
3) Random sentences are generated along with relevant ones.

Strengths:

1) Produces answer to query with good enough similarity.
2) Answers basic questions perfectly.
3) Notices user sentiments and produces tailored empathetic answers.
4) Response time is pretty good with less than 10 seconds.
5) Output format is readable and does not generate non-alphanumeric characters.

Likert Survey:

Person 1:

1) How well did the chatbot understand your questions?

Very well	Well	Neutral	Unwell	Very unwell

2) How relevant were the chatbot's responses to your queries?

Very relevant	Relevant	Neutral	Irrelevant	Very irrelevant

3) How satisfied are you with the speed of the chatbot's responses?

Very Satisfied	Satisfied	<mark>Neutral</mark>	Not Satisfied	Very Unsatisfied

4) How helpful was the chatbot in providing information about Keanu Reeves?

<mark>Very helpful</mark>	Helpful	Neutral	Unhelpful	Very unhelpful

5) How natural did the conversation with the chatbot feel?

Very natural	<mark>Natural</mark>	Neutral	Unnatural	Very unnatural

Person 2:

1) How well did the chatbot understand your questions?

<mark>Very well</mark>	Well	Neutral	Unwell	Very unwell

2) How relevant were the chatbot's responses to your queries?

<mark>Very relevant</mark>	Relevant	Neutral	Irrelevant	Very irrelevant

3) How satisfied are you with the speed of the chatbot's responses?

Very Satisfied	<mark>Satisfied</mark>	Neutral	Not Satisfied	Very Unsatisfied

4) How helpful was the chatbot in providing information about Keanu Reeves?

Very helpful	<mark>Helpful</mark>	Neutral	Unhelpful	Very unhelpful

5) How natural did the conversation with the chatbot feel?

Very natural	Natural	<mark>Neutral</mark>	Unnatural	Very unnatural

Project 1 – Chatbot Report (Part 2)

Person 3:

1) How well did the chatbot understand your questions?

Very well	Well	Neutral	Unwell	Very unwell

2) How relevant were the chatbot's responses to your queries?

Very relevant	Relevant	Neutral	Irrelevant	Very irrelevant

3) How satisfied are you with the speed of the chatbot's responses?

Very Satisfied	Satisfied	Neutral	Not Satisfied	Very Unsatisfied

4) How helpful was the chatbot in providing information about Keanu Reeves?

Very helpful	Helpful	Neutral	Unhelpful	Very unhelpful

5) How natural did the conversation with the chatbot feel?

Very Natural	Natural	Neutral	Unnatural	Very unnatural