



Chatbot for Legal Assistance

Implementation of idea, Flowcharts



Approach

Chatbot :

1. Preprocessing the Dataset:

- Used NLTK to remove stopwords from law descriptions.
- Leveraged WordNetLemmatizer to convert words to their root form.
- Translated user queries to English using Google Translate.
- Extracted keywords from user queries using Rake.

2. Finding Best Matching Law:

- Developed a function to find the best-matching law by comparing root forms of law names and common keywords with the user query.

3. Model Selection:

- Chose DistilBERT, a smaller version of BERT, for question-answering tasks.
- Fine-tuned on the Stanford Question Answering Dataset (SQuAD).
- Utilized DistilBertTokenizer to tokenize input text.



4. **Model Architecture:**

- Transformer-based model suitable for NLP tasks.
- Specifically designed for question answering.

5. **Question-Answering Task:**

- Takes a question and context as input.
- Returns start and end positions of the answer within the context.

6. **Usage:**

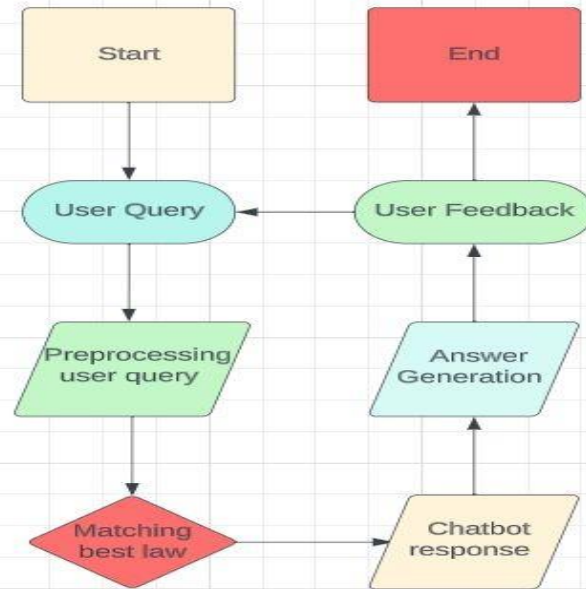
- Takes encoded input (question and context).
- Utilizes start_logits and end_logits to identify the answer's positions.
- Decodes answer span back into natural language text.

7. **Output:**

- Generates answers based on the input question and context.
- Suitable for chatbots and information retrieval systems.

DistilBERT is an efficient and powerful tool for NLP applications, designed to provide answers based on user queries within a legal context.

Flowchart



Photos

Law_Dataset ☆ 📁 ☁

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A1 Basic Rights

	A	B	C	D	E	F	G	H
13	Prohibition of em	No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other						
14	Freedom of cons	propagation of re Subject to public order, morality and health and to the other provisions of this Part, all persons are equally entitle						
15	Freedom to man	Subject to public order, morality and health, every religious denomination or any section thereof shall have the ri						
16	Freedom as to p	religion. No person shall be compelled to pay any taxes, the proceeds of which are specifically appropriated in payment of						
17	Freedom as to a	worship in certain No religious instruction shall be provided in any educational institution wholly maintained out of State funds. Not						
18	Protection of inte	Any section of the citizens residing in the territory of India or any part thereof having a distinct language, script or						
19	Right to Equality	This ensures equal treatment before the law and prohibits discrimination on the grounds of religion, race, caste,						
20	Right to Freedom	This includes freedom of speech and expression, assembly, association, movement, and the right to practice any						
21	Right against Ex	This safeguards citizens from being subjected to forced labor, child labor, and human trafficking.						
22	Right to Freedom	This guarantees the freedom to profess, practice, and propagate any religion of your choice, while also respecting religious sentiments and maintaining public order.						
23	Cultural and Edu	These rights protect the interests of minorities and ensure the right to conserve their language, culture, and heritage. Additionally, citizens have the right to access education in a lang						
24	Right to Constitu	This empowers citizens to approach the courts in case their fundamental rights are violated. The courts have the authority to issue suitable orders or directives to protect and enforce						
25	Right to Life	You have the right to life, and no one should unlawfully deprive you of it.						
26	Freedom of Expr	You have the right to express your thoughts, opinions, and ideas, both verbally and in writing, within the bounds of the law.						
27	Freedom of Reli	You have the right to practice, change, or obtain from any religion or belief						

+ ≡ Dataset (1) ▾

```
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```

chatbot_sih.ipynb X

C:\Users\ Vishn > Desktop > SIHProjectChatbot > chatbot_sih.ipynb 🌐 import pandas as pd

+ Code + Markdown ▶ Run All 🔍 Clear All Outputs 📄 Outline ...

Select Kernel

```
import pandas as pd
from rake_nltk import Rake
from nltk.stem import WordNetLemmatizer
```

[79] Python

```
# Sample dataset
data=pd.read_csv("C:\\Users\\vishn\\Desktop\\SIHProjectChatbot\\Red1.csv",encoding='iso-8859-1') # Replace with your dataset file path
# Assuming your dataset has 'LawName' and 'Description' columns

# Keyword extraction function
def keyword_extractor(query):
    r = Rake()
    r.extract_keywords_from_text(query)
    keywords = r.get_ranked_phrases()
    return keywords
```

[80] Python

```
from googletrans import Translator

translator = Translator()
```

[81] Python

Photos



```
user_query=input()
print(user_query)
user_query=translator.translate(user_query, src='hi', dest='en').text #source=hindi destination=english
print(user_query)
```

[56] ✓ 29.1s

... mujhe chote bacho ke kaam karna galat h ya sahi ispar suchna de
It is wrong to do the work of young children or correct it.

```
answers_list=[]
handle_query="I'm sorry, but I don't have access to your query as of my knowledge.To find out answer to your query, I recommend checking the latest news."
if (len(best_matching_law)!=0):
    for i in range(len(best_matching_law)):
        result = answergen(user_query,result_dict[best_matching_law[i]])
        answers_list.append(result)
    for i in range(len(answers_list)):
        print("Answer:",i+1,translator.translate(answers_list[i], src='en', dest='hi').text)
        print("Answer:",i+1,answers_list[i])
else:
    print(handle_query)
    print(translator.translate(handle_query, src='en', dest='hi').text)
```

✓ 2.2s

Answer: 1 गलत बात है
Answer: 1 it is wrong

+ Code

+ Markdown

```
# Extract keywords from the user query
user_keywords = keyword_extractor(user_query)
user_que = []
for phrase in user_keywords:
    words = phrase.split()
    user_que.extend(words)

lemmatizer = WordNetLemmatizer()
user_word = [lemmatizer.lemmatize(word) for word in user_que]

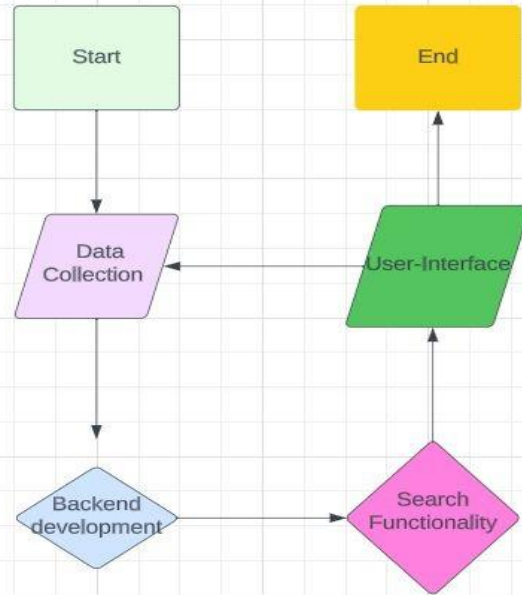
common_words=["give","information","law","provide","know","let"]
user_words = [word for word in user_word if word not in common_words]
user_words
```



Legal Dictionary

- 1. Data Collection:** We would gather a comprehensive list of legal terms and their corresponding definitions. We would create a database to store the legal dictionary.
- 2. Backend Development:** We would use a server-side framework like Django, Flask, or Express.js to create APIs for querying and retrieving legal terms and definitions.
- 3. User Interface:** We would develop a user friendly interface for the legal dictionary using frontend tools like react, angular etc.
- 4. Search Functionality:** We would implement a robust search feature that allows users to search for legal terms by keywords.

Flowchart





Know Your Rights Framework

1. **Content collection and creation:**

- We would gather information on legal rights from reliable sources, including government websites, legal experts, and relevant publications.
- We would give clear and concise explanations in a user friendly manner for each right.
- Simplify the legal language with video explanations.

2. **Create a Database:**

- Create a database of the legal rights.



3. Backend Development:

- Using a framework like Django, Flask, or Express.js to create APIs for retrieving KYR information.

4. User Friendly Interface:

- Developing a user-friendly interface using frontend tools like React, Angular.

5. Multilingual Support:

- Offer content in various regional languages.

6. Legal Resources:

- Provide links to government websites which could assist the users.

Flowchart

