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```
import nltk
from nltk.chat.util import Chat, reflections
from sys import version_info
from string import punctuation
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
from nltk.stem import PorterStemmer, WordNetLemmatizer
```

```
pairs = [
    [
        r"How can I avail internet reservation facility through credit cards?", 
        ['Recently internet reservation facility has started on Indian Railways. The web site http://www.irctc.co.in is operational now. You can book your tickets online through this website.']
    ],
    [
        r"Why are PNR and reservation availability queries not available after certain timings at night?", 
        ['The online PNR and seat availability queries are fetched from the computerized reservation applications. These online systems are updated regularly, so you may experience issues during late-night hours. Please check back later or contact customer support for assistance.']
    ],
    [
        r"How can I avail the enquiries, through SMS on mobile phones?", 
        ['Now all the enquiries offered on the web site www.indianrail.gov.in are available on your mobile phone through SMS facility. You can send SMS to 139 to get information about train schedules, fares, and other services.']
    ],
    [
        r"Why do sometimes the fonts, colors schemes and java scripts behave differently in some browser or browsers?", 
        ['This web site is best viewed with Microsoft Internet Explorer 6.0 and above. It might not give desired results with other browsers like Firefox, Chrome, etc. Please update your browser to the latest version for better performance.']
    ],
    [
        r"Where can I get the latest arrival and departure timings of trains, when they get delayed?", 
        ['The latest arrival and departure timings of delayed trains, alongwith diverted routes etc. will be made available shortly. Please check the official website or mobile app for real-time updates.']
    ],
    [
        r"Where can I lodge complaint against any type of grievances in the Trains, Platforms, officials for problems on this web site?", 
        ['The complaint software is presently under development. We try our best to forward your grievances to the concerned department. Please stay tuned for more information.']
    ],
]
```

```
def unique(list1):
    # initialize a null list
    unique_list = []
    # traverse for all elements
    for x in list1:
        # check if exists in unique_list or not
        if x not in unique_list:
            unique_list.append(x)
    return(unique_list)
lemmatiser = WordNetLemmatizer()
def preprocessing (sent) :
    rem_words = ['get', 'avail', 'who' , 'where', 'how' , 'what', 'why' , 'when', 'I', 'can']
    ##print(sent)
    # remove punctuation
    # convert to lower
    for p in list(punctuation):
        sent=sent.replace(p,'')
    sent=sent.lower().split()
    #remove stop words
    stop_words = set(stopwords.words('english'))
    sent = [i for i in sent if not i in stop_words]
    sent = [i for i in sent if not i in rem_words]
    # lemmatise
    #[item.upper() for item in mylis]
    sent = [lemmatiser.lemmatize(item, pos="v") for item  in sent ]
    return(unique(sent))
```

```
import nltk
nltk.download('stopwords')
```

```
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data]  Unzipping corpora/stopwords.zip.
True
```

```
import nltk
nltk.download('wordnet')
```

```
nltk.download('omw-1.4') # recommended for newer NLTK
```

```
[nltk_data] Downloading package wordnet to /root/nltk_data...
[nltk_data] Downloading package omw-1.4 to /root/nltk_data...
True
```

```
import nltk

resources = [
    "punkt",
    "punkt_tab",
    "stopwords",
    "wordnet",
    "omw-1.4",
    "words"
]

for r in resources:
    nltk.download(r)
```

```
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data] Package punkt is already up-to-date!
[nltk_data] Downloading package punkt_tab to /root/nltk_data...
[nltk_data] Package punkt_tab is already up-to-date!
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data] Package stopwords is already up-to-date!
[nltk_data] Downloading package wordnet to /root/nltk_data...
[nltk_data] Package wordnet is already up-to-date!
[nltk_data] Downloading package omw-1.4 to /root/nltk_data...
[nltk_data] Package omw-1.4 is already up-to-date!
[nltk_data] Downloading package words to /root/nltk_data...
[nltk_data] Package words is already up-to-date!
```

```
def tellme_bot():
    while(1):
        response = input("Tell Me. [q to quit]>")
        if response == 'q':
            break
        i=0
        chosen = len(pairs)
        matches = 0
        list_response=preprocessing(response)
        while (i<len(pairs)):
            loc_matches = 0
            x=pairs[i][0] + " ".join(pairs[i][1])
            list_pair=preprocessing(x)
            for word in list_pair:
                if word in list_response:
                    loc_matches=loc_matches+1
            if ( loc_matches > matches ):
                chosen = i
                matches = loc_matches
            i = i + 1
        if ( chosen <len(pairs) ) :
            ans=pairs[chosen][1]
            print(ans[0] )
        else :
            print("Unable to answer this question" )
        break
#Let us now call our bot with input "CAN I RESERVE RAILWAYS BOOKING" and see its response.
tellme_bot()
#prints Tell Me. [q to quit]>CAN I RESERVE RAILWAYS BOOKING
#Recently internet reservation facility has started on Indian Railways. The web site http://www.irctc.co.in
#is operational, wherein you can get the railway reservation done through Credit Cards.For more on Reservation
#through credit cards click here Internet Reservation
```

Tell Me. [q to quit]>CAN I RESERVE RAILWAYS BOOKING

Recently internet reservation facility has started on Indian Railways. The web site <http://www.irctc.co.in> is operational, wh

