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NLP EXPERIMENT NO : 2

CODE :

```
# Install required packages
!pip install nltk regex
import nltk
import re
import string
import pandas as pd
from nltk.tokenize import word_tokenize
from nltk.corpus import stopwords
import zipfile
import urllib.request
# Download NLTK resources
nltk.download('punkt')
nltk.download('stopwords')
# Download and extract dataset
dataset_url = 'https://archive.ics.uci.edu/ml/machine-learning-databases/00228/smsspamcollection.zip'
filename = 'smsspamcollection.zip'
urllib.request.urlretrieve(dataset_url, filename)
with zipfile.ZipFile(filename, 'r') as zip_ref:
    zip_ref.extractall('sms_spam_data')
# Load dataset
data_path = 'sms_spam_data/SMSSpamCollection'
# Read dataset (tab-separated)
df = pd.read_csv(data_path, sep='\t', header=None, names=['label', 'message'])
```

```
# Show first 5 rows

print(df.head())

# Preprocessing function

def preprocess_text(text):

    # Tokenize text into words

    tokens = word_tokenize(text)

    # Remove stopwords and punctuation

    stop_words = set(stopwords.words('english'))

    filtered_tokens = [word for word in tokens if word.lower() not in stop_words and word not in string.punctuation]

    # Keep only ASCII characters (Latin script)

    latin_tokens = [word for word in filtered_tokens if re.match(r'^[\x00-\x7F]+$', word)]

    return ' '.join(latin_tokens)

# Apply preprocessing to the messages

df['cleaned_message'] = df['message'].apply(preprocess_text)

# Display cleaned messages

df[['message', 'cleaned_message']].head()
```

OUTPUT :

https://colab.research.google.com/drive/13kvxe5ZCSxt6yP9H9bDbVu5nsRVUarqh#scrollTo=qTpWDr02x02m

NLP EXP 2.ipynb

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Share Gemini

Commands + Code + Text Run all

RAM Disk

```
Requirement already satisfied: nltk in /usr/local/lib/python3.11/dist-packages (3.9.1)
Requirement already satisfied: regex in /usr/local/lib/python3.11/dist-packages (2024.11.6)
Requirement already satisfied: click in /usr/local/lib/python3.11/dist-packages (from nltk) (8.2.1)
Requirement already satisfied: joblib in /usr/local/lib/python3.11/dist-packages (from nltk) (1.5.1)
Requirement already satisfied: tqdm in /usr/local/lib/python3.11/dist-packages (from nltk) (4.67.1)
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]   Package punkt is already up-to-date!
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data]   Package stopwords is already up-to-date!
  label                                            message
0   ham  Go until jurong point, crazy.. Available only ...
1   ham                      Ok lar... Joking wif u oni...
2  spam  Free entry in 2 a wkly comp to win FA Cup fina...
3   ham  U dun say so early hor... U c already then say...
4   ham  Nah I don't think he goes to usf, he lives aro...
```

1 to 5 of 5 entries Filter

index	message	cleaned_message
0	Go until jurong point, crazy.. Available only in bugis n great world la e buffet... Cine there got amore wat...	Go jurong point crazy .. Available bugis n great world la e buffet ... Cine got amore wat ...
1	Ok lar... Joking wif u oni...	Ok lar ... Joking wif u oni ...
2	Free entry in 2 a wkly comp to win FA Cup final tkts 21st May 2005. Text FA to 87121 to receive entry question(std txt rate)T&C's apply 08452810075over18's	Free entry 2 wkly comp win FA Cup final tkts 21st May 2005 Text FA 87121 receive entry question std txt rate C 's apply 08452810075over18 's

Variables Terminal 10:39 AM Python 3

Type here to search 27°C Mostly cloudy ENG IN 10:50 AM 7/17/2025

https://colab.research.google.com/drive/13kvxe5ZCSxt6yP9H9bDbVu5nsRVUarqh#scrollTo=qTpWDr02x02m

NLP EXP 2.ipynb

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RAM Disk

3 ham U dun say so early hor... U c already then say...
4 ham Nah I don't think he goes to usf, he lives aro...

1 to 5 of 5 entries Filter

index	message	cleaned_message
0	Go until jurong point, crazy.. Available only in bugis n great world la e buffet... Cine there got amore wat...	Go jurong point crazy .. Available bugis n great world la e buffet ... Cine got amore wat ...
1	Ok lar... Joking wif u oni...	Ok lar ... Joking wif u oni ...
2	Free entry in 2 a wkly comp to win FA Cup final tkts 21st May 2005. Text FA to 87121 to receive entry question(std txt rate)T&C's apply 08452810075over18's	Free entry 2 wkly comp win FA Cup final tkts 21st May 2005 Text FA 87121 receive entry question std txt rate C 's apply 08452810075over18 's
3	U dun say so early hor... U c already then say...	U dun say early hor ... U c already say ...
4	Nah I don't think he goes to usf, he lives around here though	Nah n't think goes usf lives around though

Show 25 per page

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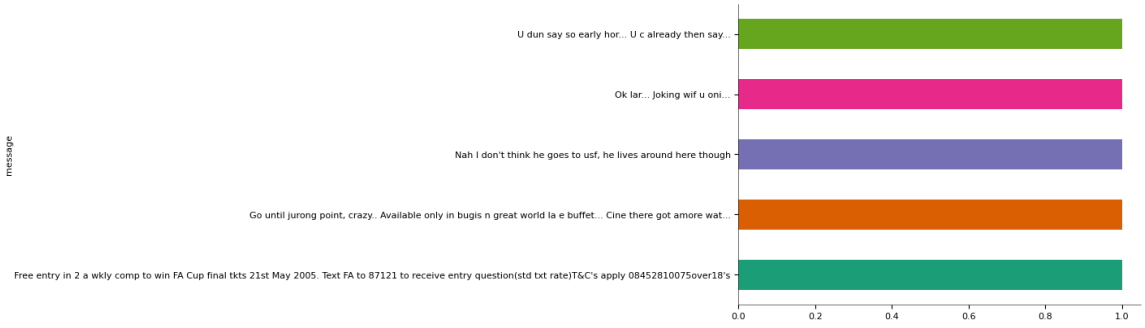
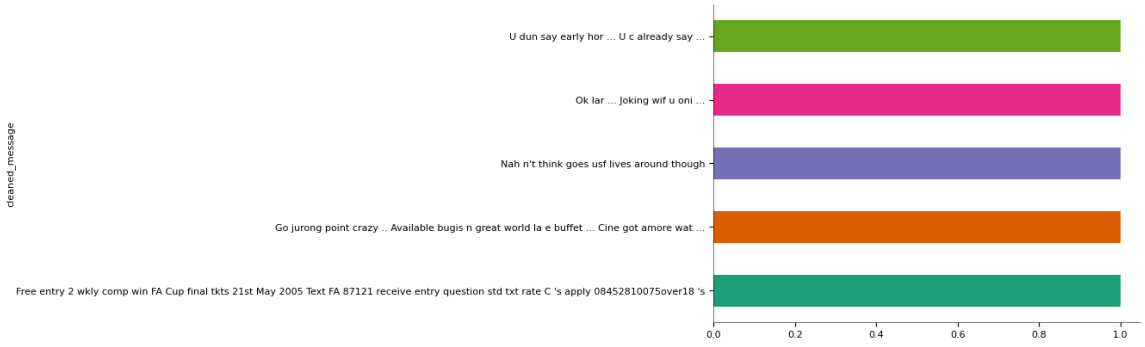
Categorical distributions

2-d categorical distributions

Variables Terminal 10:39 AM Python 3

Type here to search 27°C Mostly cloudy ENG IN 10:51 AM 7/17/2025




cleaned_message
U dun say early hor ... U c already say ...
Ok lar ... Joking wif u oni ...
Nah n't think goes usf lives around though
Go jurong point crazy .. Available bugis n great world la e buffet ... Cine got amore wat ...
Free entry 2 wkly comp win FA Cup final tkts 21st May 2005 Text FA 87121 receive entry question std txt rate C 's apply 08452810075over18 's
0.0
0.2
0.4
0.6
0.8
1.0