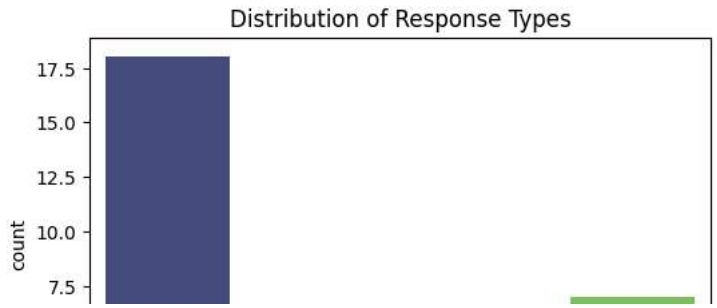
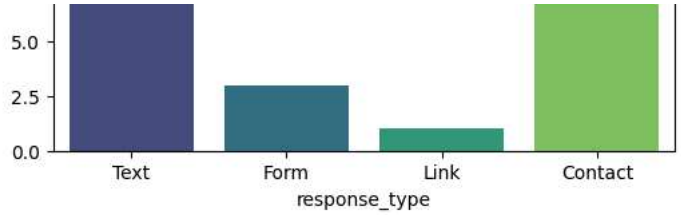
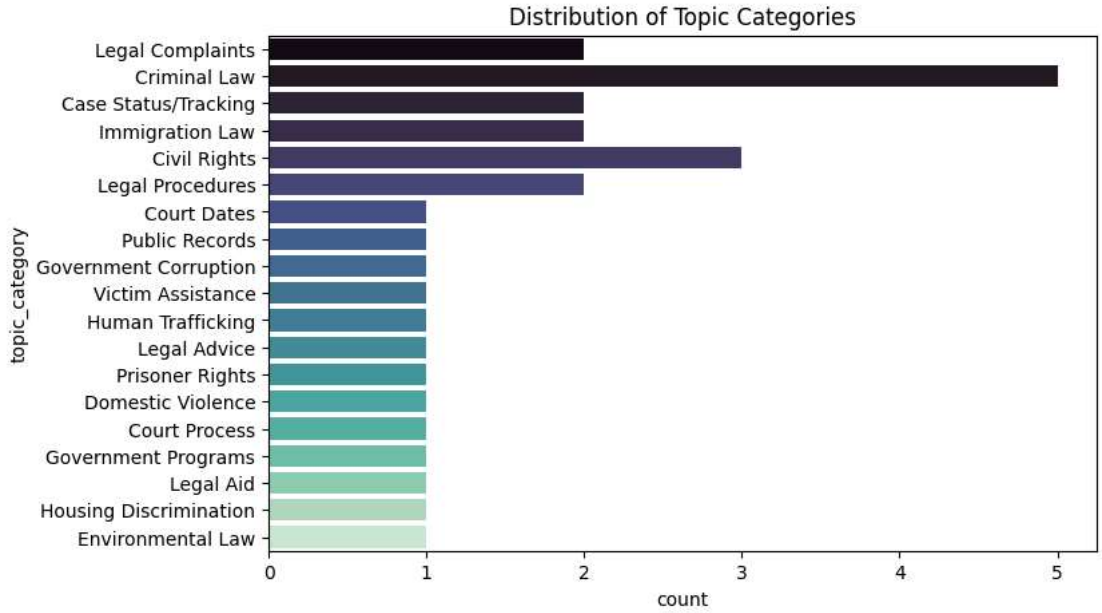
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

# Load the dataset
file_path = "project_data.csv"
df = pd.read_csv(file_path)

# Basic info and first look
print("\nDataset Info:\n")
print(df.info())
print("\nFirst 5 Rows:\n")
print(df.head())
print("\nSummary Statistics:\n")
print(df.describe(include='all'))
print("\nMissing Values:\n")
print(df.isnull().sum())

# Check for duplicates
print("\nDuplicate Rows:\n")
print(df.duplicated().sum())

# Visualize response type distribution
plt.figure(figsize=(6, 4))
sns.countplot(x='response_type', data=df, palette='viridis')
plt.title('Distribution of Response Types')
plt.show()

# Visualize topic category distribution
plt.figure(figsize=(8, 5))
sns.countplot(y='topic_category', data=df, palette='mako')
plt.title('Distribution of Topic Categories')
plt.show()

# Visualize user intent distribution
plt.figure(figsize=(8, 6))
sns.countplot(y='user_intent', data=df, palette='rocket')
plt.title('Distribution of User Intents')
plt.show()

# Cross-tabulation of response type and topic category
plt.figure(figsize=(8, 6))
sns.countplot(x='response_type', hue='topic_category', data=df, palette='coolwarm')
plt.title('Response Type by Topic Category')
plt.legend(bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()

# Cross-tabulation of response type and user intent
plt.figure(figsize=(10, 8))
sns.countplot(y='user_intent', hue='response_type', data=df, palette='Set2')
plt.title('Response Type by User Intent')
plt.legend(bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()
```

```
Dataset Info:

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 29 entries, 0 to 28
Data columns (total 5 columns):
 #   Column            Non-Null Count  Dtype
---  ------            --------------  -----
 0                     29 non-null     object
 1   response_type     29 non-null     object
 2   topic_category    29 non-null     object
 3   user_intent       29 non-null     object
 4   suggested_action  29 non-null     object
dtypes: object(5)
memory usage: 1.3+ KB
None

First 5 Rows:

                                          response_type  \
0                  How can I file a complaint?          Text
1  What are the penalties for drug trafficking?          Text
2                How do I check my case status?          Form
3           I need help with immigration laws.          Link
4                    How do I report a crime?       Contact

         topic_category          user_intent  \
0      Legal Complaints    Filing a Complaint
1          Criminal Law   Seeking Information
2  Case Status/Tracking  Checking Case Status
3       Immigration Law   Seeking Information
4          Criminal Law     Reporting a Crime

                                suggested_action
0  Visit the complaint form page [https://www.doj...
1  Learn more about drug trafficking penalties [h...
2  Please provide your case number to track your ...
3  Visit the immigration laws page [https://www.d...
4  Click here to speak with a representative for ...

Summary Statistics:

                                  response_type topic_category  \
count                                    29             29             29
unique                                   29              4             19
top     How can I file a complaint?          Text   Criminal Law
freq                                      1             18              5

                user_intent                                   suggested_action
count                    29                                                 29
unique                   22                                                 29
top     Seeking Information  Visit the complaint form page [https://www.doj...
freq                     4                                                  1

Missing Values:

                    0
response_type       0
topic_category      0
user_intent         0
suggested_action    0
dtype: int64

Duplicate Rows:

0
<ipython-input-1-d59d2298dac5>:25: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `leg

  sns.countplot(x='response_type', data=df, palette='viridis')
```

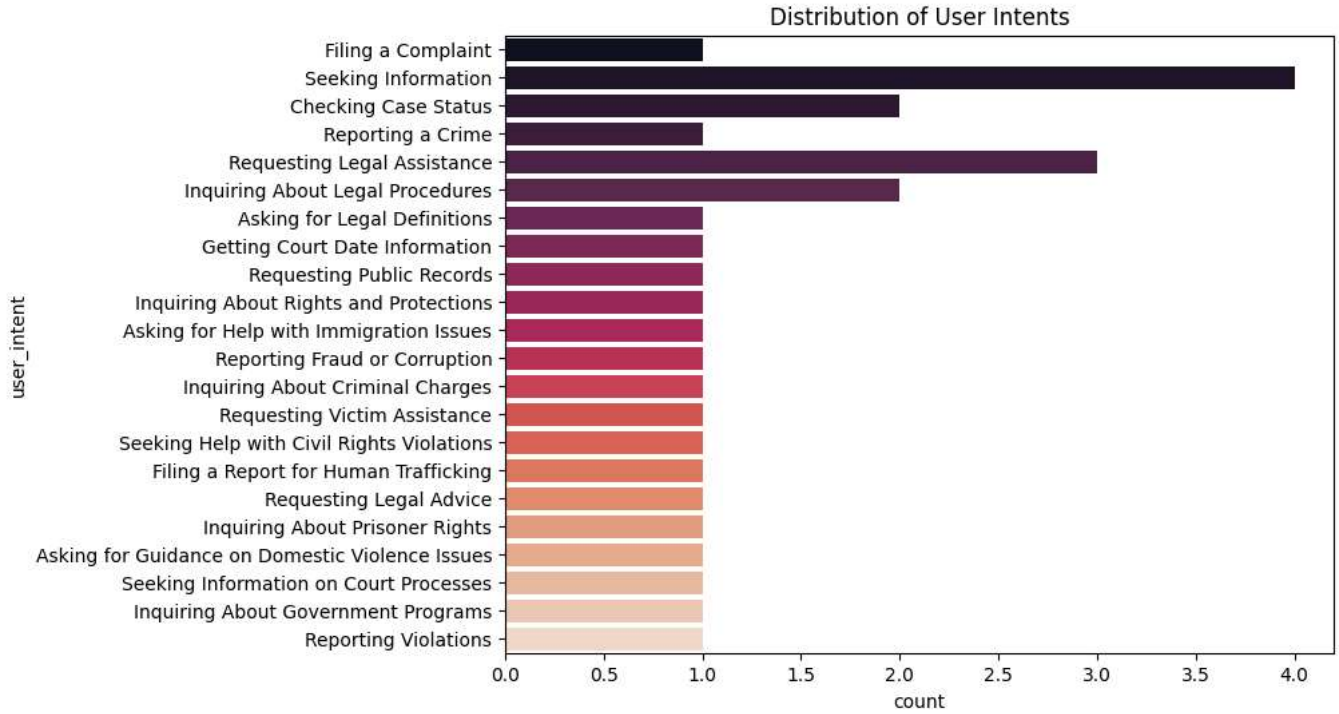


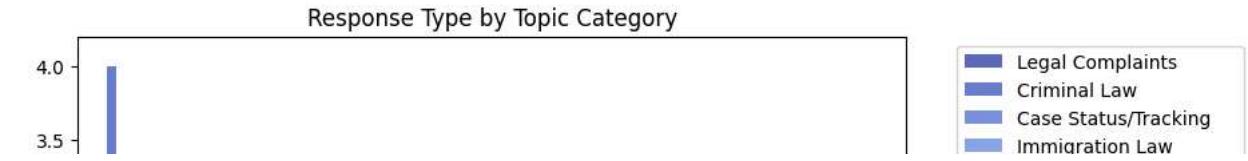


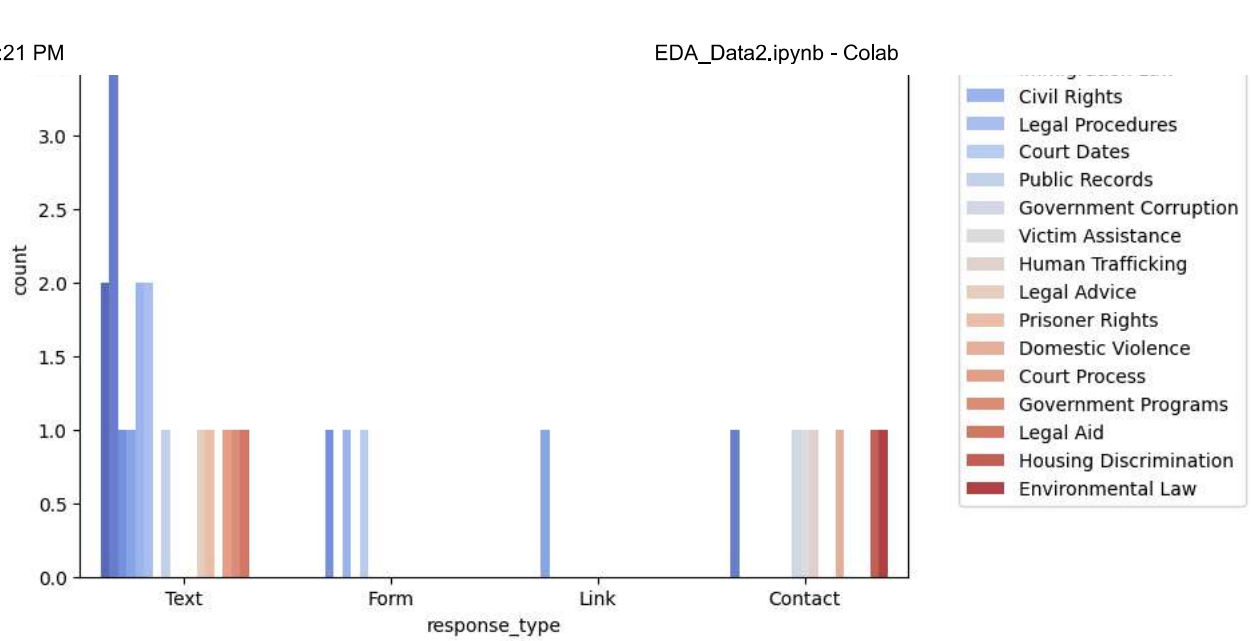

```
<ipython-input-1-d59d2298dac5>:31: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `y` variable to `hue` and set `leg

  sns.countplot(y='topic_category', data=df, palette='mako')
```

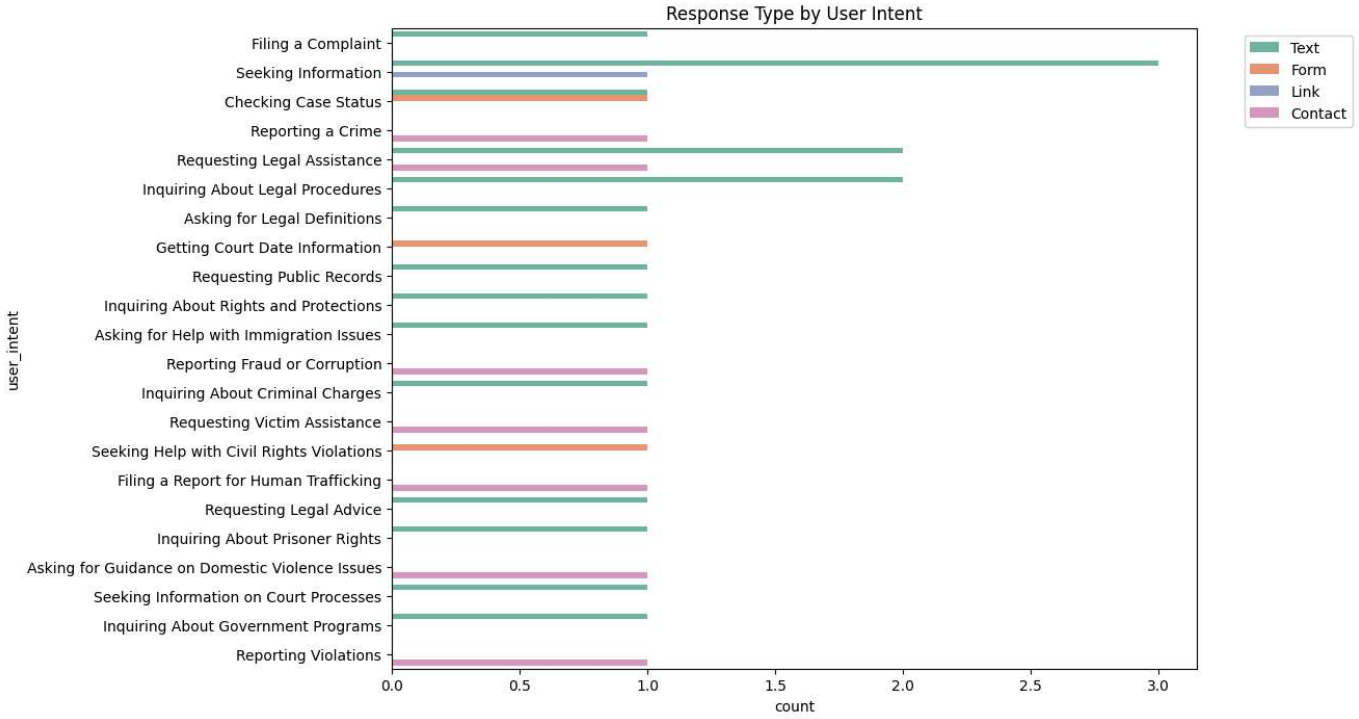



```
<ipython-input-1-d59d2298dac5>:37: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `y` variable to `hue` and set `leg

  sns.countplot(y='user_intent', data=df, palette='rocket')
```






count
response_type
Text
Form
Link
Contact
Civil Rights
Legal Procedures
Court Dates
Public Records
Government Corruption
Victim Assistance
Human Trafficking
Legal Advice
Prisoner Rights
Domestic Violence
Court Process
Government Programs
Legal Aid
Housing Discrimination
Environmental Law


Response Type by User Intent
user_intent
count
Filing a Complaint
Seeking Information
Checking Case Status
Reporting a Crime
Requesting Legal Assistance
Inquiring About Legal Procedures
Asking for Legal Definitions
Getting Court Date Information
Requesting Public Records
Inquiring About Rights and Protections
Asking for Help with Immigration Issues
Reporting Fraud or Corruption
Inquiring About Criminal Charges
Requesting Victim Assistance
Seeking Help with Civil Rights Violations
Filing a Report for Human Trafficking
Requesting Legal Advice
Inquiring About Prisoner Rights
Asking for Guidance on Domestic Violence Issues
Seeking Information on Court Processes
Inquiring About Government Programs
Reporting Violations
Text
Form
Link
Contact