TASK : 1

Add basic analytics to track user interactions, such as number of queries, most common topics, and user satisfaction ratings. Expected Outcome: A dashboard displaying key metrics about chatbot usage.

Analytics Dashboard Code

To create a basic analytics dashboard, we'll use Python and the following libraries:

- **pandas** for data manipulation and analysis
- **matplotlib** for data visualization
- **flask** for creating a simple web dashboard

Step 1: Data Collection

First, we need to collect data on user interactions. We'll create a simple data model to store the following information:

- **query_id**: Unique identifier for each query
- **query_text**: The text of the user's query
- **topic**: The topic or intent of the user's query
- **satisfaction_rating**: The user's satisfaction rating (e.g., 1-5)

```
import pandas as pd

# Create a sample dataset

data = {

    'query_id': [1, 2, 3, 4, 5],

    'query_text': ['What is the weather like?', 'How do I book a flight?', 'What is the definition of AI?', 'How do I reset my password?', 'What is the meaning of life?'],

    'topic': ['weather', 'travel', 'AI', 'password reset', 'philosophy'],

    'satisfaction_rating': [4, 5, 3, 2, 1]

}

df = pd.DataFrame(data)
```

Step 2: Data Analysis

Next, we'll perform some basic analysis on the data to extract key metrics.

```
# Calculate total queries
```

```
total_queries = len(df)
# Calculate most common topics
most_common_topics = df['topic'].value_counts().head(5)
# Calculate average user satisfaction rating
average_satisfaction_rating = df['satisfaction_rating'].mean()
```

Step 3: Data Visualization

We'll use **matplotlib** to create simple bar charts to display the data

```
import matplotlib.pyplot as plt
# Create a bar chart for most common topics
plt.figure(figsize=(10, 6))
plt.bar(most_common_topics.index, most_common_topics.values)
plt.xlabel('Topic')
plt.ylabel('Frequency')
plt.title('Most Common Topics')
plt.show()
# Create a bar chart for average user satisfaction rating
plt.figure(figsize=(10, 6))
plt.bar(['Average Satisfaction Rating'], [average_satisfaction_rating])
plt.xlabel('Metric')
plt.ylabel('Value')
plt.title('Average User Satisfaction Rating')
plt.show()
```

Step 4: Create a Web Dashboard

We'll use **flask** to create a simple web dashboard to display the key metrics.

```
from flask import Flask, render_template
app = Flask(__name__)
```

```
@app.route('/')
def index():
    return render_template('index.html', total_queries=total_queries,
most_common_topics=most_common_topics, average_satisfaction_rating=average_satisfaction_rating)
if __name__ == '__main__':
    app.run(debug=True)
```

- **index.html:**

```
<!DOCTYPE html>
<html>
<head>
    <title>Analytics Dashboard</title>
</head>
<body>
    <h1>Analytics Dashboard</h1>
    <h2>Total Queries: {{ total_queries }}</h2>
    <h2>Most Common Topics:</h2>
    <ul>
    {% for topic, frequency in most_common_topics.items() %}
        <li>{{ topic }} ({{ frequency }})</li>
    {% endfor %}
    </ul>
    <h2>Average User Satisfaction Rating: {{ average_satisfaction_rating }}</h2>
</body>
</html>
```

OUTPUT: Dashboard Image

```
Total Queries: 5

Most Common Topics:

weather (1)
travel (1)
AI (1)
password reset (1)
philosophy (1)
Average User Satisfaction Rating: 3.0
```