TASK: 03

Auto Tagging Support Tickets Using LLM

To complete this task I can run code on google collab:

CODE:-

```
# ================================
# Step 1: Install dependencies
# ================================
!pip install transformers torch pandas scikit-learn

# ================================
# Step 2: Import libraries
# ================================
import pandas as pd
from transformers import pipeline
from google.colab import files

# ================================
# Step 3: Upload your dataset
# ================================
print("📂 Please upload your CSV file (e.g., support_tickets.csv)")
uploaded = files.upload()

# Load the first uploaded file
filename = list(uploaded.keys())[0]
df = pd.read_csv(filename)

print("✅ File uploaded successfully!")
print("📊 Dataset Preview:")
print(df.head())

# ================================
# Step 4: Define categories
# ================================
# Change these according to your support system
categories = [
    "Technical Issue",
    "Account Issue",
    "Billing",
    "General Inquiry",
    "Other"
]
```

```
# ================================
# Step 5: Load zero-shot classification model
# ================================
classifier = pipeline("zero-shot-classification",
                      model="facebook/bart-large-mnli")

# ================================
# Step 6: Auto-tagging function
# ================================
def auto_tag(ticket_text):
    result = classifier(ticket_text, candidate_labels=categories)
    return result["labels"][0]  # top predicted category

# ================================
# Step 7: Apply model to dataset
# ================================
df["Predicted_Category"] = df["ticket"].apply(auto_tag)

print("✅ Auto-tagging complete!")
print(df.head())

# ================================
# Step 8: Save results
# ================================
output_file = "tagged_support_tickets.csv"
df.to_csv(output_file, index=False)

print(f"📂 Results saved to {output_file}")
files.download(output_file)
```

OUTPUT:-

```
Device set to use cpu
✅ Auto-tagging complete!
                                    ticket         category  \
0  My internet is not working since morning  Technical Issue
1              I forgot my account password   Account Issue
2          Please update my billing address          Billing
3          App crashes when I open settings  Technical Issue
4     How do I change my subscription plan?  General Inquiry

  Predicted_Category
0    Technical Issue
1      Account Issue
2            Billing
3    Technical Issue
4      Account Issue
📂 Results saved to tagged_support_tickets.csv
```

SUMMARY:-

Here's a **step-by-step summary** of the code I gave you:

1. **Install libraries**
   - Installs `transformers`, `torch`, `pandas`, and `scikit-learn` to work with LLMs and data.
2. **Import packages**
   - Loads required Python libraries.
3. **Upload dataset**
   - Lets you upload a CSV file in Colab.
   - The CSV must have a column named **`ticket`** containing the support ticket text.
4. **Define categories**
   - You manually set the list of categories (e.g., *Technical Issue, Account Issue, Billing, General Inquiry, Other*).
5. **Load pre-trained model**
   - Uses Hugging Face's **`facebook/bart-large-mnli`** model for **zero-shot classification** (no training required).
6. **Classification function**
   - For each ticket, the model predicts which category it belongs to.
   - Returns the **top category label**.
7. **Apply classification**
   - Runs the classifier on the dataset.
   - Adds a new column called **`Predicted_Category`** with the model's output.
8. **Save results**
   - Saves the updated dataset as `tagged_support_tickets.csv`.
   - Downloads the file back to your computer.