Customer Support Ticket Auto-Triage

An advanced machine learning project focused on revolutionizing customer support through intelligent ticket classification and automated routing systems.

Project Objective

Core Mission

To enhance operational efficiency and improve customer satisfaction by automating the initial processing of support tickets, reducing manual effort, and accelerating resolution times.

Primary Goal

Develop and deploy a robust machine learning model capable of accurately classifying customer support tickets into predefined categories and routing them to the most appropriate team or agent.

Project Overview

Key Ticket Categories

Bug Report

Reporting software defects or errors for immediate action.

Feature Request

Gathering user suggestions for new functionalities and enhancements.

Technical Issue

Addressing problems requiring specialized technical assistance and troubleshooting.

Billing Inquiry

Handling questions and discrepancies related to invoices, payments, and subscriptions.

Account Management

Resolving issues regarding user accounts, profiles, and access controls.

Dataset Structure

The dataset comprises historical customer support tickets, structured as follows:

Field	Description	Type
Ticket_ID	Unique identifier for each ticket	Integer
Subject	Short summary of the issue	String (Text)
Description	Detailed explanation of the problem	String (Long Text)
Category	Pre-assigned issue type (target variable)	Categorical String
Priority	Urgency level of the ticket	Categorical String
Timestamp	Date and time of ticket creation	Datetime

Technical Requirements

- **Python 3.8+**
- **Key Libraries:** scikit-learn, pandas, numpy, NLTK/SpaCy, TensorFlow/PyTorch
- **Version Control:** Git (mandatory for collaboration)

Project Deliverables

Trained ML Model

A fully trained and optimized classification model, ready for production.

API Endpoint

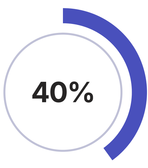
A robust RESTful API for real-time ticket classification and integration.

Technical Documentation

Comprehensive report on methodology, results, and usage guidelines.

Evaluation Framework

Model performance will be rigorously assessed using the following metrics and their respective weightages, ensuring a balanced evaluation:



Accuracy

Overall correct predictions across all categories, reflecting general model effectiveness.

Precision & Recall

Critical for identifying positive cases and minimizing false positives/negatives for each specific ticket category.

F1-Score

The harmonic mean of precision and recall, providing a balanced measure of the model's accuracy.

Latency

Measures the time taken for real-time classification, ensuring quick response times in operational environments.

Submission Guidelines

Please send your complete submission to support@leadmasters.ai with the subject line "AI/ML Assessment – Support Ticket Auto-Triage – [Your Full Name]". Submissions must be received within **48 hours** of assignment.

- **Code Repository:** All code must be submitted via a Git repository with clear, concise commit messages.
- **Comprehensive README:** A detailed README.md file outlining setup, execution, and model usage is required.
- **Model & Data Access:** The final model checkpoint and any necessary data files must be easily accessible.