Project: AI-Powered Email Classification using GPT-3.5-Turbo

Overview:

Our project focuses on building an AI-driven Email Classification System using OpenAI's GPT-3.5-Turbo. The system efficiently categorizes emails based on configurable request types, sub-request types, and roles, all defined in a config.json file. This flexibility allows seamless adaptation to different classification needs without modifying the core model.

Implementation Details:

- User Interface & Functionality: A dedicated UI allows users to upload .eml or PDF files. Upon clicking the "Upload & Classify" button, the system triggers an API call to process the file. The results include request type, sub-request type, confidence score, and context-related keywords. Additionally, users can copy the generated JSON output, enabling gatekeepers to take further actions such as ticket creation or forwarding tasks to operational teams.
- Configurable Setup: Request types, sub-request types, and roles are dynamically managed through the config.json file, ensuring flexibility and adaptability.
- Deployment & Documentation: Comprehensive setup and deployment instructions are provided in the README.md file within the email-classifier folder.

Challenges Faced:

- Generating .eml files for diverse test case scenarios.
- Identifying duplicate cases to avoid redundancy in classification.
- GitHub access-related issues during collaboration.

Results & Learnings:

- Successfully implemented a configurable classification model.
- Improved test case coverage by handling duplicates effectively.
- Overcame GitHub-related access challenges through better collaboration strategies.

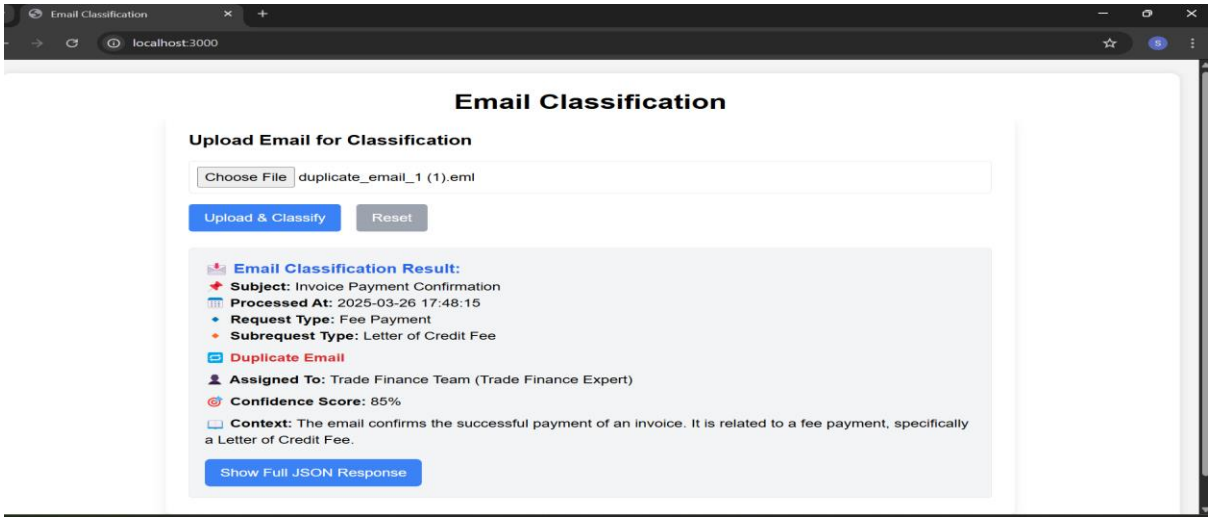
This approach **enables** a **scalable**, adaptable email classification solution, making it easy to refine and extend for various use cases.

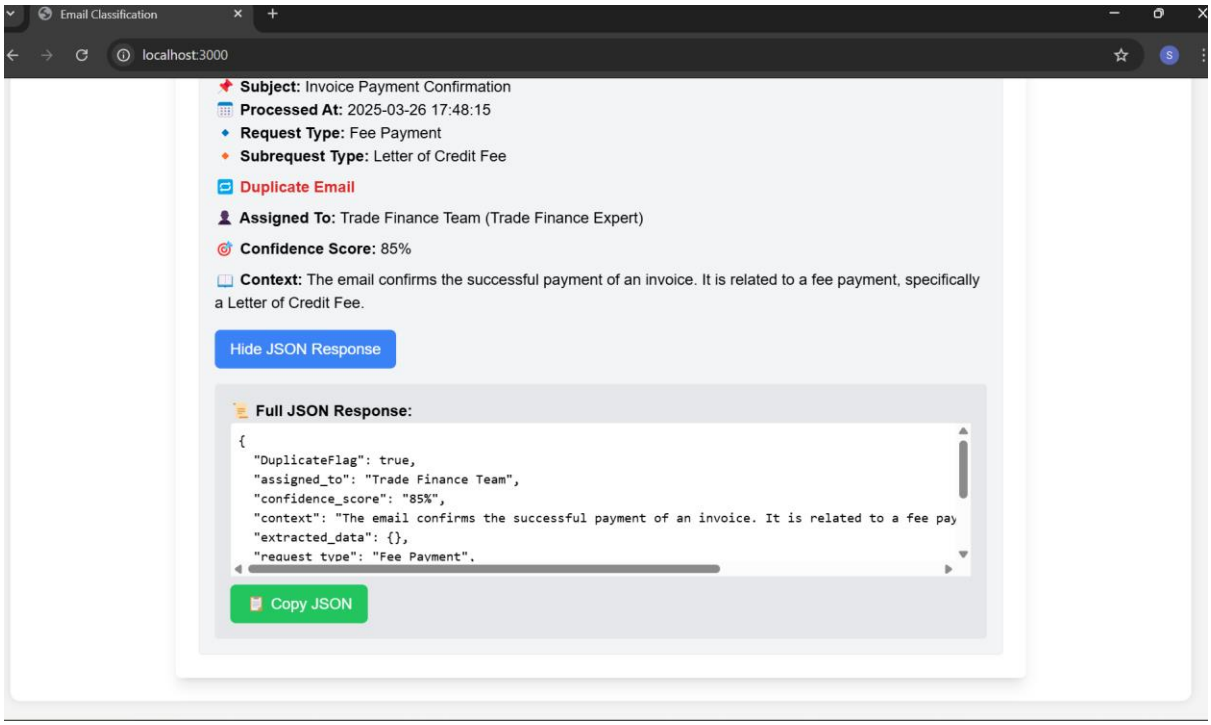
1.Duplicate Email Scenario:

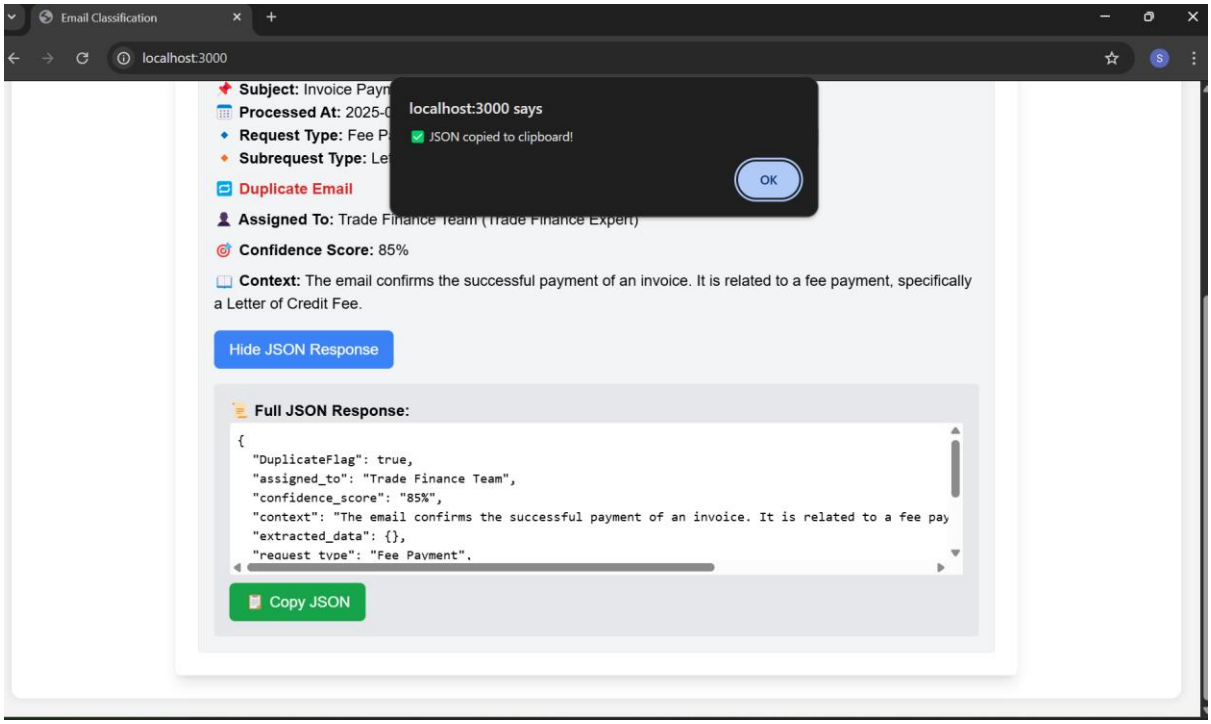
Description:

A duplicate email is identified when the system detects a repeated email in the conversation thread based on subject, sender, and content similarities. The AI flags such emails to prevent

redundant processing.







Sample JSON :

{

"DuplicateFlag": true,

"assigned_to": "Trade Finance Team",

"confidence_score": "85%",

"context": "The email indicates a confirmation of payment. It specifically mentions a payment, which aligns with the Fee Payment category.",

"extracted_data": {},

"request_type": "Fee Payment",

"role": "Trade Finance Expert",

"sub_request_type": "Letter of Credit Fee",

"email_subject": "Invoice Payment Confirmation",

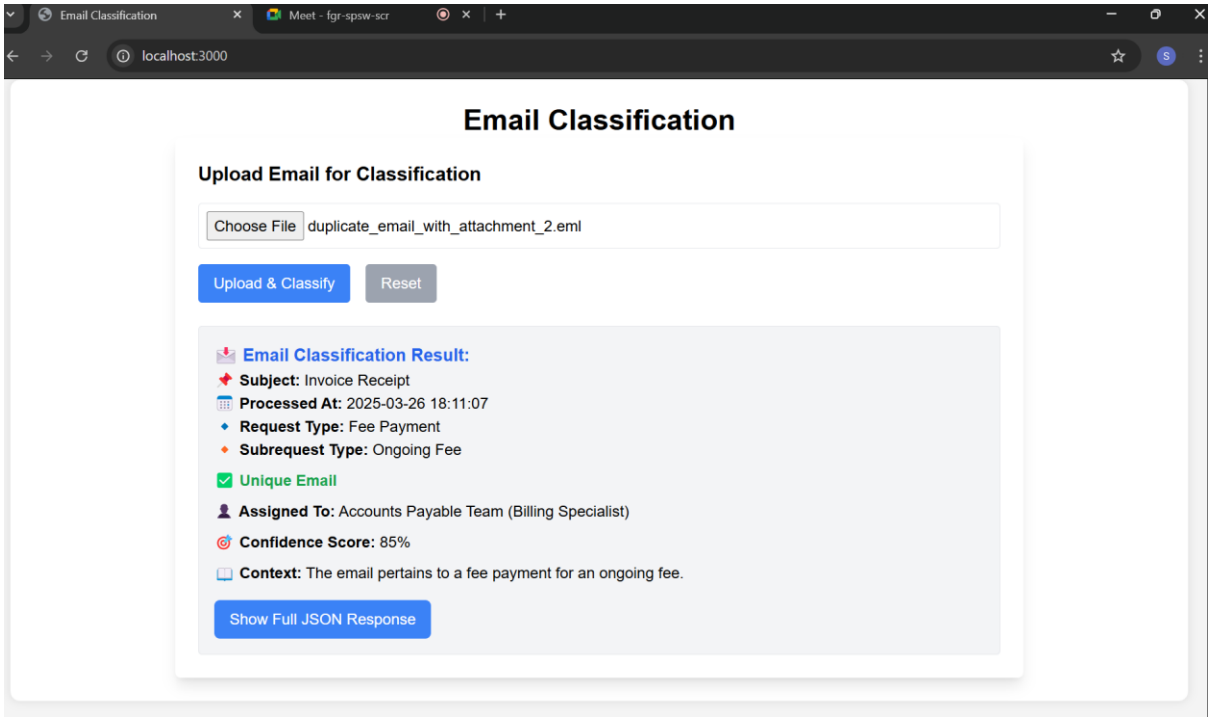
"processed_at": "2025-03-26 18:13:44"

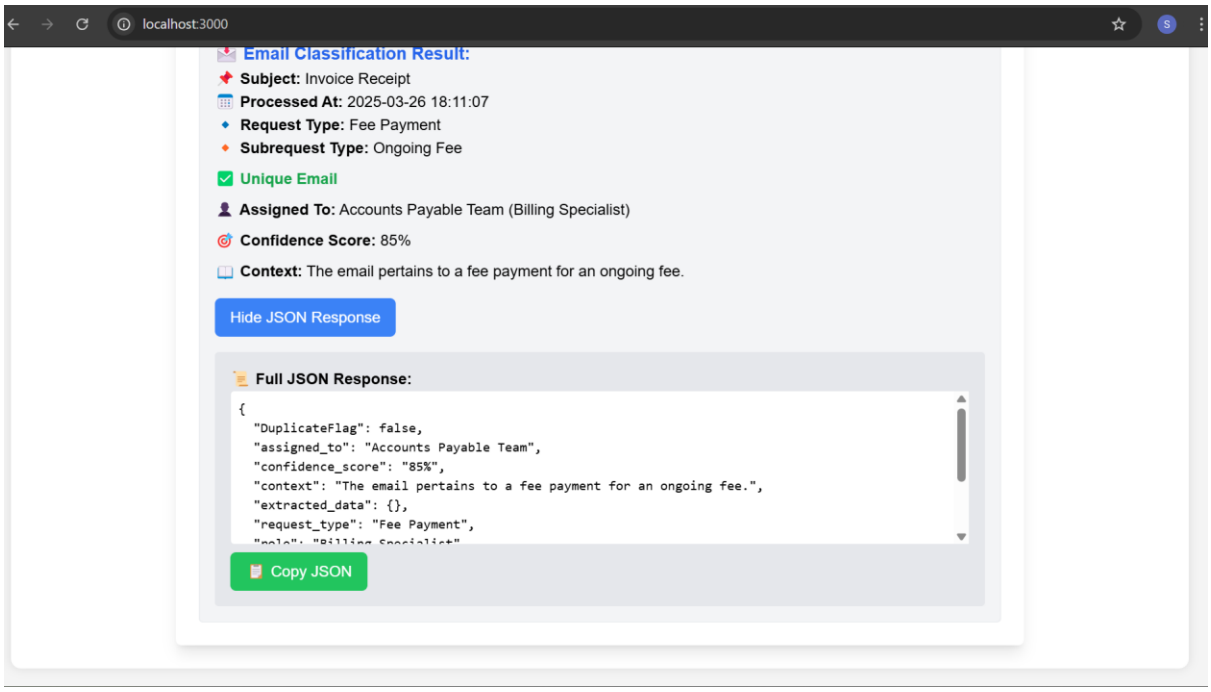
}

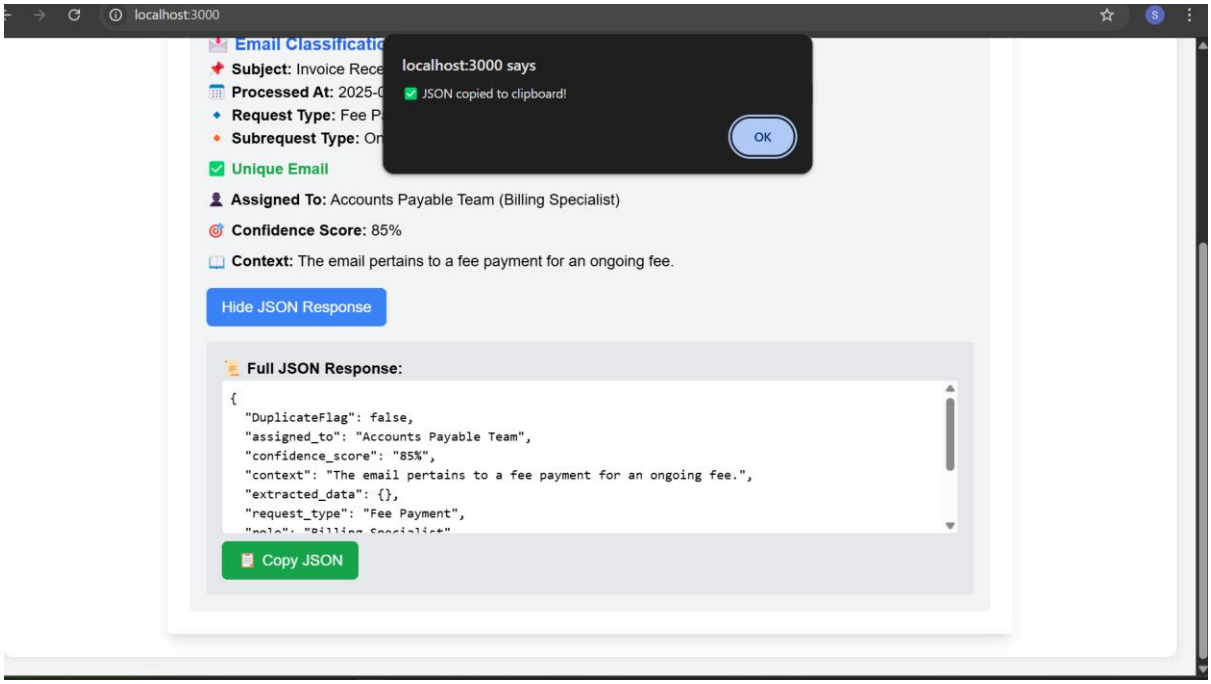
2.Unique Email Scenario:

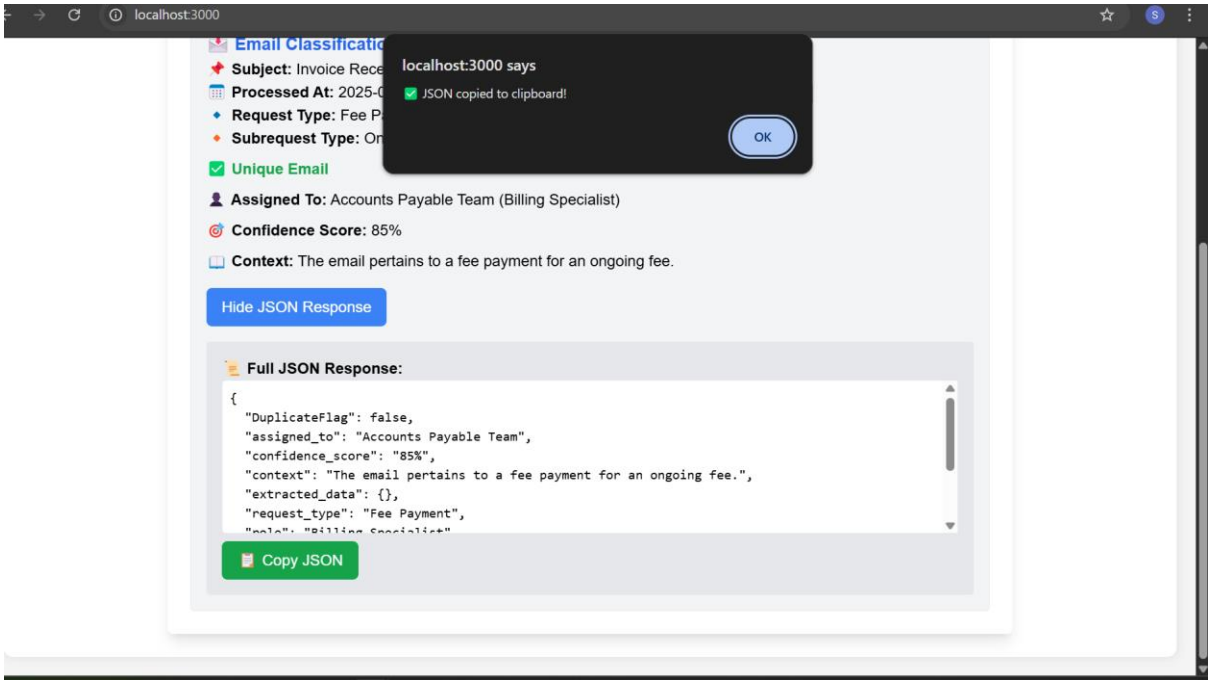
Description:

A unique email contains fresh information that has not been previously processed. The AI assesses its content and assigns it to the appropriate category.









Sample JSON :

{

"DuplicateFlag": false,

"assigned_to": "Accounts Payable Team",

"confidence_score": "85%",

"context": "The email indicates a fee payment for an ongoing service.",

"extracted_data": {},

"request_type": "Fee Payment",

"role": "Billing Specialist",

"sub_request_type": "Ongoing Fee",

"email_subject": "Invoice Receipt",

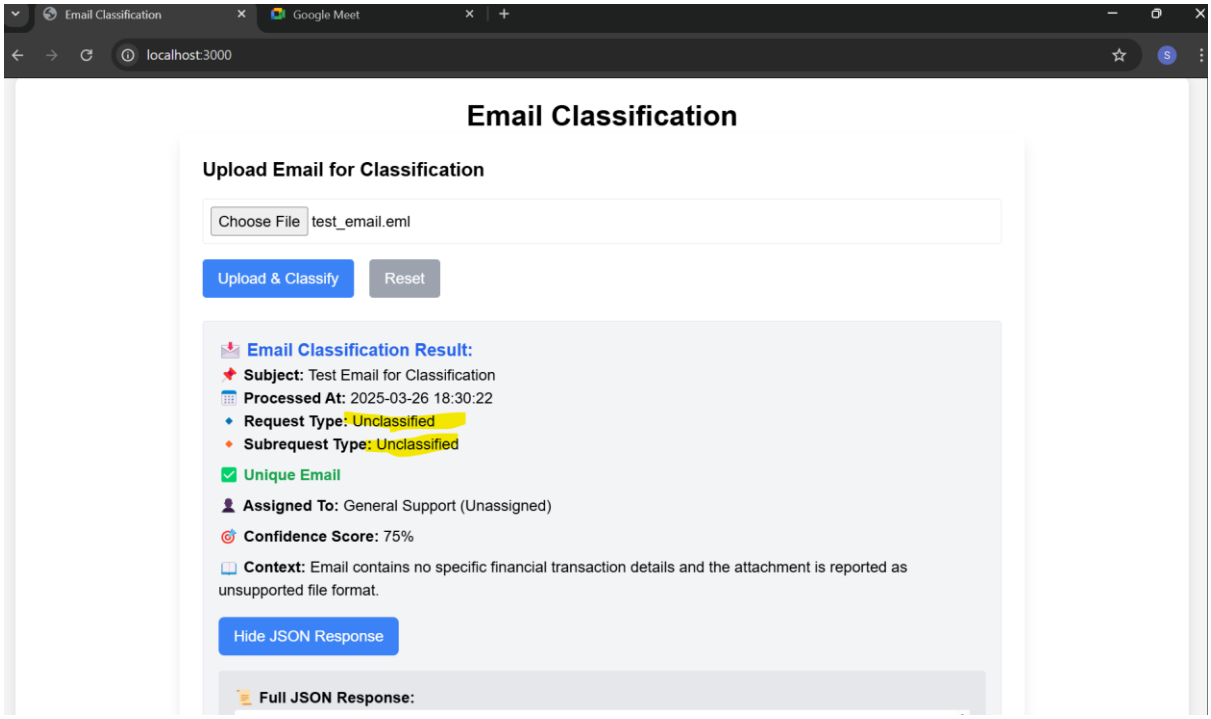
"processed_at": "2025-03-26 18:51:11"

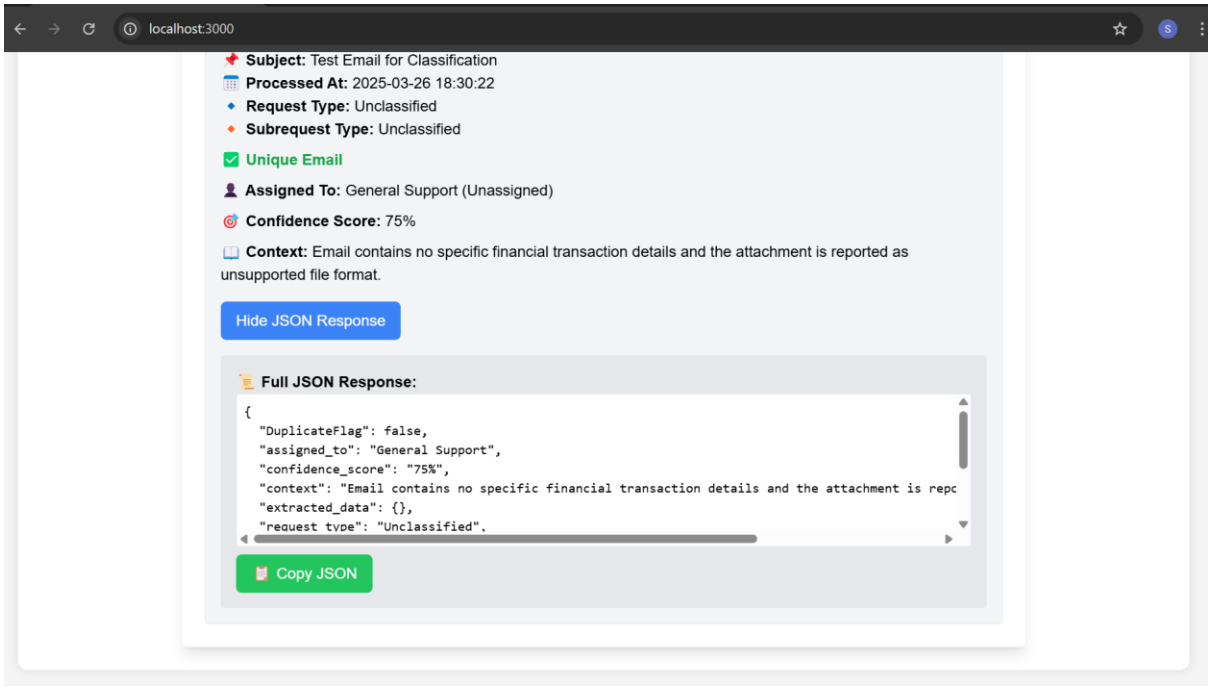
}

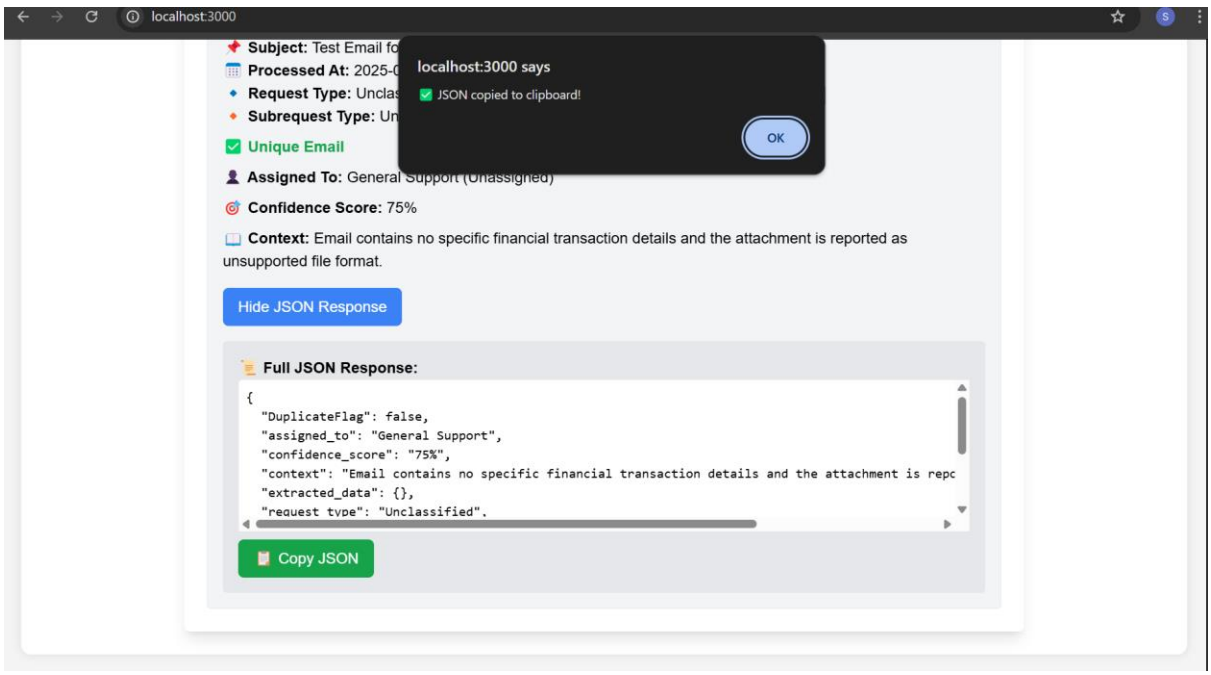
3.Unclassified email Scenario:

Description:

An email is marked as unclassified when it does not fit into predefined categories or contains insufficient information for proper classification.







JSON :

{

"DuplicateFlag": false,

"assigned_to": "General Support",

"confidence_score": "75%",

"context": "Email contains no specific financial transaction details and the attachment is reported as unsupported file format.",

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  "extracted_data": {},
  "request_type": "Unclassified",
  "role": "Unassigned",
  "sub_request_type": "Unclassified",
  "email_subject": "Test Email for Classification",
  "processed_at": "2025-03-26 18:30:22"
}
```