Mail Intelligence Agency (MIA) with AI & n8n

This document outlines a comprehensive workflow designed to automate the classification of incoming emails using AI and n8n. The solution is particularly beneficial for banking and operations teams, allowing them to efficiently route, track, and process email requests with high accuracy. By leveraging AI for classification and integrating with Airtable for data storage, this workflow minimizes manual effort and enhances operational efficiency.

Business Value

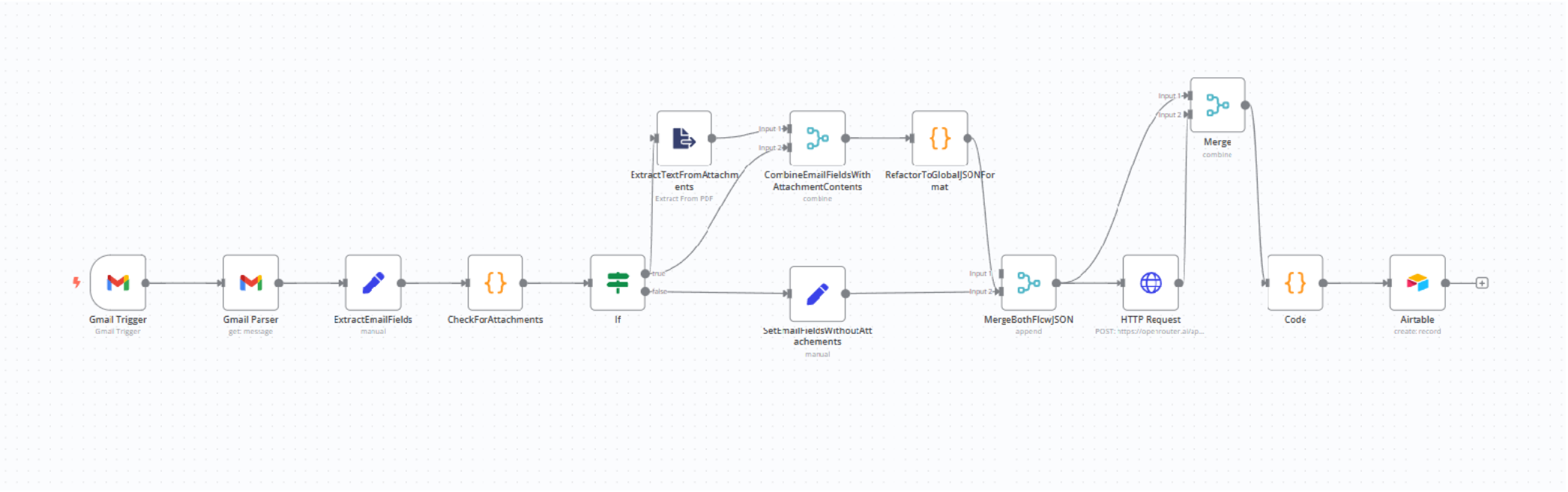
Manual classification of emails in banking operations can be error-prone, delayed, and hard to scale. This workflow uses AI + automation to:

- Classify requests automatically based on strict, pre-approved request and sub-request types.
- Extract content from PDF/email attachments.
- Track each request with a structured JSON format.
- Automatically mark duplicate vs. new requests.
- Store all classified records in a central Airtable database for tracking, audit, or reporting.

Technology Stack

- **n8n**: Low-code workflow automation engine.
- **OpenRouter (Mistral-7B)**: AI model for classification.
- **Gmail**: Email trigger and attachment source.
- **Airtable**: Central storage for classified requests.
- **PDF Parser Node**: Extract content from email attachments.
- **JavaScript Code Nodes**: Merge logic, AI prompt construction, and post-processing.

N8N-WorkFlow Created



Pre-conditions & Setup

- Gmail account connected via OAuth2 in n8n.
- Airtable base with columns:
  - email_id
  - sender_email
  - email_subject
  - email_body
  - attachment_content
  - request_type
  - sub_request_type
  - status (new or duplicate)
- OpenRouter AI key and endpoint.
- n8n self-hosted or Desktop version installed.

Node-by-Node Breakdown

Gmail Trigger

- Triggers on every new incoming email (polls every minute).
- Can filter has:attachment or apply label-based filtering.

Gmail Get Message

- Retrieves full content of the email and binary attachments.
- Edit Fields: Extracts key fields: email_body, email_subject, sender_email, email_id, etc.

Function Node – Detect Attachments

- Checks for attachments in binary input.
- Flags hasAttachment = true and identifies the binary key.

IF Node

- Branches:
  - If True: Parse attachment using "Extract from Attachments".
  - If False: Skip attachment parsing.

Extract from File

- Extracts text content from attachments.

Function Node – Merge Email + Attachment

- Combines email_body and attachment_content into one AI-ready field finalParsedEmailContent.

HTTP Request – OpenRouter AI

- Constructs the prompt dynamically.
- Passes both email_content and attachment_content.
- LLM returns only approved request_type and sub_request_type.
- Handles an "Unclassified" fallback case.

Function Node – Parse AI Output

- Extracts structured classification into:
  - request_type
  - sub_request_type

Airtable Search

- Checks if an existing record from the same sender_email with same request_type already exists.
- Sets status = Duplicate or status = New.

Airtable Create

- Inserts the final JSON record into Airtable.

Supported Request Types

Currently, the AI model is limited to:

- Adjustment
- AU Transfer (with sub-types: Reallocation Fees, Amendment Fees, Reallocation Principal)
- Closing Notice (Cashless Roll, Decrease, Increase)
- Commitment Change
- Fee Payment (Ongoing Fee, LOC Fee)
- Money Movement – Inbound (Principal, Interest, Principal+Interest, Principal+Interest+Fee)
- Money Movement – Outbound (Timebound, Foreign Currency)
- Unclassified (fallback category)

These can be expanded by updating the Airtable reference table and passing it into the AI prompt dynamically.

Test Cases

- **Test Case 1**: 1 Request Type – Email Content Only

Scenario: Closing Notice Request

Email Subject:

```
Subject: Closing Notice Request for Account #8239
```

Email Body:

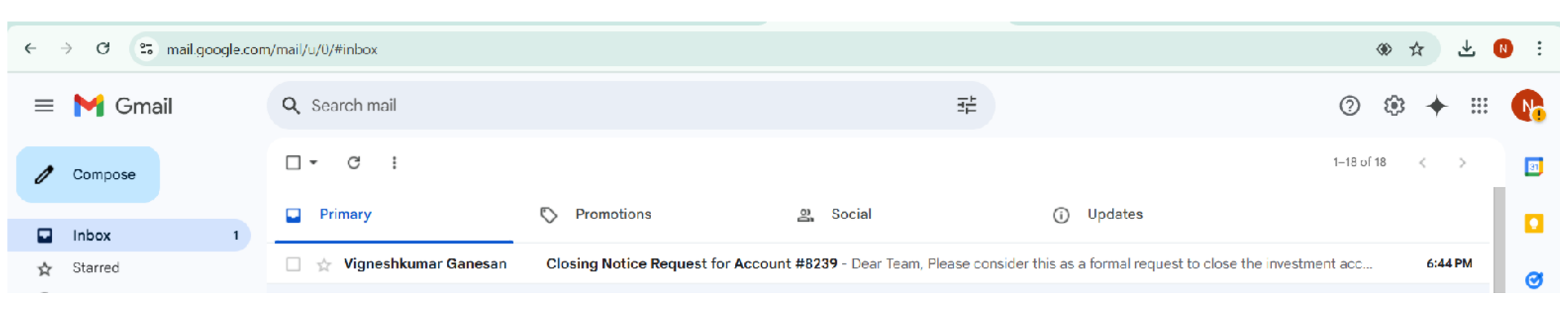
```
Dear Team,  Please consider this as a formal request to close the investment account #8239. Let me know if any documentation is required.  Thanks,   Client Services Team
```

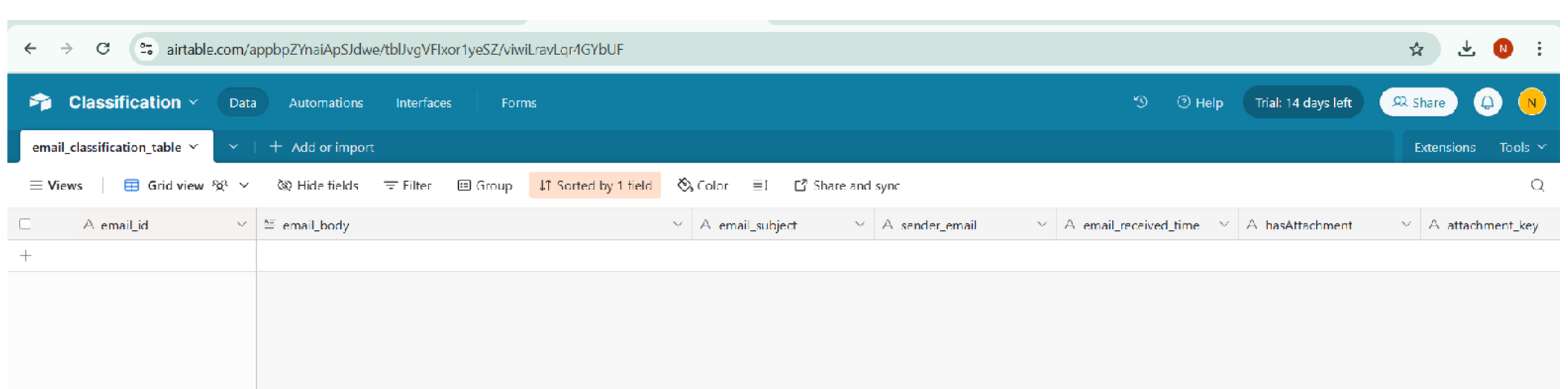
Attachment: ✖ No attachment

Expected AI Output:

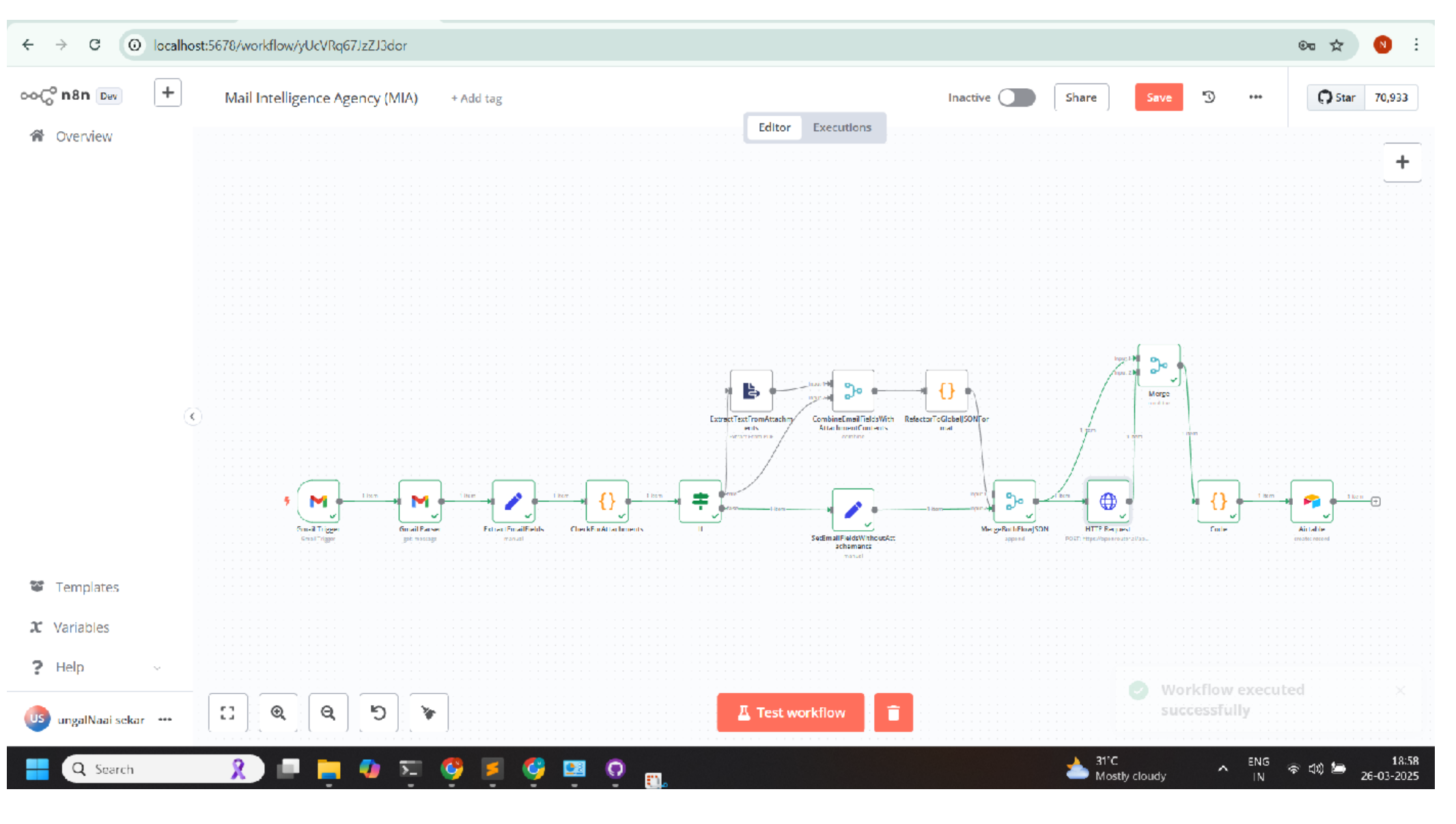
```
{
  "request_type": "Closing Notice",
  "sub_request_type": ""
}
```

Email received in the configured email inbox and state of AirTable target is flushed out.

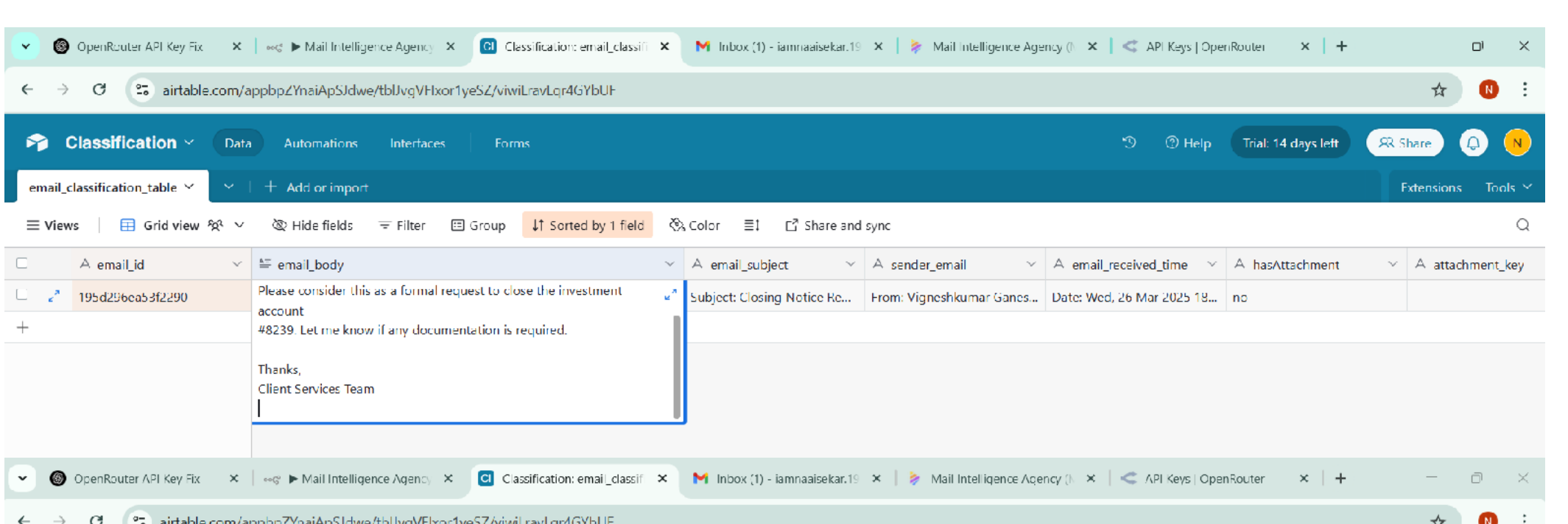


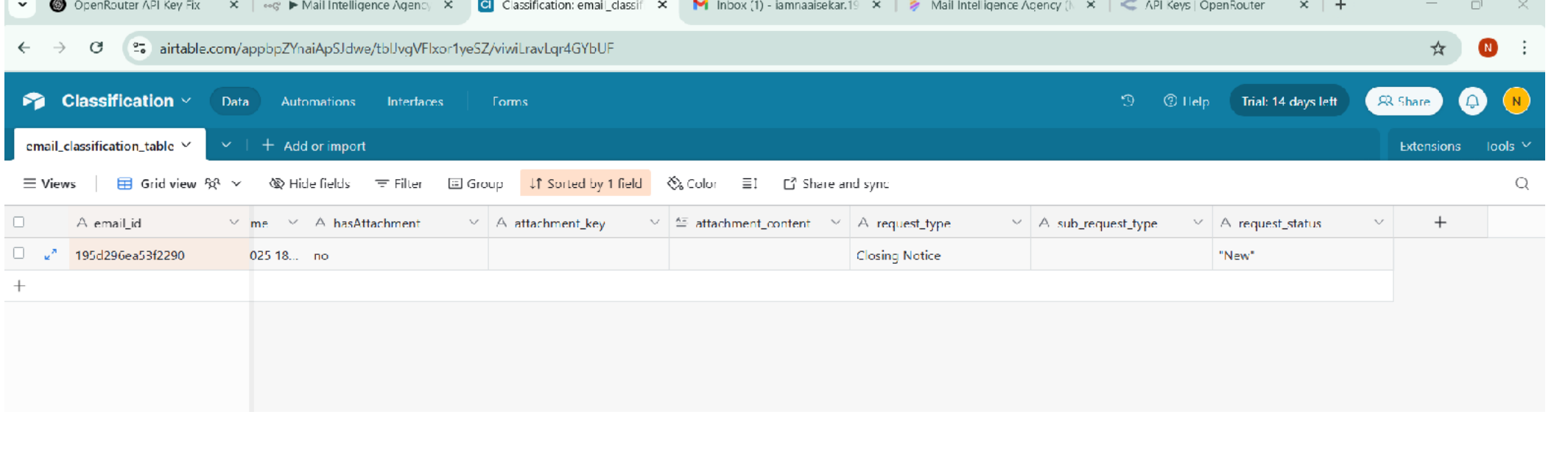


Workflow triggered automatically if active option enabled. for demo purpose executed manually and captured the output of flow.



Email information clearly captured by N8N workflows and passed as input to AI model. Response captured in AirTable.





AirTable screenshot clearly says that request from email properly classified.

- **Test Case 2**: 1 New Request + 1 Sub-Request – Email + Attachment

Scenario: Fee Payment (Ongoing Fee)

Email Subject:

```
Subject: Fee Payment Advice for Q1 2025
```

Email Body:

```
Dear Finance Team,  Please find the attached fee payment summary for Q1 2025.
Let us know if any further action is required.  Regards,   Fund Admin
```

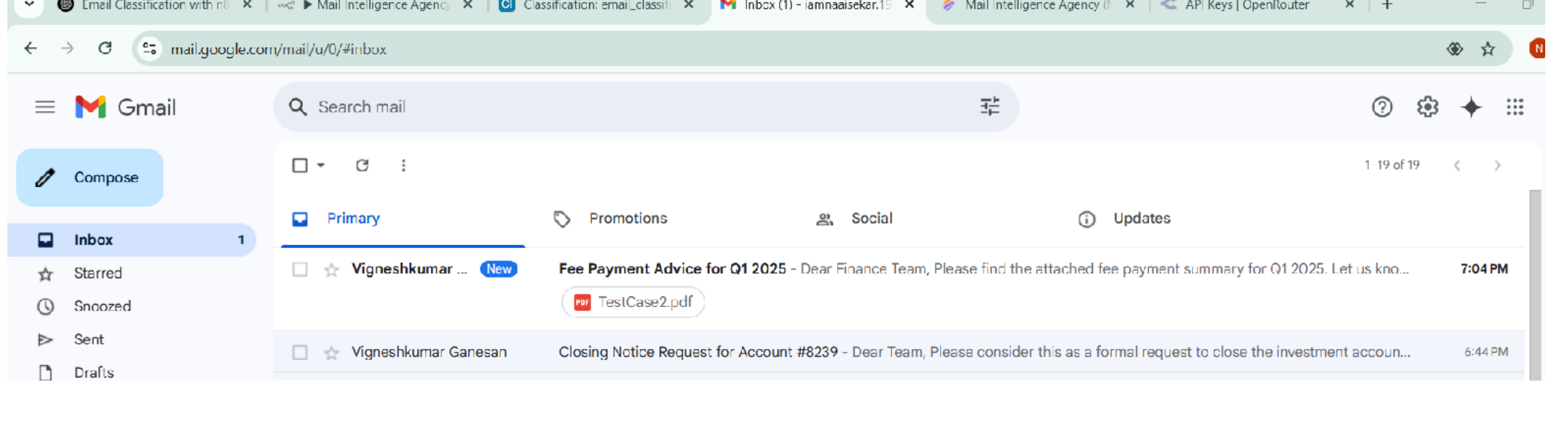
Attachment Content (Text):

```
Quarterly Fee Summary
Client: ABC Fund
Period: Jan-Mar 2025
Fee Type: Ongoing Fee
Amount: $20,000
```

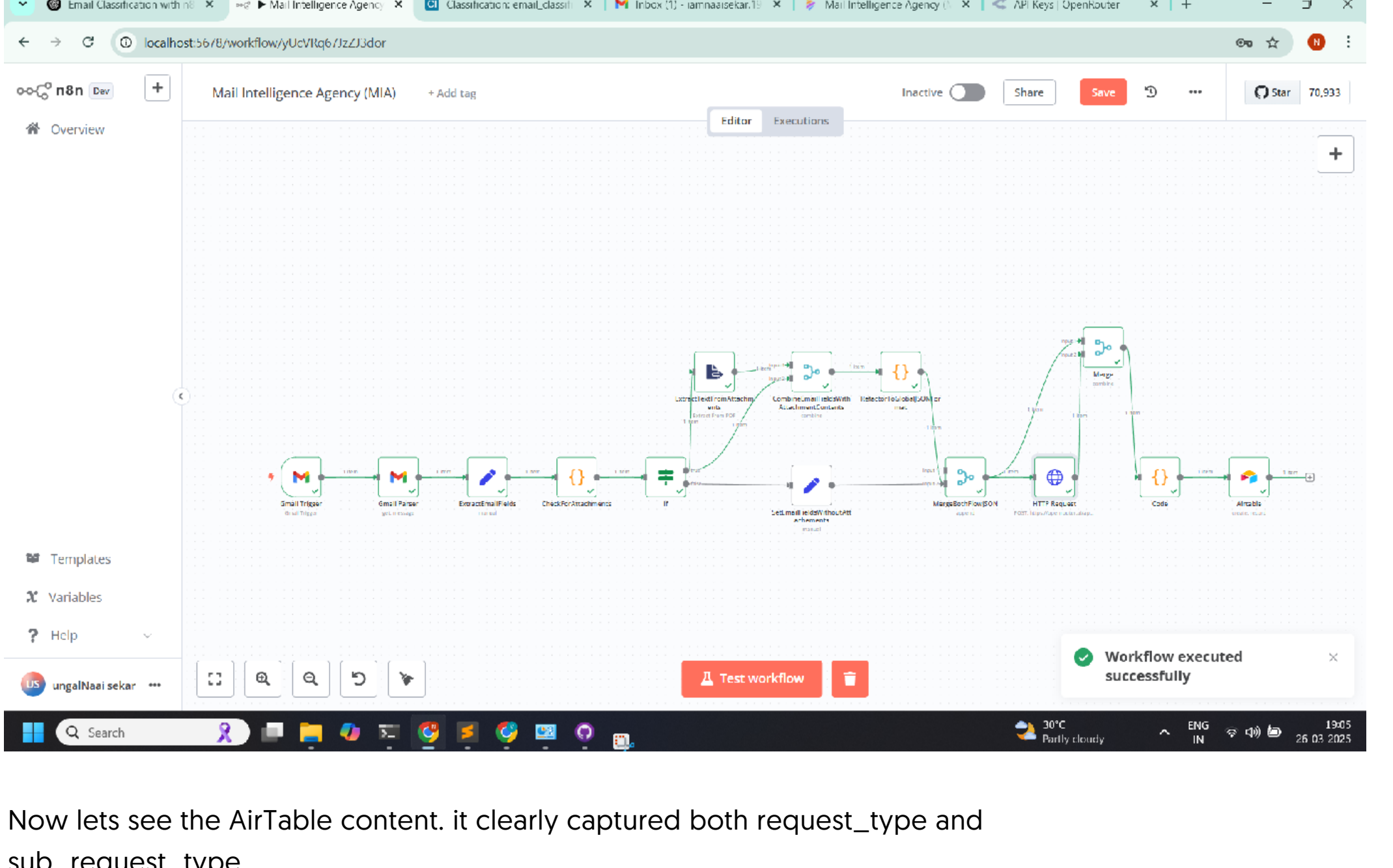
Expected AI Output:

```
{   "request_type": "Fee Payment",   "sub_request_type": "Ongoing Fee" }
```

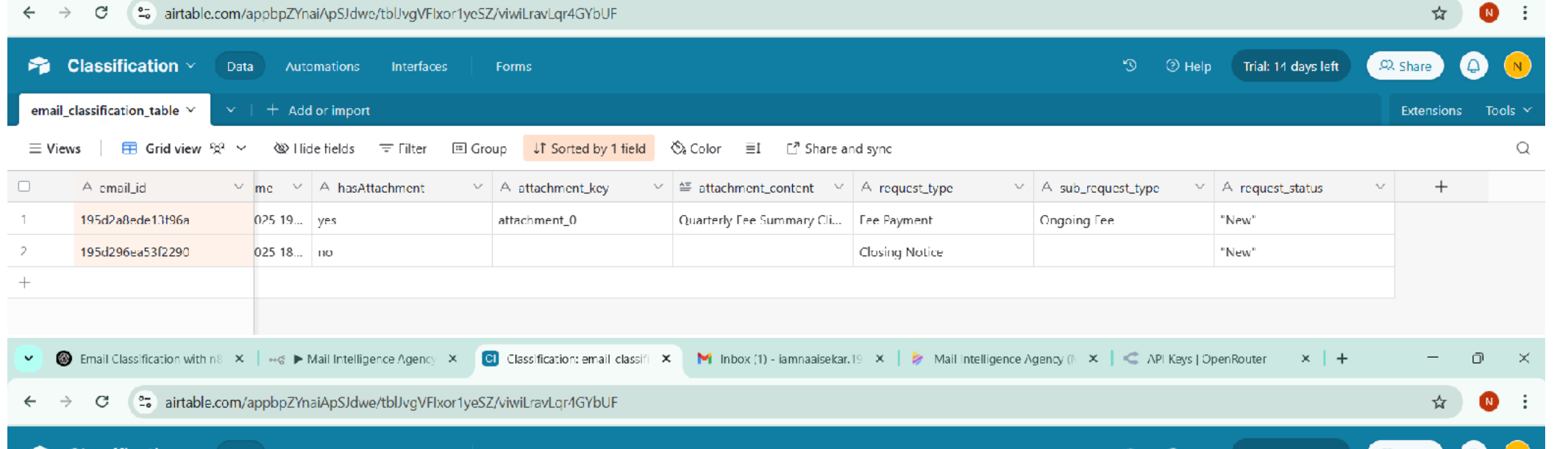
TestEmail 2 arrived in configured Gmail account.

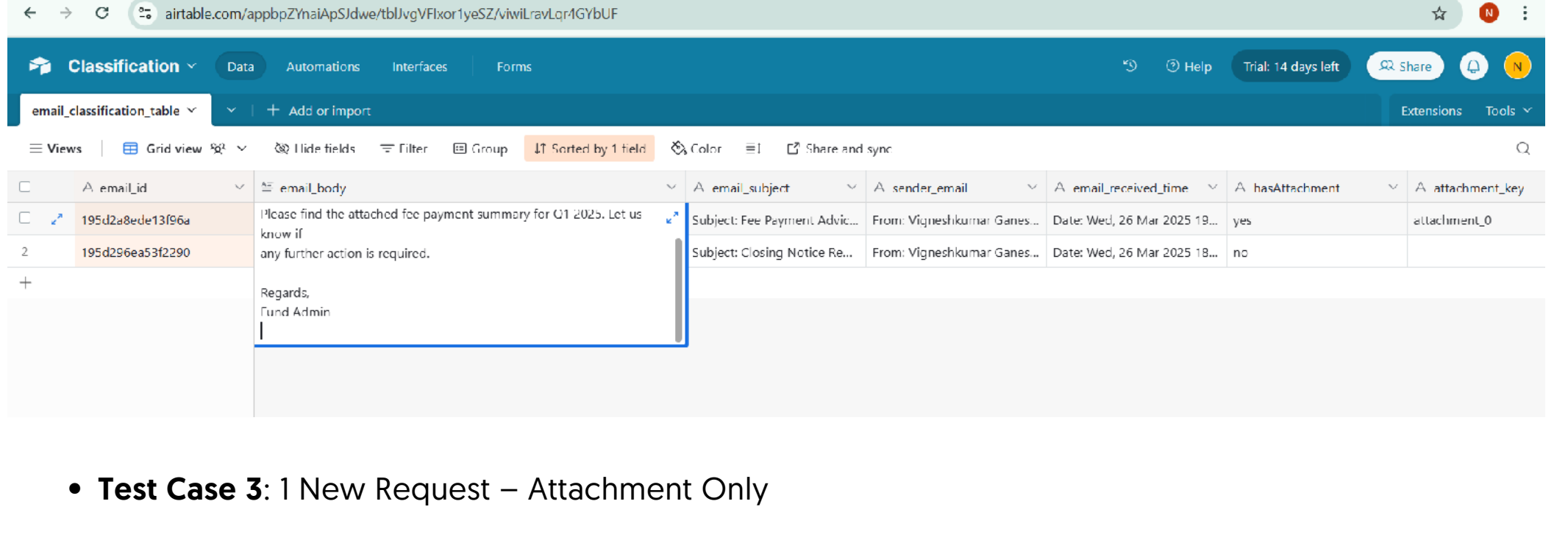


Now n8n workflow picked up the alternate route with email attachment.



Now lets see the AirTable content. it clearly captured both request_type and sub_request_type.





- **Test Case 3**: 1 New Request – Attachment Only

Scenario: Money Movement – Inbound (Foreign Currency)

Email Subject:

```
Subject: Funding Instructions Enclosed
```

Email Body:

```

```

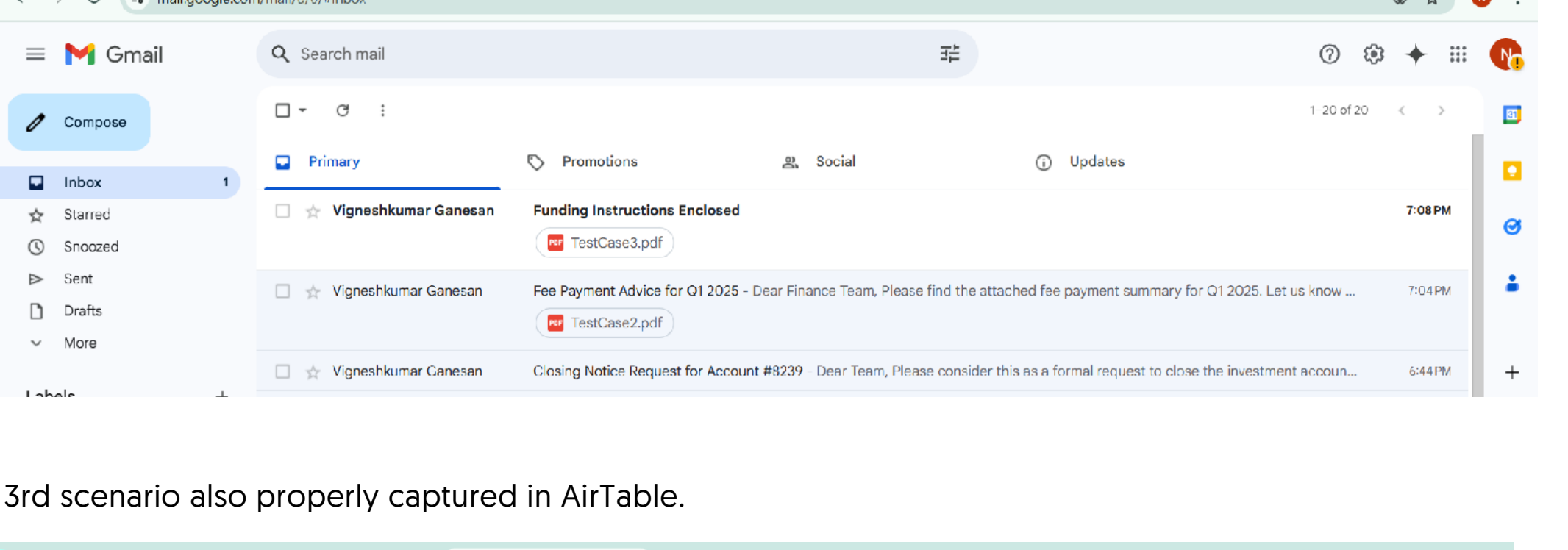
Attachment Content:

```
Fund Transfer Instruction
Amount: €1,000,000
Currency: Euro
Beneficiary: Global Equity Fund
Purpose: Subscription funding
```

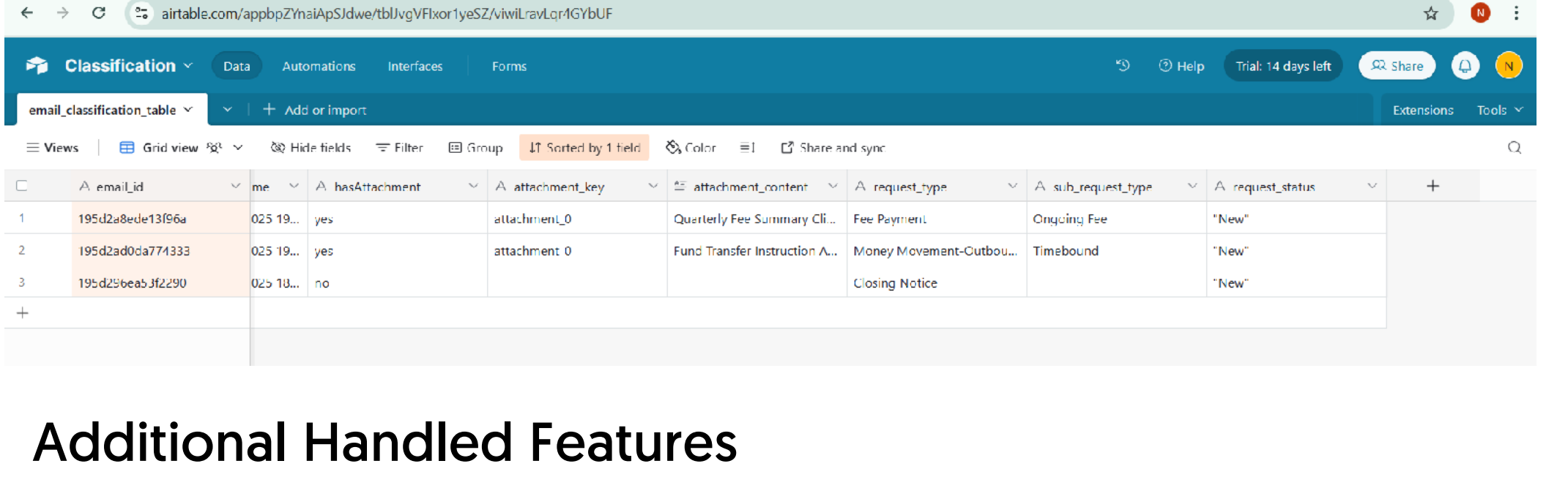
Expected AI Output:

```
{
  "request_type": "Money Movement-Outbound",
  "sub_request_type": "timebound"
}
```

Test case 3 email received in the configured node.



3rd scenario also properly captured in AirTable.



Additional Handled Features

- Email with no content but attachment: Handled.
- Attachment-only classification: Supported.
- Duplicate detection based on sender + request type: Implemented.
- Classification fallback: Unclassified assigned when match not found.
- Airtable updates: Final JSON inserted with all fields + status.

Conclusion

This solution brings banking email processing to autopilot, using low-code power from n8n and LLM flexibility from Mistral. It transforms unstructured inbox chaos into structured, actionable data stored in Airtable.

Whether it's AU Transfers, Adjustments, or Fee Payments, this pipeline ensures nothing slips through the cracks. And with duplicate detection, your operations team stays informed without repetition. You can extend it further with Slack alerts, ticketing, or approval workflows. 💪