**Case Study – Ethical Email Automation Bot (Python-Based)**

### **📚 Project Overview**

The Ethical Email Automation Bot is designed to respond to incoming Gmail messages based on ethical filtering and intent classification logic. It ensures that only qualified, non-promotional, consent-based messages are replied to with predefined templates, aligning with SoulMindFusion's digital responsibility mission.

### **⚖️ Ethical Objective**

* Avoid responding to spammy or automated senders
* Respect sender privacy and avoid repetitive auto-replies
* Log every interaction for traceability and compliance

### **🔧 Technologies Used**

* Python 3.11
* Gmail API + OAuth 2.0
* smtplib, email, imaplib, json, re

### **📊 Project Steps & Workflow**

| **Step** | **Description** |
| --- | --- |
| 1 | Authenticate with Gmail using OAuth2 via token.json |
| 2 | Fetch unread messages from Inbox using Gmail API |
| 3 | Classify emails based on keywords (e.g., job, inquiry, promo) |
| 4 | Apply ethical filters (e.g., block marketing senders, avoid repeat responses) |
| 5 | Send appropriate replies using smtplib based on category |
| 6 | Log all replies and statuses to a reply\_log.json file |

### **📖 Sample Ethical Filters**

* Blocked Domains: noreply@, promo, marketing, newsletter
* Consent Logic: Only respond to inquiries, job messages, general texts
* One-reply-per-sender policy enforced within the run

### **⚙️ Key Python Snippets**

if any(block in sender for block in BLOCKED\_DOMAINS):

return "blocked"

...

if sender\_email in responded\_senders:

continue

...

send\_reply(service, sender\_email, subject, REPLY\_TEMPLATE[category])

### **⚠️ Challenges & Fixes**

| **Challenge** | **Fix** |
| --- | --- |
| Gmail API rate limits | Applied max limit per run and used batching |
| Unstructured email subjects/snippets | Applied simple regex keyword match |
| Duplicate auto-replies | Tracked sender emails in-memory (responded\_senders) |

### **🌌 Outcome**

* Polite, ethical auto-responses sent only to relevant emails
* Replied only once per sender
* Log generated for audit & governance compliance