**1. Overview**

The **AI-Based Grievance Redressal Analyser** is a GenAI-driven system built to assist senior police officers in evaluating the quality and completeness of grievance redressal processes. The system improves accuracy, consistency, and efficiency by automating the extraction of claims from complaints, providing tailored evidence checklists, scoring responses, and recommending petition statuses.

**2. Goals & Objectives**

* Identify **low-quality grievance closures** through automated analysis.
* Extract **discrete claims** from natural language complaints using LLMs.
* Provide **tailored evidence checklists** for each extracted claim.
* Enable **quality assessment** of Investigation Officer (IO) responses.
* Assist senior officers in **approving or escalating** petition closures.
* Improve the **consistency, transparency, and speed** of the redressal process.
* **Restore public trust** by enabling fair and data-driven grievance handling.

**3. Scope of the Solution**

**3.1 Core Modules / AI Agents**

1. **Claim Extraction Agent**
   * Extracts discrete, actionable claims from unstructured text complaints.
   * Maps them to one of **five predefined claim categories** for the prototype:
     + Delay in investigation
     + Improper behavior
     + Missing evidence
     + Faulty FIR content
     + Lack of follow-up
2. **Checklist Generator Agent**
   * Generates **evidence checklist** for each claim type.
   * Ensures IOs gather relevant materials and documents during investigation.
3. **Response Quality Scorer Agent**
   * Evaluates IO’s responses against extracted claims and the evidence checklist.
   * Uses rubric-based scoring: **Poor, Inadequate, Adequate, Excellent**.
4. **Petition Status Evaluator Agent**
   * Suggests final petition status: **Closed**, **Reinvestigation Required**, or **Escalate to Senior**.
   * Supports override and manual input by senior officers.

**3.2 Interfaces**

* **Investigation Officer (IO) Petition Screen**
  + View extracted claims and checklists.
  + Upload evidence and input responses.
  + Track quality score and system suggestions.
* **Senior Officer Dashboard**
  + View all petitions with summarized statuses.
  + Drill into claims, evidence, and IO responses.
  + Accept, edit, or reject system recommendations.

**4. Key Features**

| **Feature** | **Description** |
| --- | --- |
| Complaint Ingestion | Upload or sync digital complaint text (PDF, text, or form). |
| AI Claim Extraction | Auto-extraction of discrete, category-tagged claims. |
| Checklist Generation | Contextual, claim-based checklists to guide IOs. |
| Response Scoring | Automated evaluation of response quality. |
| Petition Status Suggestion | End-to-end recommendation with override option. |
| Officer Interface | Task screens optimized for IO and senior officer workflows. |
| Audit Trail | Logs decisions, overrides, and timestamps for accountability. |

**5.Evaluation Metrics**

| **Metric** | **Target** |
| --- | --- |
| Claim Extraction Accuracy | ≥ 90% for top 5 categories |
| Checklist Relevance Score (via human eval) | ≥ 85% |
| Response Scoring Alignment (human vs AI) | ≥ 80% agreement |
| Time Reduction in Review | ≥ 40% faster closure approval |
| User Satisfaction (senior officers) | ≥ 4 out of 5 |
| Petition Reopen Rate Post-Closure | ≤ 5% |

**6. Non-Goals**

* Multi-language complaint handling (limited to English for prototype)
* Handling of handwritten or scanned complaints without OCR
* Expansion beyond 5 grievance categories during hackathon phase

**7. Assumptions**

* Digital complaints are in machine-readable format.
* IOs are trained on how to use the checklist and interface.
* Senior officers have the authority to override AI-generated suggestions.
* Internet connectivity and basic device access are available at police stations.

**8. Constraints**

* Hackathon timeframe limits number of categories and scale.
* Needs to run on limited hardware, possibly offline/local-first mode.
* UI must be minimal and training-light for quick adoption.

**9. Dependencies**

* GenAI models for NLP (claim extraction, summarization, scoring)
* Secure data storage and access control for sensitive complaints
* Backend support for task management and audit logging