Team-wise Work Distribution and Contribution Details

The project “AI-Powered Form Filling Assistant for Indian Citizen Services” was developed as a collaborative team effort during the internship period. All team members were actively involved throughout the project lifecycle, including problem understanding, system design, development, testing, documentation, and final deployment. While the work was carried out collectively, specific responsibilities were assigned to each member to ensure efficient execution and clear ownership of tasks.

The following section describes the detailed contribution of each team member from project initiation to completion.

1. Contribution of Sandipan Rakshit

Sandipan Rakshit played a key role in backend development, AI integration, and overall system architecture design. His responsibilities spanned from core logic implementation to performance optimization and deployment readiness.

Major Contributions:

- Participated in problem analysis and requirement understanding, focusing on automating government form filling using AI.
- Designed the high-level system architecture, defining the end-to-end pipeline from document ingestion to auto-filled form generation.
- Implemented the backend server using Flask, including REST API endpoints for document upload, data extraction, and form auto-filling.
- Developed the OCR processing pipeline, integrating EasyOCR with PDF and image handling to extract raw text from Aadhaar, PAN, and Voter ID documents.
- Integrated Groq API with LLaMA-3.3-70B model for AI-based entity extraction.
- Implemented data validation and normalization logic (DOB formatting, Aadhaar/PAN regex validation, noise removal).
- Developed the form mapping engine using fuzzy string matching and rule-based logic to map extracted entities to government form fields.
- Assisted in performance optimization, ensuring document processing latency remained within the targeted 3–5 seconds.

- Contributed to backend testing, debugging, and error handling, especially for low-quality documents.
- Played a major role in project deployment setup and environment configuration.
- Actively contributed to final report writing and technical documentation.

2. Contribution of Chinmoy Das

Chinmoy Das played a dual and significant role in both backend and frontend development, contributing extensively to application logic, AI integration, and user interface design.

Major Contributions:

- Actively involved in problem understanding and system design discussions.
- Contributed significantly to backend development, including:
    - Assisting in the implementation of Flask API endpoints.
    - Supporting OCR integration and testing for different document formats.
    - Helping in AI entity extraction logic, prompt structuring, and response handling.
    - Participating in the development and refinement of the form mapping logic.
- Assisted in backend testing and debugging, especially for OCR inaccuracies and partial extractions.
- Designed and implemented the React-based frontend interface.
- Developed document upload, form selection, and editable form views.
- Integrated frontend components with backend APIs using Axios.
- Implemented PDF and JSON export features.
- Focused on UI/UX improvements, responsiveness, and user feedback handling.
- Played a key role in end-to-end integration testing.
- Contributed to screenshots, UI explanations, and user workflow documentation.

3. Contribution of Sourangshu Kundu

Sourangshu Kundu contributed primarily to **testing, research, validation, and documentation**, ensuring the reliability and correctness of the system in real-world scenarios.

Key Contributions:

- Conducted background research on government service forms, identity documents, and field requirements.
- Assisted in defining data fields and form templates required for different government services.
- Performed extensive testing using Aadhaar, PAN, Voter ID, and scanned documents.
- Evaluated OCR accuracy and AI extraction performance.
- Documented test cases, performance metrics, and results.
- Identified challenges such as OCR noise, missing fields, and mapping errors.
- Assisted in drafting challenge analysis, solutions, and future enhancement sections.
- Reviewed system usability and provided quality improvement feedback.
- Contributed to final report compilation and formatting.

4. Collaborative Development Approach

Despite individual responsibilities, the project followed a highly collaborative development approach:

- Architecture and design decisions were taken jointly.
- Backend and frontend components were reviewed by multiple team members.
- Testing, debugging, and optimization were performed collaboratively.
- Documentation and report writing were shared responsibilities.
- Regular discussions ensured alignment with internship objectives and Intel Unnati program guidelines.