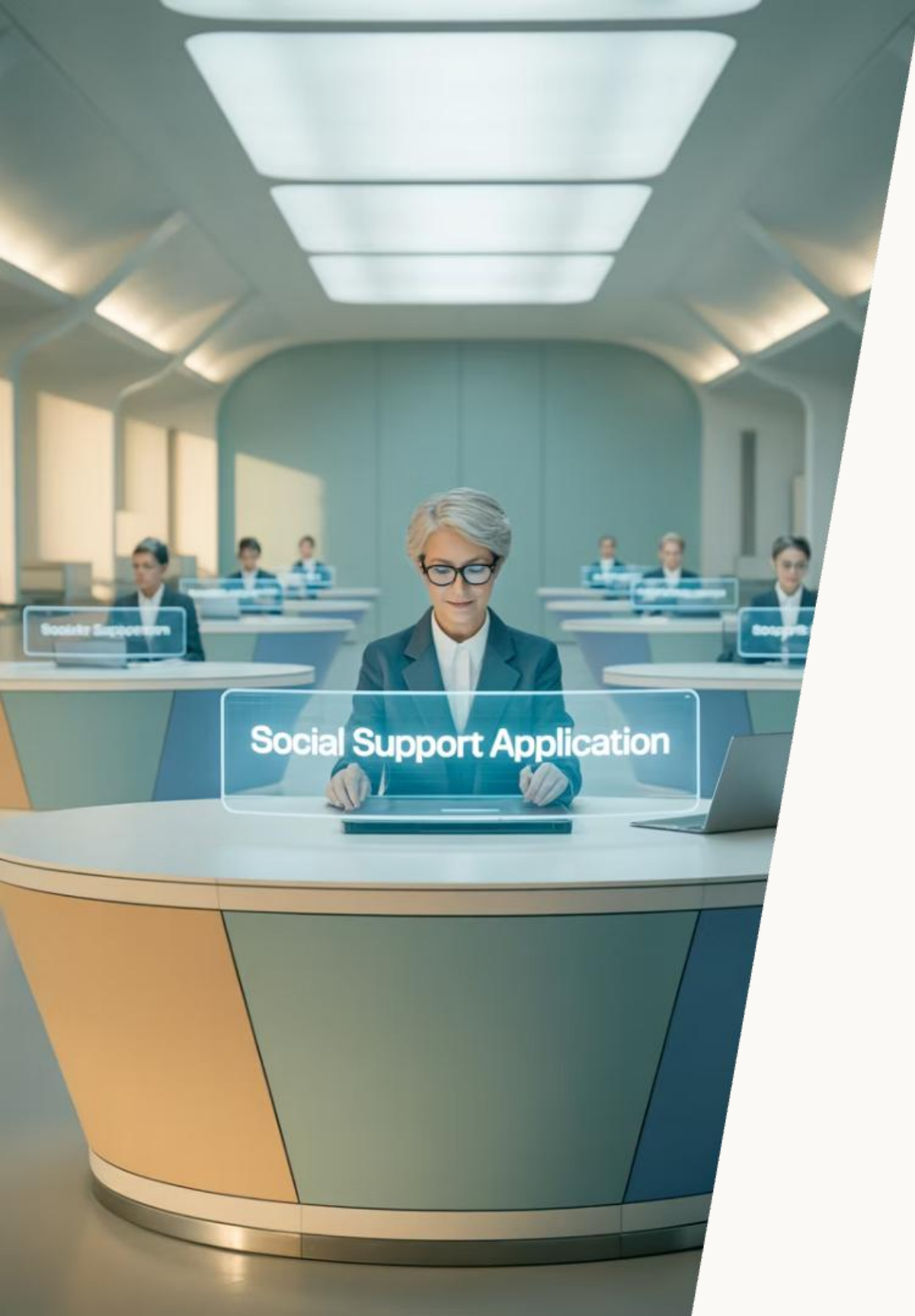# Introduction – AI Social Support Application Prototype

This project is a fully functional **AI-powered social support application prototype**, developed to automate the complex workflow of social support application processing. It demonstrates how advanced AI technologies, including **GenAI Agents, LLMs, and Machine Learning models**, can streamline government services to deliver faster, fair, and transparent decision-making.
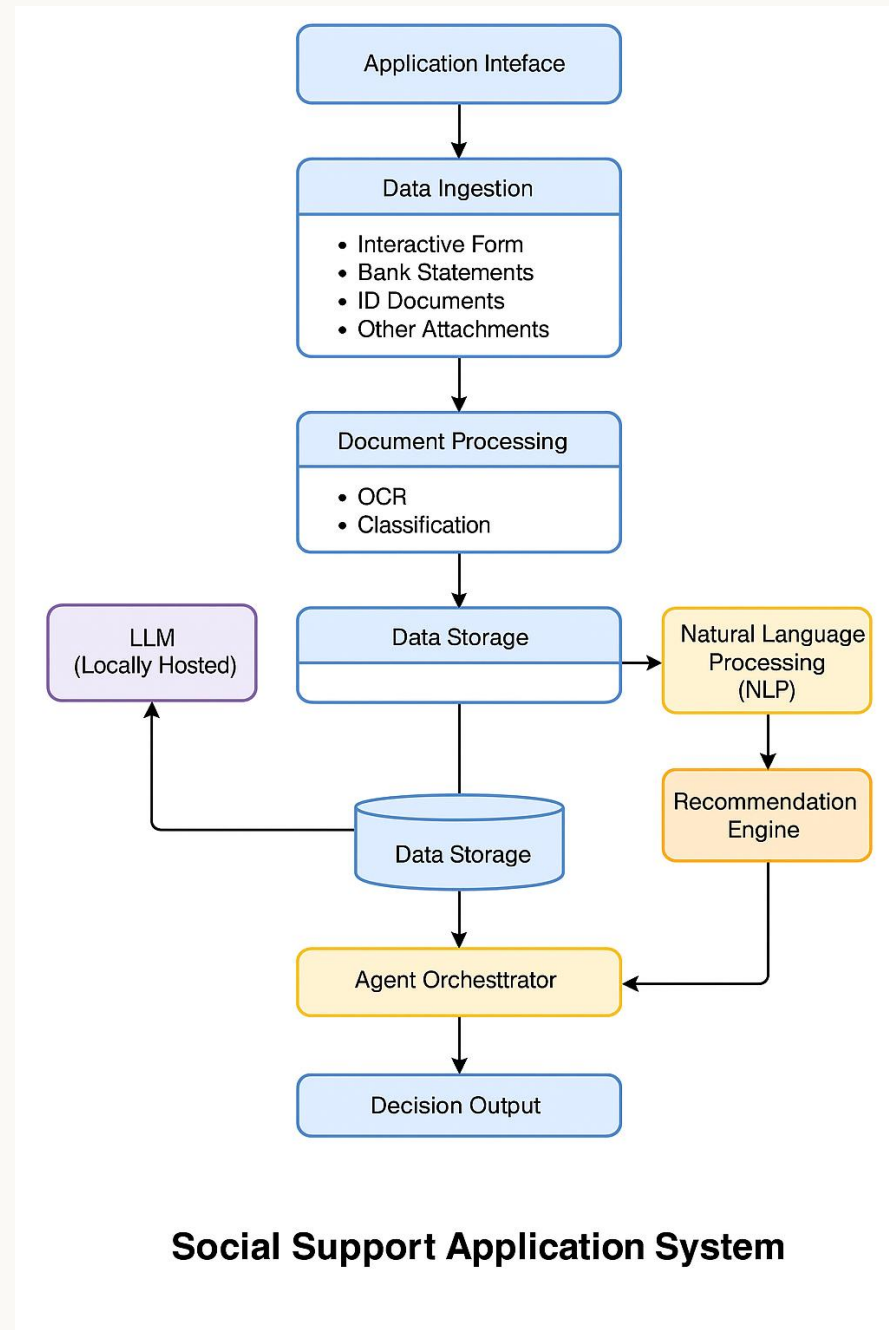
by Amit Kumar

GitHub Repository Link: https://github.com/amit2478/aiproject

Features

Features
Interactive Streamlit dashboard for application management
Multimodal data ingestion (structured and unstructured)
AI-powered eligibility assessment
GenAI Chat Assistant for applicant queries
Admin panel for reviewing recommendations
Local LLM integration with Ollama
Vector storage with ChromaDB

High Level Application Components

Frontend (Streamlit)	Backend Services	AI Components
Home Dashboard	FastAPI for model serving	RandomForest Classifier for eligibility assessment
Application Submission	PostgreSQL for data storage	LangGraph for agent orchestration
Eligibility Assessment	ChromaDB for vector storage	Nomic embeddings for document processing
Chat Interface	Ollama for local LLM hosting	OCR processing with Tesseract
Admin Panel		

High Level Architecture Diagram

Social Support Application System

Application High-Level Overview

This AI system automates the processing of government social support applications, acting like a virtual case worker that:
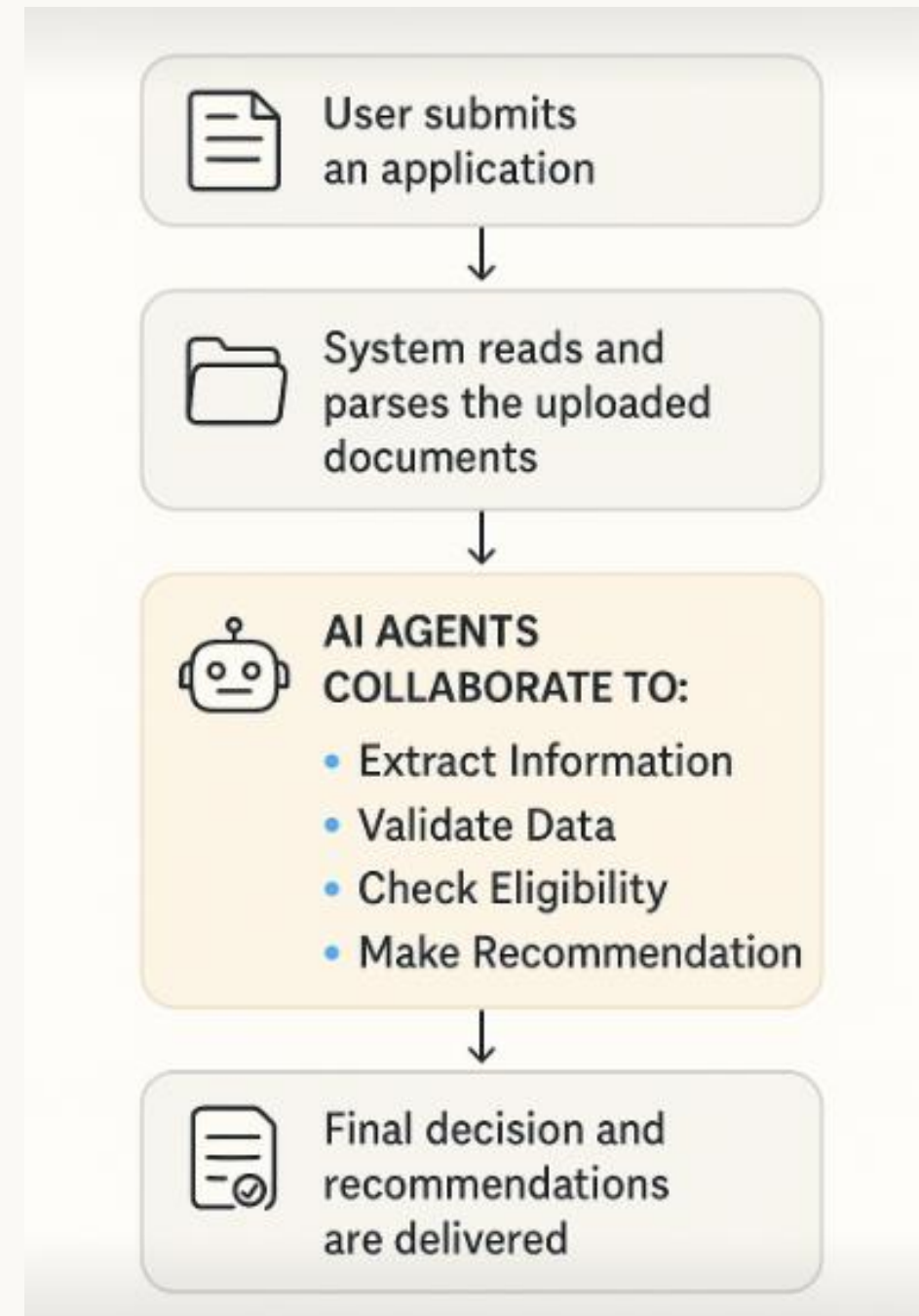
- Reads and understands application documents
- Validates submitted information
- Decides applicant eligibility
- Makes personalized support recommendations

Tools Used in the Code	
Category	**Tools/Technologies**
AI/ML	Ollama (Mistral 7B LLM), HuggingFace Transformers, LangChain, LangGraph
Data Processing	ChromaDB (Vector Store), RecursiveCharacterTextSplitter, JSON
Development	Python, Logging, Type Hints

Main Functional Modules	
Function	**Purpose**
extract_data	Reads and extracts information from submitted documents.
validate_data	Validates the extracted information against business rules.
check_eligibility	Assesses if the applicant qualifies for support.
make_recommendation	Suggests financial support or economic enablement programs.

How It Works – Workflow

1. User submits an application.

2. System reads and parses the uploaded documents.

3. AI Agents Collaborate to:
   - Extract Information
   - Validate Data
   - Check Eligibility
   - Make Recommendations

4. Final Decision and Recommendations are delivered.

Key Features

1. Automated, end-to-end application processing.

2. AI-Powered decision-making with Explainability.

3. Advanced document understanding (OCR, NLP, Embeddings).

4. Error handling and detailed logging for audit and traceability.

5. Improves processing speed, efficiency, and fairness..

GitHub Code Repository

Home Dashboard

Navigation

Go to
- 🔴 Home Dashboard
- ○ New Application
- ○ Eligibility Assessment
- ○ Chat Assistant
- ○ Admin Panel

🏛️ **Government Social Support AI System**

Home Dashboard

Total Applications	Pending Reviews	Approval Rate
1,234	45	78%
↑ +12%	↓ -5%	↑ +3%

Application Trends

Daily Applications and Approvals

Recent Applications

	ID	Name	Status	Date
0	APP001	John Doe	Pending	2024-03-10
1	APP002	Jane Smith	Approved	2024-03-09
2	APP003	Bob Johnson	Under Review	2024-03-08

New Application

Deploy

Navigation

Go to

- ○ Home Dashboard
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- ○ Admin Panel

New Application Submission

Personal Information

First Name

Last Name

Email

Phone Number

Financial Information

Monthly Income

0   − +

Monthly Expenses

0   − +

Employment Status

Employed ▼

Number of Dependents

0   − +

Required Documents

Bank Statement (PDF)

☁   Drag and drop file here
Limit 200MB per file • PDF

Browse files

ID Proof (PDF/Image)

☁   Drag and drop file here
Limit 200MB per file • PDF, PNG, JPG, JPEG

Browse files

Submit Application

Eligibility Assessment

Chat Assistant

Admin Panel