HackOrbit 2025

Team: Civic Coders

Theme: Healthcare Technology

Problem Statement: In rural India, where there's a severe shortage of qualified doctors and limited access to medical services, early diagnosis is often delayed or unavailable. This leads to preventable health crises, misdiagnosis, and unaffordable costs for low-income families.

PROPOSED SOLUTION

We present ChikitsaAI – An AI-powered chatbot named ChikitsaAI that:

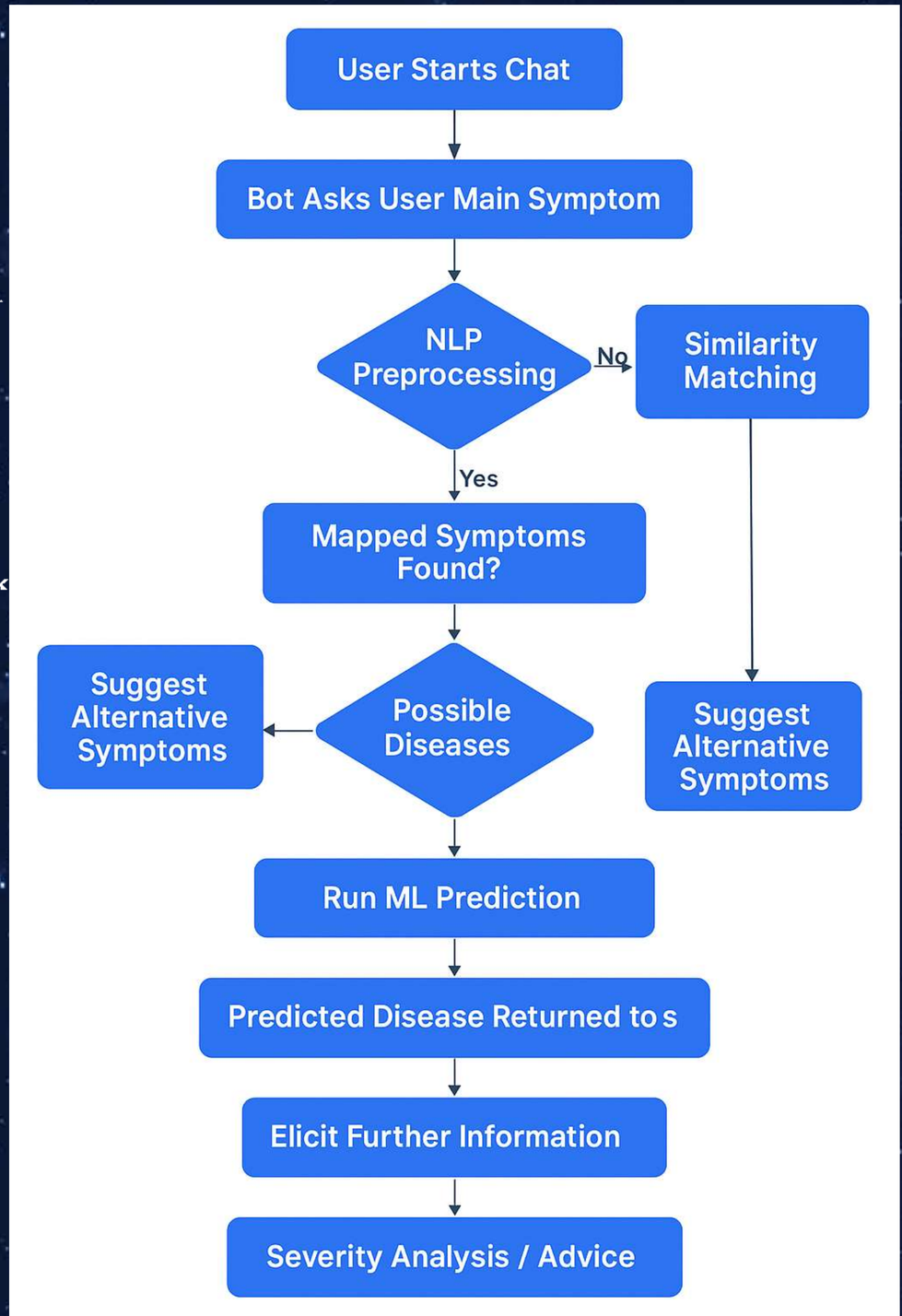
•Uses NLP + Neural Networks to predict diseases from user-described symptoms

•Offers preliminary diagnosis and medical advice

•Works via SMS/WhatsApp interface for rural connectivity

•Trained on symptom-disease data with 89%+ accuracy

FLOWCHART:


User Starts Chat
Bot Asks User Main Symptom
NLP Preprocessing
No
Similarity Matching
Yes
Mapped Symptoms Found?
Suggest Alternative Symptoms
Possible Diseases
Suggest Alternative Symptoms
Run ML Prediction
Predicted Disease Returned to s
Elicit Further Information
Severity Analysis / Advice

FEATURES AND NOVELTY

- ✓ **Multilingual NLP** using NLTK, extendable to Hindi, Tamil, etc.
- ✓ **No Smartphone Needed:** Works via Whatsapp gateways
- ✓ **AI Diagnosis:** Neural Network trained on 500+ disease-symptom pairs
- ✓ **Triage Support:** Classifies symptoms as urgent/non-urgent
- ✓ **Voice Input (Future):** ASR tools like Mozilla DeepSpeech
- ✓ **Data Privacy:** AES-256 Encryption via Flask-Talisman

IMPACT WE CAN MAKE

1. **Improves Early Diagnosis in Rural and Underserved Areas**
   - **Problem:** Over **65% of India's population** lives in rural areas with limited access to doctors (Doctor-patient ratio in India is ~1:834 vs WHO's recommended 1:1000).
   - **Impact:** ChikitsaAIenables early symptom screening and triage without needing physical visits.
   - **Source:** *National Health Profile 2021 (MoHFW), WHO*.
2. **Reduces Burden on Primary Healthcare Systems**
   - **Problem: Over 60%** of outpatient visits are for non-critical symptoms that could be handled via basic screening.
   - **Impact:** By suggesting precautions or severity, ChikitsaAI filters non-urgent cases, reducing unnecessary hospital traffic.
   - **Source:** *Indian Public Health Standards (IPHS), Ministry of Health and Family Welfare*.
3. **Promotes Preventive Health Awareness**
   - **Problem:** WHO states that **80% of heart disease, stroke, and diabetes can be prevented** with early lifestyle changes.
   - **Impact:** ChikitsaAI gives personalized health tips and precautions, especially valuable in low-awareness zones.
   - **Source:** *WHO Global Health Estimates 2020*.
4. **Enhances Health Equity via Multilingual and Scalable Support**
   - **Problem:** India has **22 official languages** and massive regional diversity. Many patients are excluded from digital care due to language or access.
   - **Impact:** ChikitsaAI isbuilt with scalable NLP models, can be adapted for multiple languages and run on simple devices.
   - **Source:** *Digital India Report 2023; WHO Digital Health Strategy*.

DRAWBACK AND SHOWSTOPPERS

- **Model Limitations:** May not cover rare diseases (expand dataset needed)
- **User Literacy:** Voice input and vernacular support can solve this
- **Data Bias:** Dataset needs diversity for better generalization
- **Hardware Dependency:** Offline setup requires basic local hardware/server
- **Not a replacement for doctors:** Used only for preliminary screening

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Thank you!