



AI-Powered Clinical Symptom Intelligence Platform

CODE PIRATES (ID:031)

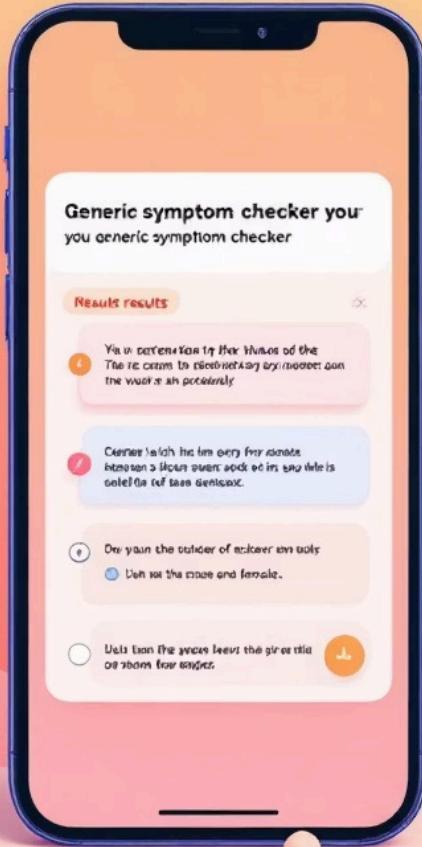
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Problem

- Unstructured patient symptom descriptions — free text, variable quality
- Overloaded systems — long waits and clinician cognitive load
- Manual triage inefficiencies — inconsistent prioritisation
- Risk of missed red-flag symptoms with adverse outcomes



Why Existing Solutions Fall Short



Generic outputs

Consumer-focused answers, not clinician-grade



No structured clinical output

Hard to integrate into workflows



No prioritisation

Doesn't highlight urgent cases



Opaque AI

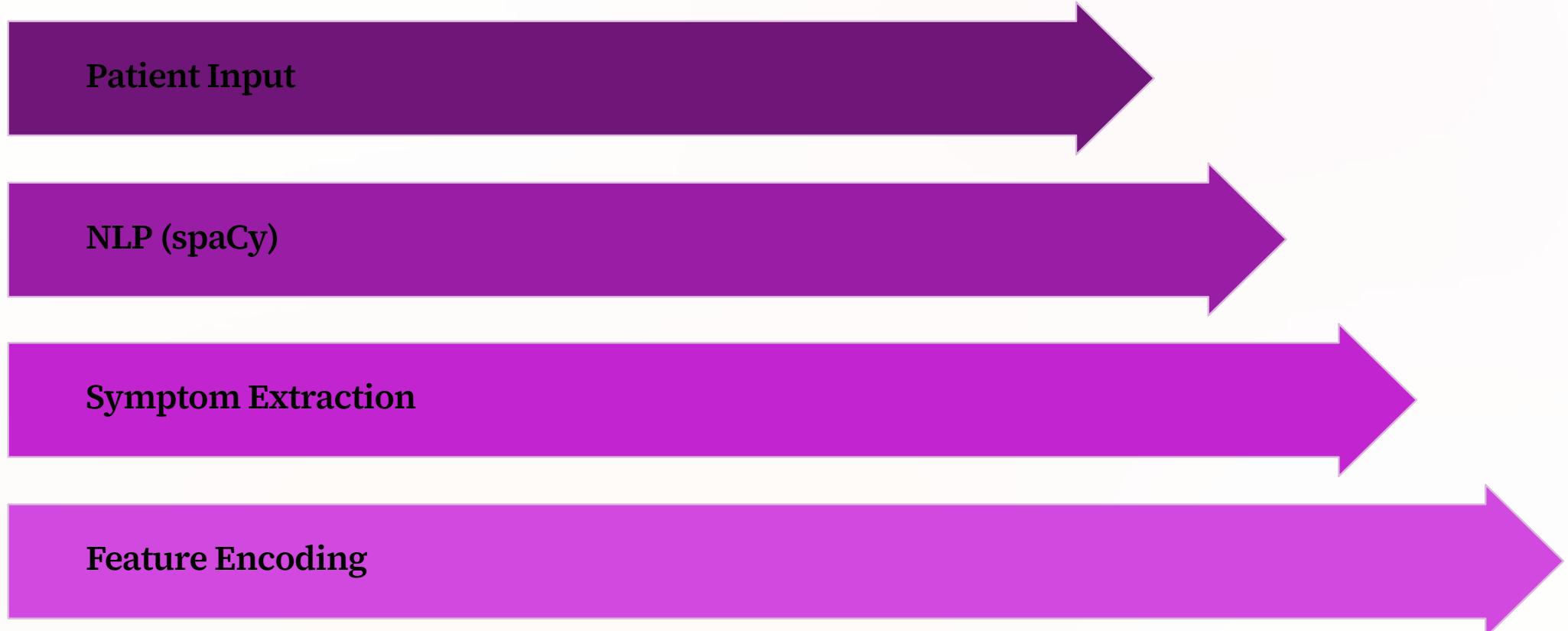
Limited explainability for clinicians



Our Solution

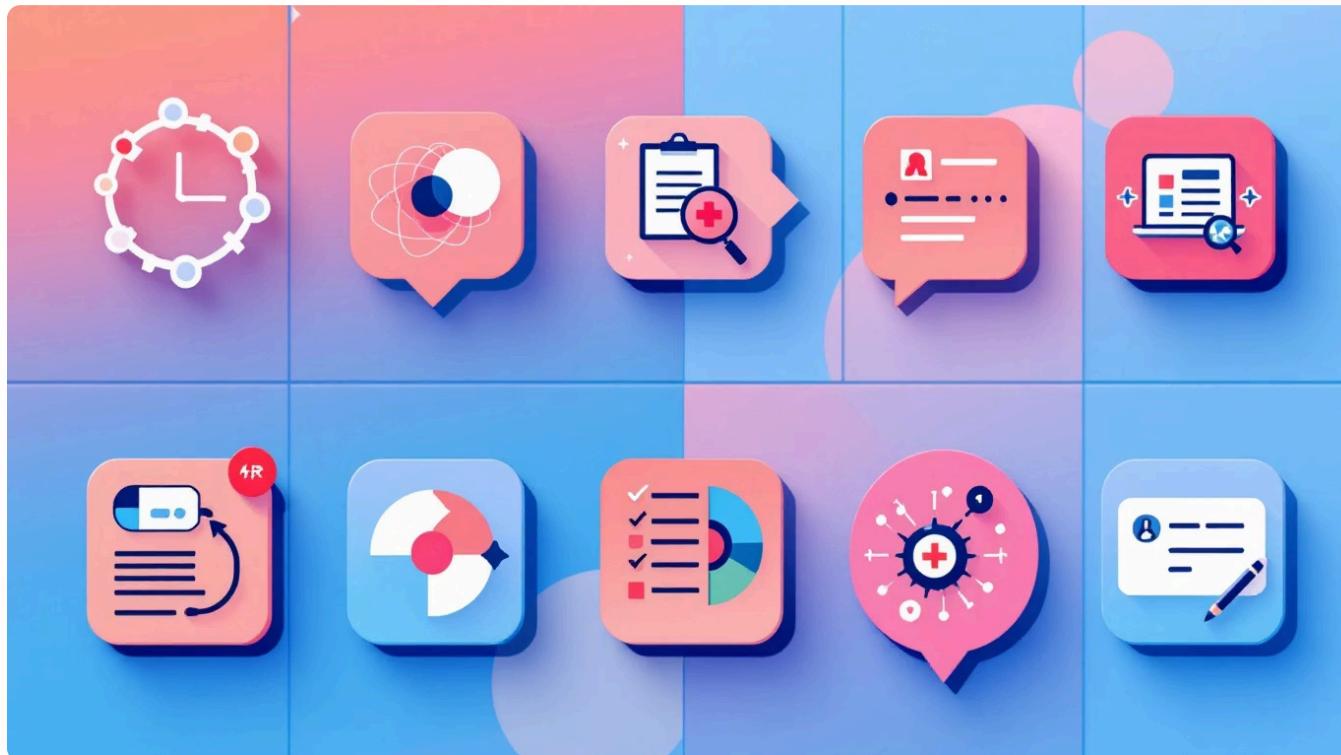
- AI-powered NLP + ML triage that converts natural language into structured clinical intelligence
- Prioritised risk score and concise doctor-ready summary
- Explainable outputs designed for clinical workflows

System Architecture – Pipeline



Pipeline maps text → structured features → probabilistic predictions → actionable triage output.

NLP Layer



- **Named Entity Recognition**

Identify symptoms, signs, medications

- **Severity & Duration**

Quantify intensity and timeline

- **Location & Negation**

Localise findings and detect absent symptoms

- **Structured Symptom Model**

Standardised clinical features for ML



Machine Learning Layer

- XGBoost for disease probability prediction — calibrated, feature-aware
- Logistic regression for transparent risk scoring
- Trained on curated symptom→disease datasets with clinical labelling
- Outputs: real probabilities + explanation vectors

Risk Stratification & Safety

Emergency Classification

Immediate alerts
for red-flag
presentations

Priority Levels

High / Moderate /
Low with
thresholds

Red-flag Logic

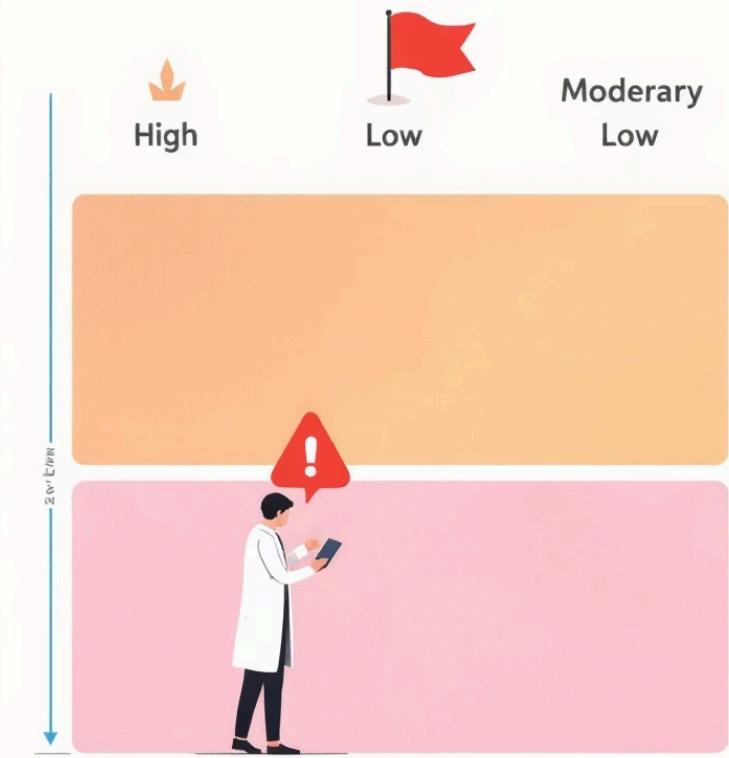
Rule-based + model
ensemble for safety

Workflow Alignment

Actionable recommendations for triage teams

Clinical Risk Stratification

Clinical Vectors Manifested by Story Cystion!





Adaptive Follow-Up Questioning

- Dynamic, context-aware prompts to clarify key features
- Decision-tree + generative templates to improve confidence
- Minimises unnecessary questioning — focused data capture
- Feedback loop improves model performance over time

Structured Clinical Output



Extracted Symptoms

Severity, duration,
location, modifiers



Top 3 Predicted Conditions

Ranked with
probabilities and
explanations



Risk Score

Numeric score +
interpretation
(High/Moderate/Low)



Recommended Next Steps

Testing, referral,
urgent transfer
suggestions



Doctor-Ready Summary

One-page clinical brief
for rapid
decision-making