## AI SOLUTION

## Business objectives

Enhance Accessibility to Healthcare Information

. Provide communities with reliable and accessible medical advice that is available in multiple languages.

Minimize Waiting Times and Misunderstandings

. Enable users to check symptoms and medications remotely, reducing unnecessary visits and confusion at clinics and pharmacies.

Empower Patients with Cost-Effective Choices

. Recommend affordable generic alternatives to help patients save money while ensuring the quality of their treatment.

Enhance Trust and Openness

. Consistently provide disclaimers, promote ethical use of AI, and maintain clarity in communications.

Monetization and Longevity

. Offer subscription plans to our users and health organizations.

. Form partnerships with pharmacies that involve promotional opportunities.

. Facilitate advertisements from healthcare providers.

Insightful Data Analysis

⦁ Deliver monthly reports on health issues and medicine demand to assist our users with their health.

## Problem definition

One of the biggest challenges in healthcare is slow and inefficient customer service. Long waits at clinics and pharmacies make this problem worse. Patients can spend hours waiting for help, only to have a brief, rushed consultation. This waste of time frustrates people and discourages them from seeking timely care.

The issue is also made worse by unnecessary medical expenses. Many patients do not know about affordable generic alternatives to prescribed medicines and end up paying more than they need to. In low-income communities, this financial strain can lead people to delay treatment or skip buying medication altogether, putting their health at greater risk.

Furthermore, in crowded waiting rooms with short consultations, patients often struggle to communicate their symptoms clearly. This poor communication can raise the chances of misdiagnosis or incorrect medication, possibly making their condition worse.

This problem is important because access to accurate, affordable, and timely healthcare is essential for community well-being. When healthcare services are slow, costly, and prone to mistakes, patients lose trust in the system. As a result, health outcomes suffer, and clinics become even more overwhelmed by preventable cases. Addressing these issues is crucial for improving patient experiences and the overall effectiveness of healthcare delivery.

**Relevance to the Theme**

The theme focuses on using technology and innovation to improve access to essential services. StokConnect-AI is directly relevant because it uses artificial intelligence to tackle a key community challenge: healthcare accessibility.

By digitizing symptom reporting, guiding patients with reliable recommendations, and improving access to affordable medication, StokConnect-AI employs technology as a transformative tool for community well-being. It connects patients with healthcare providers, ensures fairer access to treatment, and shows how AI can solve real-world

social problems.

**How StokConnect-AI Helps**

By providing an AI-driven healthcare support platform that increases accessibility, effectiveness, and affordability, StokConnect-AI aims to directly address these issues.

● Reduced Wait Times: Before a patient visits a clinic or pharmacy, StokConnect-AI generates a structured record of their symptoms by letting them enter them digitally. This guarantees more targeted and effective consultations and reduces wasted time in lines.

● Improved Communication: By allowing patients to describe their symptoms at their own pace, the system lessens the possibility of misunderstandings or omissions during hurried in-person consultations. Better treatment results are encouraged and the chance of a misdiagnosis is reduced thanks to this structured input.

● Affordable Access to Medication:By finding affordable generic substitutes for prescription drugs, StokConnect-AI assists patients in making wise financial decisions without sacrificing the quality of their care. This immediately reduces the cost of medical care.

● Enhanced Accessibility: StokConnect-AI gives patients the information they need to make smart choices before seeing a doctor by giving them initial health advice and reliable suggestions from a distance. This is especially useful for communities with few resources or in rural areas where healthcare is hard to get to.

**Accessibility of Stok-AI**

We have clearly defined problems which are overlooked most of the time but are critical. With proper marketing and making our software user friendly to each and every one of our targeted audience, we believe that reading the problem definition will be the finishing blow, that one needs to get themselves registered on our system.

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## Machine Learning Approach

1.Define scope: product, category, or regional forecasting levels.

2.Use classical models for baseline: ARIMA for seasonal trends.

3.Apply advanced models for complex patterns:

-Gradient Boosted Trees for structured sales data.

-Random Forest when feature interactions matter.

-LSTM or GRU for sequential time series with long-term dependencies.

4.Combine models in an ensemble to raise accuracy.

5.Apply feature selection to reduce noise.

6.Verify with cross-validation on rolling windows.

7.Observe movement in data and initiate models when accuracy drops.

8.Estimates stock needs by analyzing purchase patterns and seasonal demand.

## Data

## Model

The AI model will be evaluated for accuracy using the following dimensions:

1. Symptom-to-recommendation accuracy – How closely the system’s suggested conditions or advice align with diagnoses or guidelines from verified medical databases.

2. Pharmacy identification accuracy – How correctly the system identifies and locates pharmacies that stock the recommended medication, based on real-time inventory or partner pharmacy databases.

Performance metrics such as precision, recall, F1-score, and top-N accuracy will be used. Additionally, user feedback will serve as a post-deployment accuracy measure to continuously improve recommendations.

## Time Series Analysis on Data

The AI will incorporate time series analysis to study patterns of reported symptoms over time.

· Symptom trends: Monitoring seasonal illnesses to improve prediction accuracy.

· Medication demand forecasting: Predicting which medications will be in higher demand during certain periods

By applying time series forecasting methods, the system can proactively adjust recommendations and pharmacy suggestions based on seasonal or location-based health trends.

## Solution Techniques

-To enhance the accuracy of our health-based chatbot, smart techniques like:

-data augmentation (we will expand our training data by creating extra examples, like rephrased symptoms so that our model can better understand a wide variety of user expressions. This will helps it respond accurately and be reliable)

-transfer learning (we will teach the chatbot to handle health-related questions more effectively saving us time and boosting performance for tasks like symptom checking and urgency detection)

-hyperparameter tuning will be employed(how fast it learns or how much data it processes at once to get the best results. we will find an ideal setup to improve accuracy)

-Natural Language Processing (NLP), (NLP techniques are employed to understand and interpret user-inputted symptoms, even when expressed in varied or informal ways. This ensures the chatbot can handle a wide range of user queries accurately and naturally)

These strategies will ensure that the model can better understand a wide range of symptoms to make accurate recommendations and adapt over time. We will also combine different models and use location info to give users helpful real-time medical tips and nearby pharmacy suggestions.

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## Natural Language Processing, Speech Recognition or Speech Synthesis

## Deep Learning

We'll use deep learning techniques like LSTM(Long Short-Term Memory) and Transformer models to analyze patient symptoms and suggest possible diseases.

Among various classification networks, this approach is especially good at handling multiple symptoms to give more accurate illness predictions.

We'll also use Graph Neural Networks (GNNs) to connect symptoms, medications, and details like nearby pharmacies, creating a smarter recommendation system based on context.

Time-series models will help us predict medicine demand and avoid running out of stock.

To make our models fit better with local conditions,we'll apply transfer learning, which adapts existing models to new environments.

we'll set up a continuous feedback loop so the chatbot can keep learning and improving over time.

## Other Features: Chatbot/Softbot

**Patient Chatbot:**

Gathers symptoms one by one.

Offers potential diagnoses and indicates if urgent care is necessary.

Finds local pharmacies and recommends generic options.

**Pharmacist Assistant Bot:**

Anticipates future inventory needs.

Sends alerts for low stock.

Provides a summary of common patient inquiries.

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