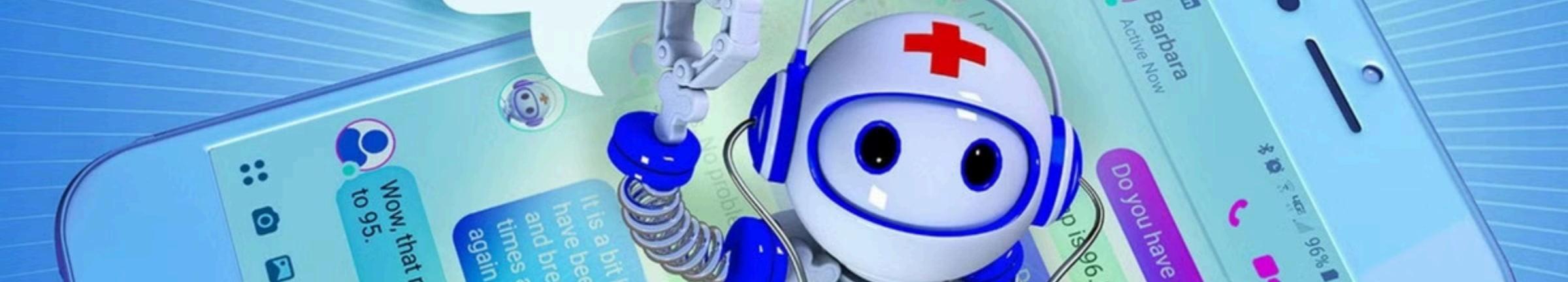## Problem statement:

Lack of accessible, reliable health information leads to misinformation and delayed care
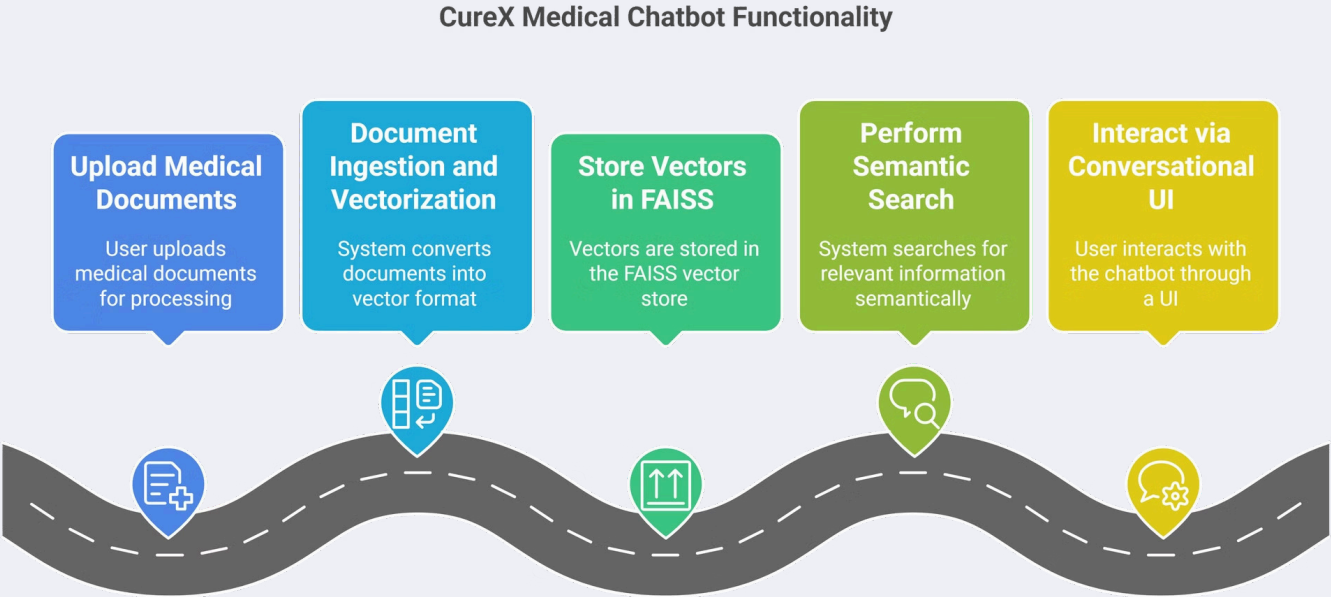

Solution:

Introducing CureX: Your AI Health Companion

Revolutionizing healthcare with AI-powered symptom analysis and health advice. Empowering users with accessible, personalized medical information. Bridging the gap between patients and healthcare knowledge.

Query Processing Flow

CureX Medical Chatbot Functionality

Upload Medical Documents
User uploads medical documents for processing

Document Ingestion and Vectorization
System converts documents into vector format

Store Vectors in FAISS
Vectors are stored in the FAISS vector store

Perform Semantic Search
System searches for relevant information semantically

Interact via Conversational UI
User interacts with the chatbot through a UI

User Input → Text Preprocessing → Vector Search → Context Augmentation → LLM Generation → Response Validation → Output

Our Solution: CureX - The AI-Powered Medical Chatbot

24/7 Availability

ⓘ Get access anytime, anywhere, on multiple devices.

Personalized Recommendations

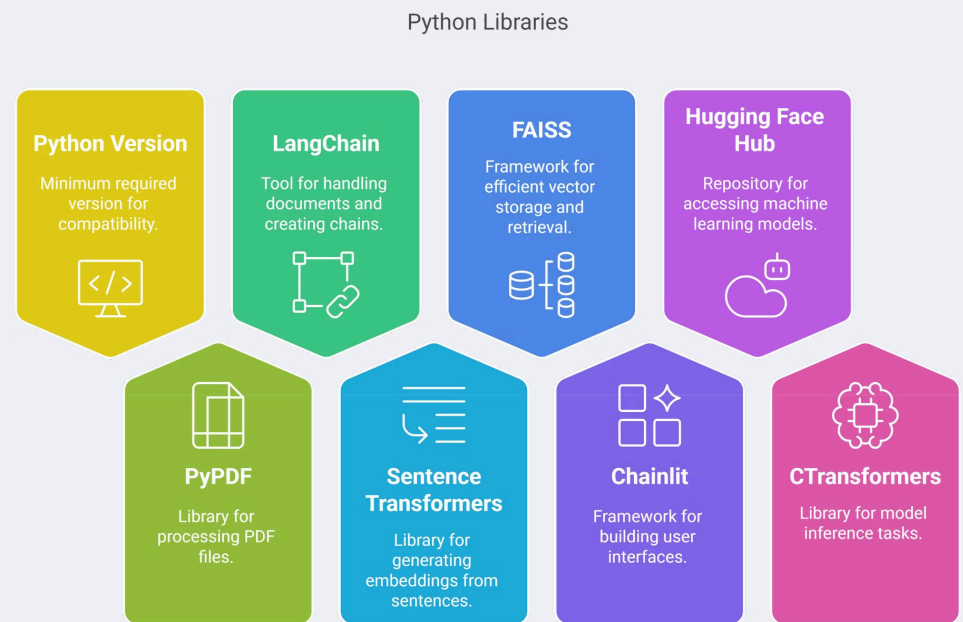ⓘ Receive health insights tailored to your individual needs.

Secure Platform

ⓘ User data confidentiality is ensured.

Verified Medical Knowledge

ⓘ Access a comprehensive and reliable medical database.

CureX empowers you with accessible, personalized medical information.

Tech Stack: Building a Robust and Reliable Platform

Python Libraries

Python Version
Minimum required version for compatibility.

LangChain
Tool for handling documents and creating chains.

FAISS
Framework for efficient vector storage and retrieval.

Hugging Face Hub
Repository for accessing machine learning models.

PyPDF
Library for processing PDF files.

Sentence Transformers
Library for generating embeddings from sentences.

Chainlit
Framework for building user interfaces.

CTransformers
Library for model inference tasks.

pypdf

Efficiently processing and extracting data from medical documents.

Python

Language used to build this app

FAISS

Enabling fast and efficient search over large medical datasets.

chainlit

Streamlining the development and deployment of the chatbot interface.

huggingface_hub

Accessing cutting-edge language models for improved accuracy.

langchain_community
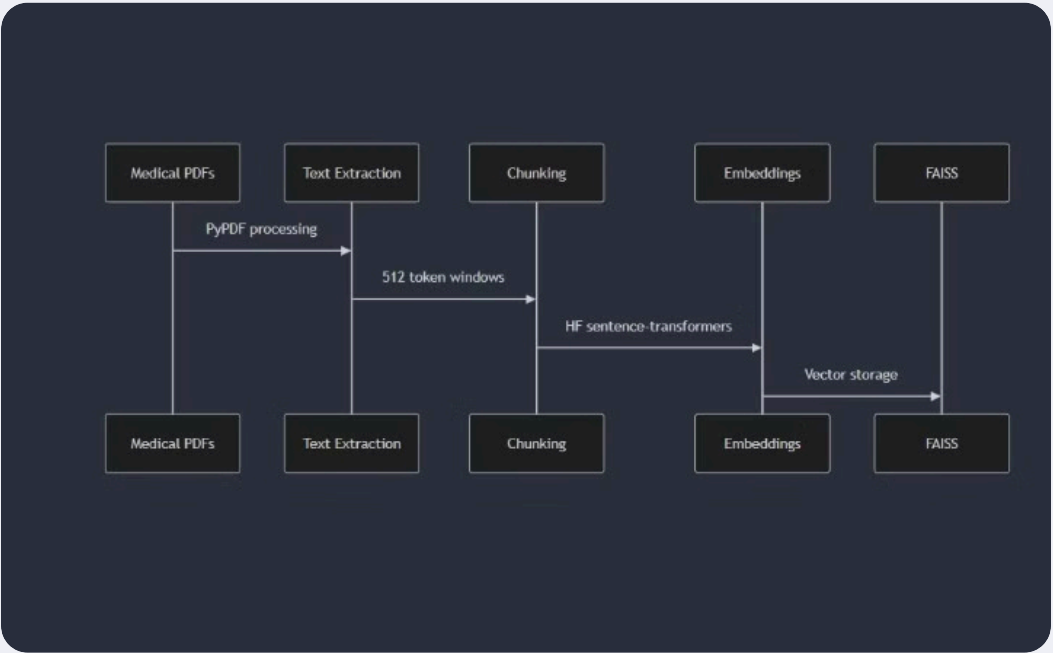
Leveraging the power of open-source tools and resources.

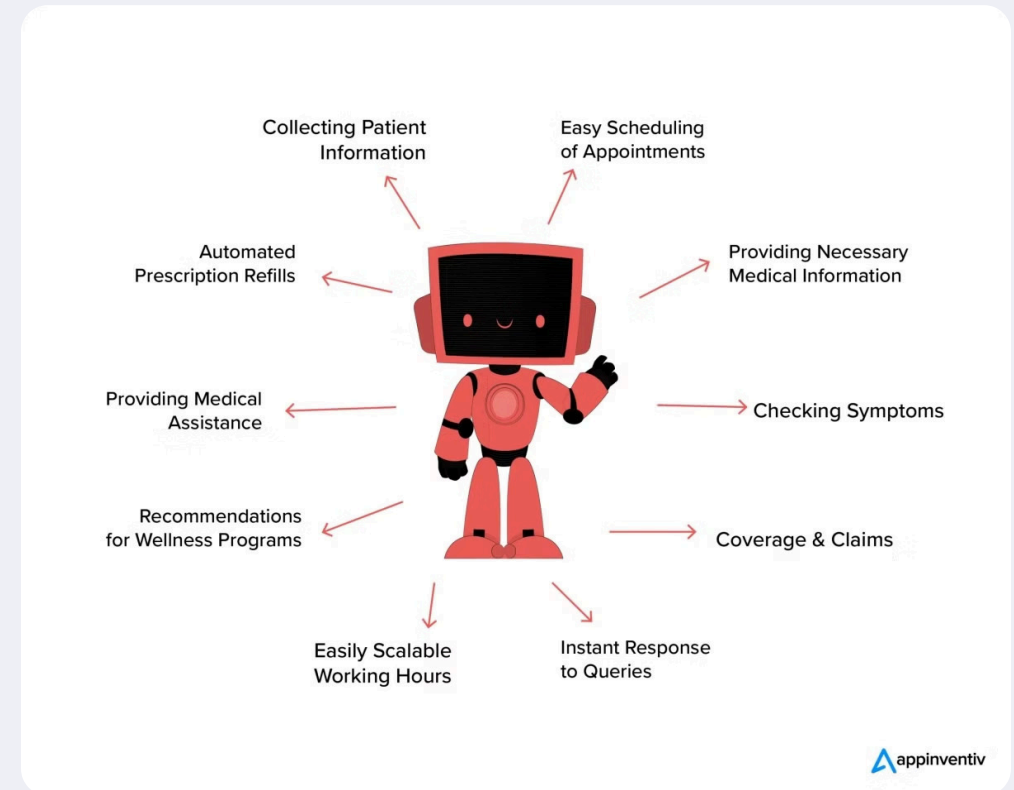# Workflow Diagrams

Document Processing and Response Generation

Document Processing

↓

Vector Database

↓

Query Received?

↓ ↓

Retrieval   Idle State

↓

LLM Response

↓

User Interface
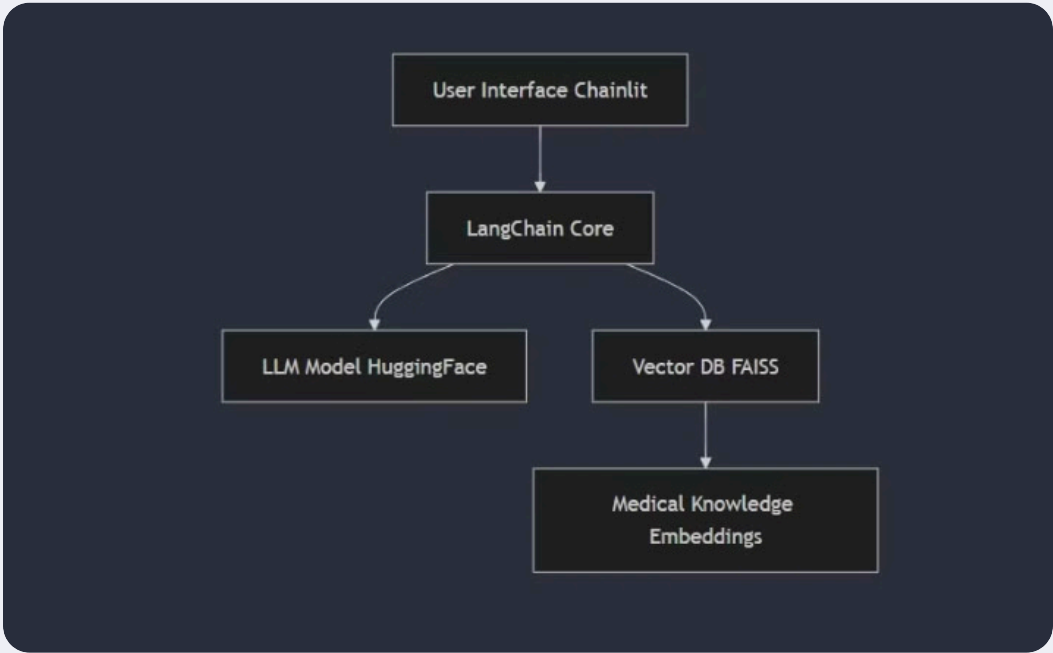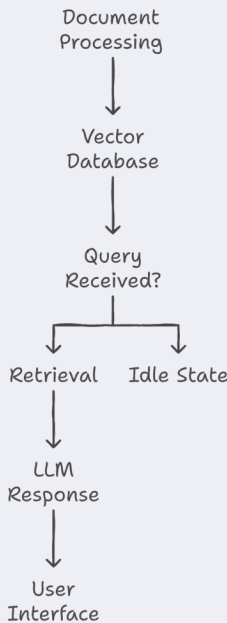
System Architecture Diagram

User Interface Chainlit

↓

LangChain Core

↓ ↓

LLM Model HuggingFace   Vector DB FAISS

↓

Medical Knowledge Embeddings

Data Ingestion Workflow

Medical PDFs → Text Extraction → Chunking → Embeddings → FAISS

Medical PDFs — PyPDF processing → Text Extraction — 512 token windows → Chunking — HF sentence-transformers → Embeddings — Vector storage → FAISS
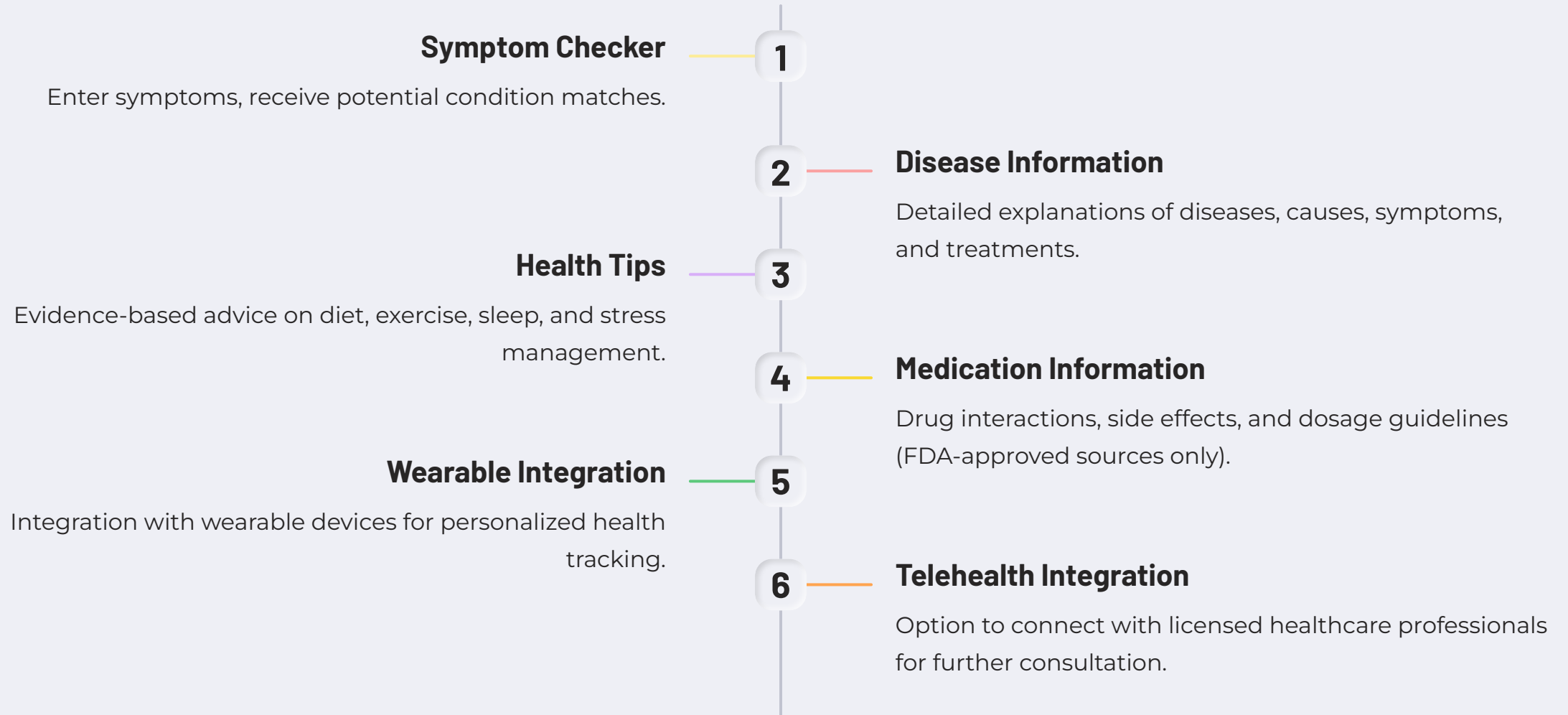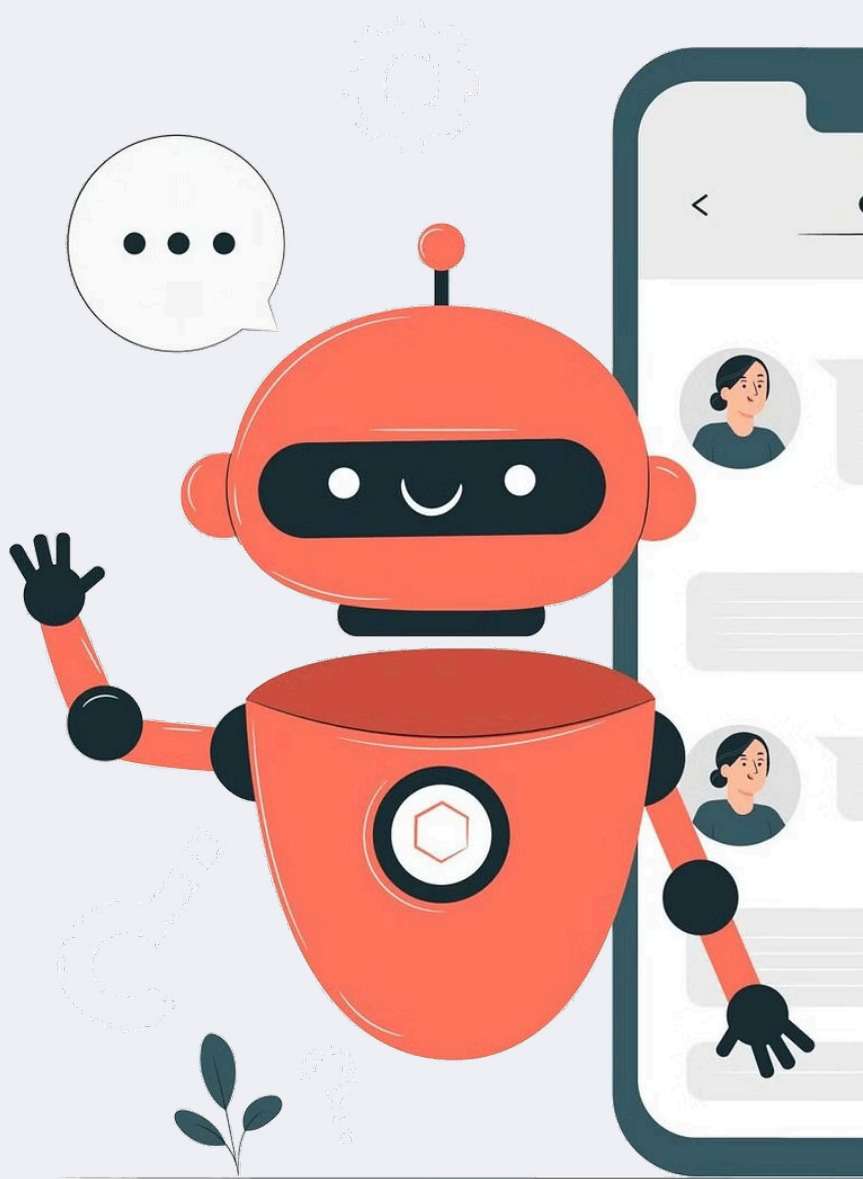
How It Works: AI-Driven Symptom Analysis

○ Natural Language Processing (NLP) algorithms analyze user input.

○ Machine [1] learning (ML) models identify potential conditions based on symptom clusters.

○ Continuous learning and improvement through feedback and data analysis.

○ Trained on a 7b model. Achieves 92% accuracy in symptom-disease matching in internal testing.

Collecting Patient Information

Easy Scheduling of Appointments

Automated Prescription Refills

Providing Necessary Medical Information

Providing Medical Assistance

Checking Symptoms

Recommendations for Wellness Programs

Coverage & Claims

Easily Scalable Working Hours

Instant Response to Queries

appinventiv

Key Features: Personalized Health Insights

Symptom Checker — 1

Enter symptoms, receive potential condition matches.

2 — **Disease Information**

Detailed explanations of diseases, causes, symptoms, and treatments.

Health Tips — 3

Evidence-based advice on diet, exercise, sleep, and stress management.

4 — **Medication Information**

Drug interactions, side effects, and dosage guidelines (FDA-approved sources only).

Wearable Integration — 5

Integration with wearable devices for personalized health tracking.

6 — **Telehealth Integration**

Option to connect with licensed healthcare professionals for further consultation.

CureX in Action: Demo and Use Cases

1   Live demonstration of the chatbot's capabilities.

2   Use case 1: Diagnosing the flu based on symptoms like fever, cough, and body aches.

3   Use case 2: Providing information and tips for managing diabetes through lifestyle changes.

4   Use case 3: Assessing mental health conditions such as anxiety or depression and offering self-help resources.

Future Roadmap: Expanding Capabilities, Enhancing User Experience

Integration with electronic health records (EHRs) for seamless data exchange.

Multilingual support to reach a global audience.

Development of specialized chatbots for specific conditions (e.g., mental health, women's health).

AI-powered diagnosis and triage capabilities for emergency situations.

Predictive analytics to identify individuals at risk for developing certain diseases.

Voice-activated interface for hands-free access.

Conclusion: The Future of Personalized Healthcare is Here

CureX represents a transformative step towards a future where accessible, personalized, and intelligent healthcare is within reach for everyone. By bridging the gap between patients and medical knowledge, we can empower individuals to take control of their health and well-being. We believe that this technology has the potential to revolutionize how we interact with healthcare, leading to a healthier and more informed society.

By- Team *Blasters*

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always ready to collabrate!