

HealthAI - Intelligent Healthcare Assistant

Project Overview

HealthAI is an AI-driven Streamlit web application that assists users with personalized healthcare services including:

- AI-powered Patient Chat for health questions.
- Disease Prediction based on symptoms.
- Personalized Treatment Plans.
- Health Analytics with interactive visualizations.

It uses Hugging Face's LLMs (like Mistral-7B) to generate medical insights.

Technologies Used

- Streamlit: Web interface.
- Hugging Face Transformers: AI model interaction.
- Python: Core logic.
- dotenv: Secure config loading.
- Plotly & pandas: Visualizations and data analysis.

Project Structure

healthai/

```
| - app.py          # Streamlit main app
| - .env.example    # API token template
| - requirements.txt # Dependencies
| - README.md       # Documentation
| - healthai_core/  # Core logic
|   | - config.py   # Loads env variables
|   | - model.py    # Model query functions
|   | - prompts.py  # AI prompt templates
|   | - utils.py    # Helper functions
```

- | - pages/ # Streamlit multi-page layout
- | | - Patient_Chat.py
- | | - Disease_Prediction.py
- | | - Treatment_Plans.py
- | | - Health_Analytics.py
- | - assets/ # CSS, logos
- | - data/ # Example data files
- | - tests/ # Unit tests

How It Works

1. User selects a feature (chat, diagnosis, etc.) from sidebar.
2. Inputs are processed and sent as prompts to a Hugging Face model.
3. The model returns AI-generated content via Transformers pipeline.
4. Responses are shown in a clean, styled UI.
5. Health metrics are visualized using Plotly based on sample or uploaded data.

Security & Deployment

- Uses .env to protect API tokens.
- Deployable via Streamlit Cloud or Docker.
- Responsive UI with optional authentication support.

Future Improvements

- Real-time data from wearables.
- Voice input integration.
- Multi-language support.
- More robust condition classification using fine-tuned models.