!pip install transformers torch gradio -q

import gradio as gr

import torch

from transformers import AutoTokenizer, AutoModelForCausalLM

# Load model and tokenizer

model\_name = "ibm-granite/granite-3.2-2b-instruct"

tokenizer = AutoTokenizer.from\_pretrained(model\_name)

model = AutoModelForCausalLM.from\_pretrained(

    model\_name,

    torch\_dtype=torch.float16 if torch.cuda.is\_available() else torch.float32,

    device\_map="auto" if torch.cuda.is\_available() else None

)

if tokenizer.pad\_token is None:

    tokenizer.pad\_token = tokenizer.eos\_token

def generate\_response(prompt, max\_length=1024):

    inputs = tokenizer(prompt, return\_tensors="pt", truncation=True, max\_length=512)

    if torch.cuda.is\_available():

        inputs = {k: v.to(model.device) for k, v in inputs.items()}

    with torch.no\_grad():

        outputs = model.generate(

            \*\*inputs,

            max\_length=max\_length,

            temperature=0.7,

            do\_sample=True,

            pad\_token\_id=tokenizer.eos\_token\_id

        )

    response = tokenizer.decode(outputs[0], skip\_special\_tokens=True)

    response = response.replace(prompt, "").strip()

    return response

def disease\_prediction(symptoms):

    prompt = f"Based on the following symptoms, provide possible medical conditions and general medication suggestions. Always emphasize the importance of consulting a doctor for proper diagnosis.\n\nSymptoms: {symptoms}\n\nPossible conditions and recommendations:\n\n\*\*IMPORTANT: This is for informational purposes only. Please consult a healthcare professional for proper diagnosis and treatment.\*\*\n\nAnalysis:"

    return generate\_response(prompt, max\_length=1200)

def treatment\_plan(condition, age, gender, medical\_history):

    prompt = f"Generate personalized treatment suggestions for the following patient information. Include home remedies and general medication guidelines.\n\nMedical Condition: {condition}\nAge: {age}\nGender: {gender}\nMedical History: {medical\_history}\n\nPersonalized treatment plan including home remedies and medication guidelines:\n\n\*\*IMPORTANT: This is for informational purposes only. Please consult a healthcare professional for proper treatment.\*\*\n\nTreatment Plan:"

    return generate\_response(prompt, max\_length=1200)

# Create Gradio interface

with gr.Blocks() as app:

    gr.Markdown("# Medical AI Assistant")

    gr.Markdown("\*\*Disclaimer: This is for informational purposes only. Always consult healthcare professionals for medical advice.\*\*")

    with gr.Tabs():

        with gr.TabItem("Disease Prediction"):

            with gr.Row():

                with gr.Column():

                    symptoms\_input = gr.Textbox(

                        label="Enter Symptoms",

                        placeholder="e.g., fever, headache, cough, fatigue...",

                        lines=4

                    )

                    predict\_btn = gr.Button("Analyze Symptoms")

                with gr.Column():

                    prediction\_output = gr.Textbox(label="Possible Conditions & Recommendations", lines=20)

            predict\_btn.click(disease\_prediction, inputs=symptoms\_input, outputs=prediction\_output)

        with gr.TabItem("Treatment Plans"):

            with gr.Row():

                with gr.Column():

                    condition\_input = gr.Textbox(

                        label="Medical Condition",

                        placeholder="e.g., diabetes, hypertension, migraine...",

                        lines=2

                    )

                    age\_input = gr.Number(label="Age", value=30)

                    gender\_input = gr.Dropdown(

                        choices=["Male", "Female", "Other"],

                        label="Gender",

                        value="Male"

                    )

                    history\_input = gr.Textbox(

                        label="Medical History",

                        placeholder="Previous conditions, allergies, medications or None",

                        lines=3

                    )

                    plan\_btn = gr.Button("Generate Treatment Plan")

                with gr.Column():

                    plan\_output = gr.Textbox(label="Personalized Treatment Plan", lines=20)

            plan\_btn.click(treatment\_plan, inputs=[condition\_input, age\_input, gender\_input, history\_input], outputs=plan\_output)

app.launch(share=True)

