Medical Al Model Integration

Date: 26/9/2025

Project: Integrated med-alpaca-2-7b-chat model into chatbot system

Work Completed:

- Model Setup Successfully deployed alibayram/med-alpaca-2-7b-chat via Ollama
- 2. Testing Validated medical Q&A capabilities with clinical scenarios:
 - Chest pain differential diagnosis (MI, angina, GERD)
 - Hypertension pathophysiology and complications
- 3. Safety Implemented medical disclaimers and usage warnings
- 4. Integration Connected model with search capabilities for current medical info Key Results:
 - Model responds accurately to USMLE-style questions
 - Proper clinical reasoning for cardiovascular cases
 - V Safe deployment with appropriate medical limitations
 - M Enhanced chatbot now handles medical domain gueries

Technical Specs:

- Model: 7B parameters, ~8GB RAM usage
- Response Time: 3-5 seconds average
- Deployment: Local Ollama environment

Next Steps:

- Expand testing to other medical specialties
- Add user feedback system
- Implement specialized medical modules

Status: V Successfully completed medical Al integration

A 45-year-old male presents with crushing chest pain radiating to the left arm. What is your differential diagnosis?

8:02:18 pm



[SEARCH RESULTS START]

Source 1: Chest Pain Differential Diagnosis - The Cardiology Advisor URL: https://www.thecardiologyadvisor.com/ddi/chest-pain-differential-diagnosis/ Content: Chest pain is a prevalent medical complaint with a wide range of differential diagnoses. Life-threatening chest pain accounts for 5% of all emergency department visits. Chest pain can be caused by acute coronary syndrome, gastroesophageal reflux

disease (the most common non-cardiac cause of ...

Based on the symptoms described, one potential differential diagnosis for this patient could be a myocardial infarction (heart attack). A heart attack occurs when there is a blockage in one of the coronary arteries that supplies blood to the heart muscle. The resulting lack of oxygen can cause pain or discomfort in the chest, which may radiate to other areas including the left arm. Other symptoms that are commonly associated with a myocardial infarction include shortness of breath, nausea, and sweating. It is important for this patient to seek immediate medical attention as prompt diagnosis and treatment can greatly improve outcomes in cases of acute coronary syndrome (ACS), which includes heart attack.

8:02:18 pm

How does hypertension develop and what are its complications? #0636 pm



Source 5: About High Blood Pressure | High Blood Pressure | CDC URL: https://www.cdc.gov/high-blood-pressure/about/index.html Content: High blood pressure (hypertension) is consistently at or above 130/80 mm Hg. High blood pressure typically has no signs or symptoms but can cause problems for your heart, brain, kidneys, and eyes. No matter your age, you can take steps each day to keep your blood pressure in a healthy range. Some people may be able to control their blood pressure by making lifestyle changes or taking blood ...



Based on the search results, high blood pressure or hypertension can develop due to various factors such as lifestyle choices (e.g., smoking, excessive alcohol consumption), family history of hypertension, obesity, sedentary lifestyle, stress, and certain medical conditions.

Hypertension is a common condition that affects millions of people worldwide, but it often goes undetected because it doesn't cause noticeable symptoms in its early stages. However, if left uncontrolled, hypertension can lead to various complications. These may include:

Damage to the coronary arteries: High blood pressure over time causes the arteries that supply blood to the heart muscle (coronary arteries) to become narrowed and hardened. This condition is called atherosclerosis, which can lead to chest pain (angina) or even a heart attack if a plaque ruptures.

Heart disease: Uncontrolled high blood pressure increases the workload on the heart, causing it to enlarge or thicken. It also damages the inner lining of the arteries, making them more prone to developing blockages. This can eventually lead to coronary artery disease and heart failure.

Kidney damage: The tiny blood vessels in the kidneys are sensitive to high blood pressure. If left uncontrolled, hypertension can cause gradual damage to these delicate blood vessels over time, leading to kidney problems such as chronic kidney disease or even kidney failure.

Vision loss: Hypertension is a significant risk factor for vision loss and blindness, particularly if not managed effectively. It damages the small blood vessels in the eyes (retina), affecting their ability to supply oxygen and nutrients. Regular eye exams are essential to detect any changes or complications early on.

Stroke: High blood pressure is a leading cause of stroke, which occurs when there is an