Developing an App to collect data for people at risk of Alzheimer's Disease

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Background

- Alzheimer's Disease (AD, here and after) is a chronic neurodegenerative disease and the most common cause of dementia.

- The early signs of the disease include forgetting recent events or conversations. Over time, it progresses to serious memory problems and loss of the ability to perform everyday tasks. This whole process may last for over 20 years.

- Timing of interventions to the disease are very critical to the clinical outcomes. However, there is no satisfying tool for the early diagnosis.

- Linguistic performance has been shown to be useful as an early biomarker of AD.

- A convenient tool that record the linguistic performance would largely fill the gap by: 1. Collect huge amount data of audio data, 2.establish the relations between audio data and cognitive function.
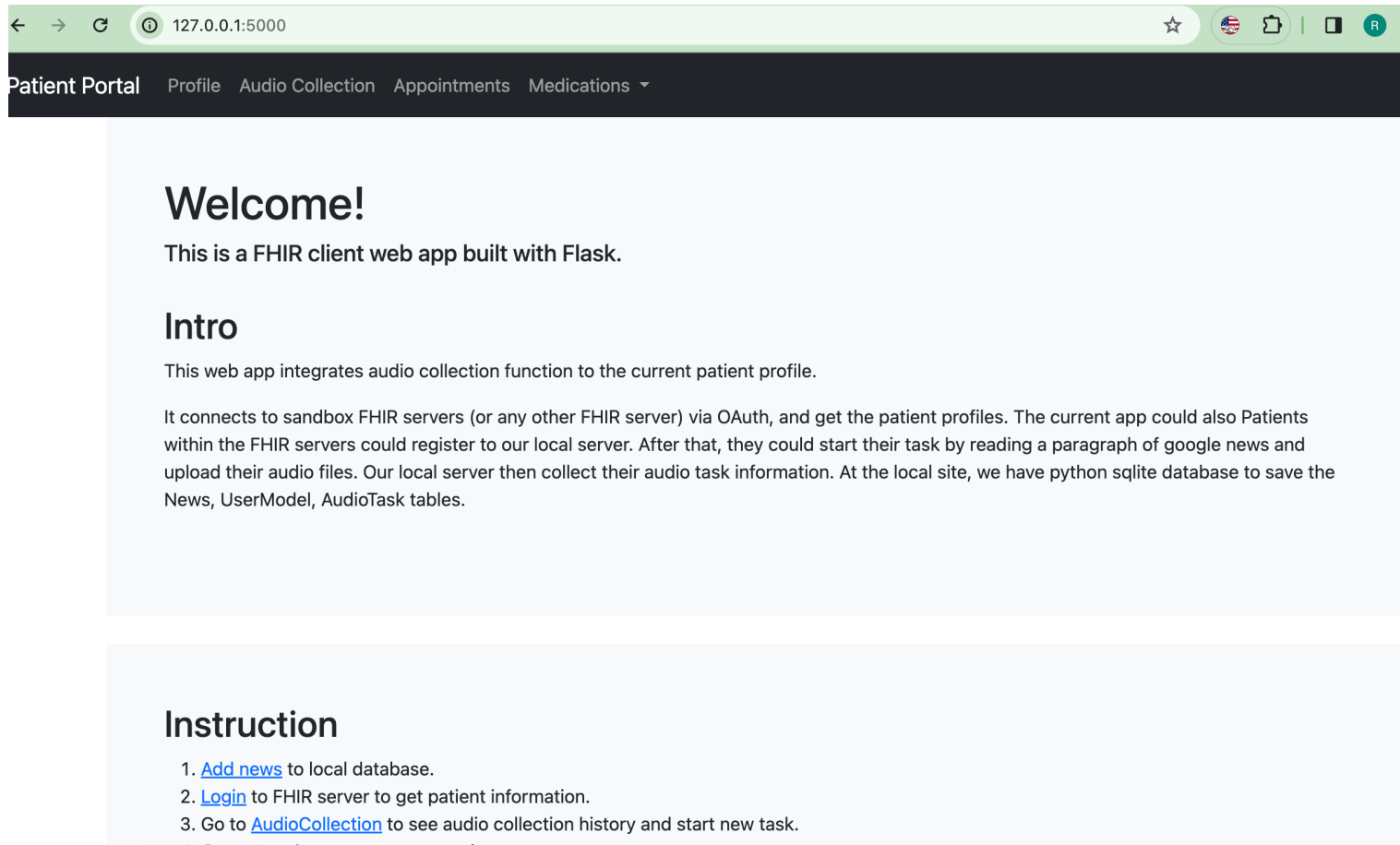
Development

- The web based app:

  Python flask as the development environment.

  Python sqlite database to save data

  Python fhirclient to communicate with FHIR server

Demo

Welcome

Welcome!

This is a FHIR client web app built with Flask.

Intro

This web app integrates audio collection function to the current patient profile.

It connects to sandbox FHIR servers (or any other FHIR server) via OAuth, and get the patient profiles. The current app could also Patients within the FHIR servers could register to our local server. After that, they could start their task by reading a paragraph of google news and upload their audio files. Our local server then collect their audio task information. At the local site, we have python sqlite database to save the News, UserModel, AudioTask tables.

Instruction

1. Add news to local database.
2. Login to FHIR server to get patient information.
3. Go to AudioCollection to see audio collection history and start new task.

Show random news

Patient Portal
Profile   Audio Collection   Appointments   Medications ▾

Selected Random News

ID	Title	Text	Level
30	Israeli military intelligence chief resigns over his role in failing to prevent Oct. 7 attack	TEL AVIV, Israel (AP) — The head of Israeli military intelligence resigned on Monday over the failures surrounding Hamas' unprecedented Oct. 7 attack, the military said, becoming the first senior figure to step down over his role in the deadliest assault in Israel's history.Maj. Gen. Aharon Haliva's resignation could set the stage for more resignations among Israel's top security brass over Hamas' attack, when militants blasted through Israel's border defenses, rampaged through Israeli communities unchallenged for hours and killed 1,200 people, most civilians, while taking roughly 250 hostages into Gaza. That attack set off the war against Hamas in Gaza, now in its seventh month."The intelligence directorate under my command did not live up to the task we were entrusted with. I carry that black day with me ever since, day after day, night after night. I will carry the horrible pain of the war with me forever," Haliva wrote in his resignation letter, which was provided by the military.	5
29	TikTok ban fight will move from Congress to the courts	Congress' likely passage of a law forcing TikTok's Chinese owner to sell its U.S. operations will close one lengthy chapter of the "Washington vs. TikTok" epic — and open a new one that could be equally drawn-out. What's next: TikTok won't simply vanish from its millions of users' devices the moment the ban becomes law. Its fight to remain in the U.S. under ByteDance ownership will now shift from Congress and regulatory agencies to the courts.The latest: The TikTok ban, which passed the House earlier this year but had stalled in the Senate, was tacked on to the larger foreign-aid package the House approved Saturday. The Senate is expected to approve it in days.The bill would give ByteDance up to a year to find a U.S. buyer for TikTok or face a ban.China's government has signaled that it would block any forced sale of TikTok by ByteDance.Friction point: Members of Congress have already raised constitutional questions about legislation that targets a specific company by name, and ByteDance is nearly certain to take up that argument in challenging the law.	5

Add new google news
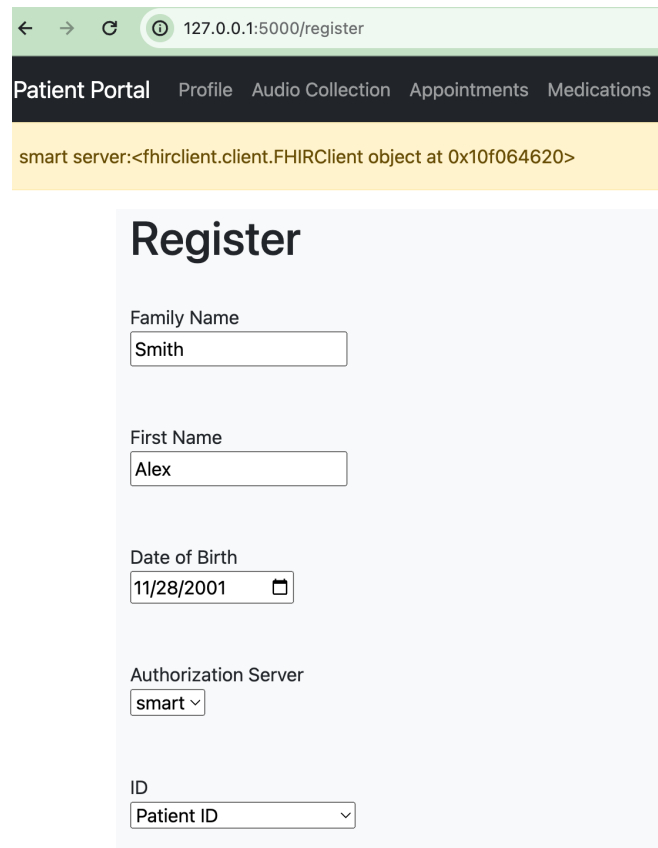
Patient Portal   Profile   Audio Collection   Appointments   Medications ▾

Latest News from google news

News Title	Text	Level
Columbia University faces full-blown crisis as rabbi calls for Jewish students to 'return home'	Columbia University is facing a full-blown crisis heading into Passover as a rabbi linked to the Ivy League school urged Jewish students to stay home and tense confrontations on campus sparked condemnation from the White House and New York officials.The atmosphere is so charged that Columbia officials announced students can attend classes and even possibly take exams virtually starting Monday – the first day of Passover, a major Jewish holiday set to begin in the evening.Tensions at Columbia, and many universities, have been high ever since the October 7 terror attack on Israel by Hamas. However, the situation at Columbia escalated in recent days after university officials testified before Congress last week about antisemitism on campus and pro-Palestinian protests on and near campus surged.The latest crisis has opened Columbia President Minouche Shafik up to new attacks from her critics, with Republican US Rep. Elise Stefanik demanding she step down immediately because school leadership has "clearly lost control of its campus."	5
	Israeli strikes on the southern Gaza city of Rafah overnight killed 18 people, including 14 children, health officials said Sunday. Meanwhile, the United States was on track to approve billions of dollars of additional military aid to its close	

Patient registration

- First check patient in FHIR. Only patient authorized at FHIR could register in the server

Patient login

Returning patient could login with their email and password

After login, show login credential
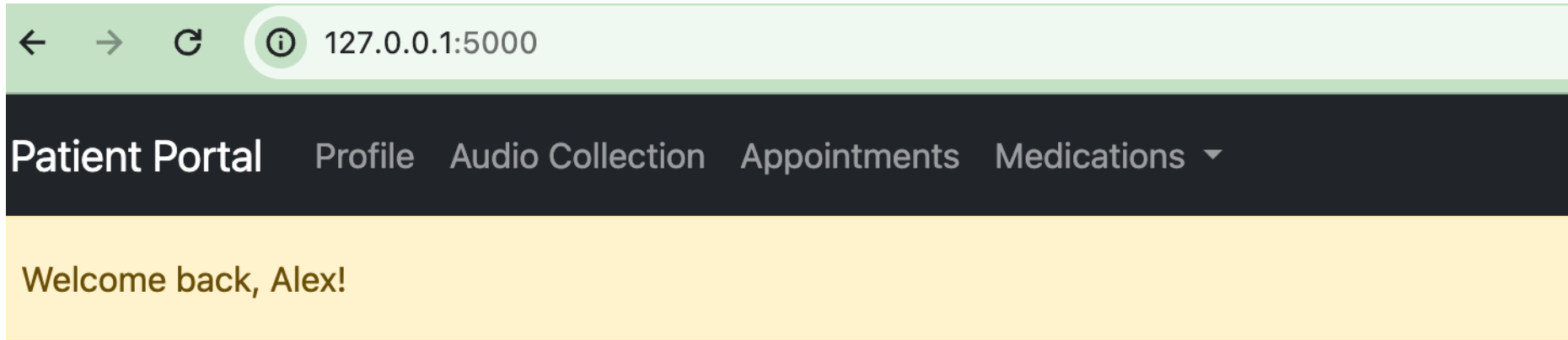
Audio task history for the current patient

127.0.0.1:5000/audioCollect/myAudio

Patient Portal   Profile   Audio Collection   Appointments   Medications ▾

Latest Audio History

NewsID	News Title	Difficulty Level	Record Date	Duration Time	Score
22	Israeli strikes in Rafah kill 18, mostly children, Palestinian officials say	5	2024-04-22 02:20:17	0.0 mins	None
8	Israel hit Iran with a half-ton supersonic 'Rampage' missile, report says	5	2024-04-22 00:40:25	0.0 mins	None
6	Hundreds evacuated from historic New Hampshire performance center mid-concert due to raging fire	5	2024-04-21 21:32:44	0.0 mins	None
6	Hundreds evacuated from historic New Hampshire performance center mid-concert due to raging fire	5	2024-04-21 21:32:43	0.0 mins	None
7	Terry Anderson, Reporter Held Hostage for Six Years, Dies at 76	5	2024-04-21 21:25:59	0.0 mins	None

New Audio Task

New Audio task for the current patient

Play recorded audio before submit

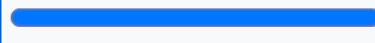## Please record the following News: (Total 169 words)

Terry Anderson, AP reporter abducted in Lebanon and held captive for years, has died at 76

He was snatched in war-torn Lebanon in 1985 and held for nearly seven years.NEW YORK -- Terry Anderson, the globe-trotting correspondent who became one of America's longest-held hostages after he was snatched from a street in war-torn Lebanon in seven years, has died at 76.Anderson, who chronicled his abduction and torturous imprisonment by Islamic militants in his best-of Lions," died on Sunday at his home in Greenwood Lake, New York, said his daughter, Sulome Anderson.Anderson died of con heart surgery, his daughter said."Terry was deeply committed to on-the-ground eyewitness reporting and demonstrated great b his journalism and during his years held hostage. We are so appreciative of the sacrifices he and his family made as the result of senior vice president and executive editor of the AP.

Start Recording | Stop Recording | Play Recording | ▬▬▬▬▬▬▬▬▬▬ 0:11 / 0:11 | Submit

Updated audio history

Latest Audio History

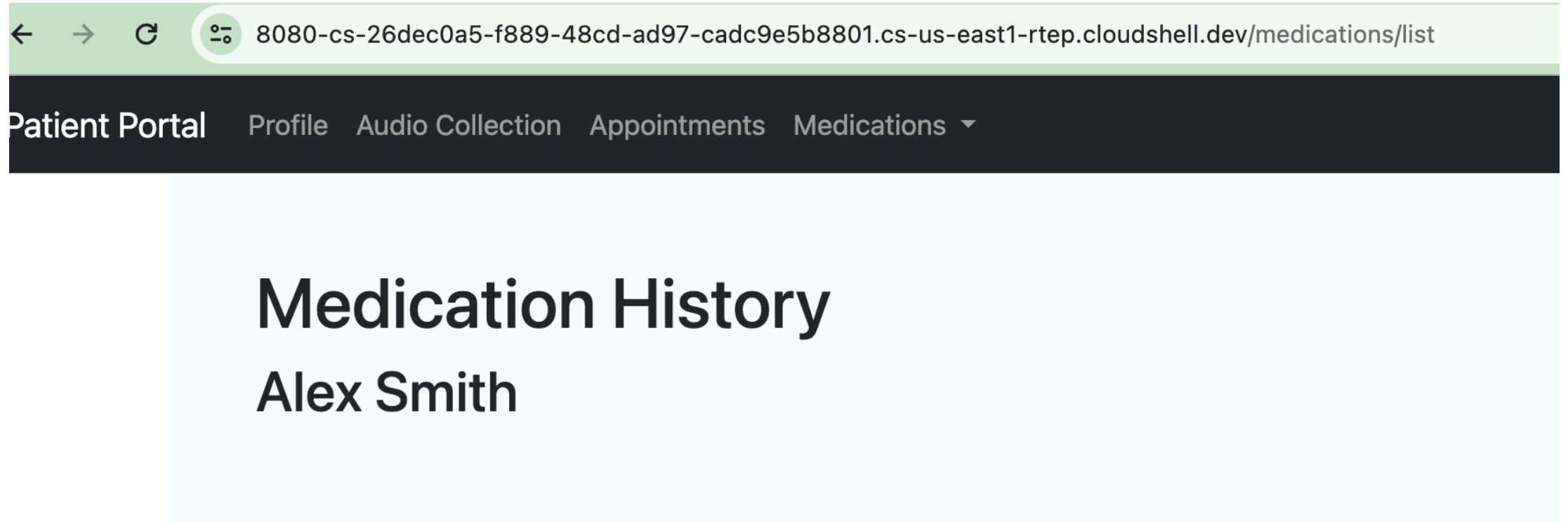| NewsID	News Title	Difficulty Level	Record Date	Duration Time	Score
35	Terry Anderson, AP reporter abducted in Lebanon and held captive for years, has died at 76	5	2024-04-22 02:34:20	0.0 mins	None
22	Israeli strikes in Rafah kill 18, mostly children, Palestinian officials say	5	2024-04-22 02:20:17	0.0 mins	None
8	Israel hit Iran with a half-ton supersonic 'Rampage' missile, report says	5	2024-04-22 00:40:25	0.0 mins	None
6	Hundreds evacuated from historic New Hampshire performance center mid-concert due to raging fire	5	2024-04-21 21:32:44	0.0 mins	None
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New Audio Task

Others: appointments

Appointment History
Alex Smith

Previous **1** Next

Time	Type	Reason	Provider
2019-01-06T15:13:09Z	GP		None
2019-01-05T15:13:09Z	OutPatient		None

Local test: Error; Google cloud test: no error

Others: medications

Thanks!