



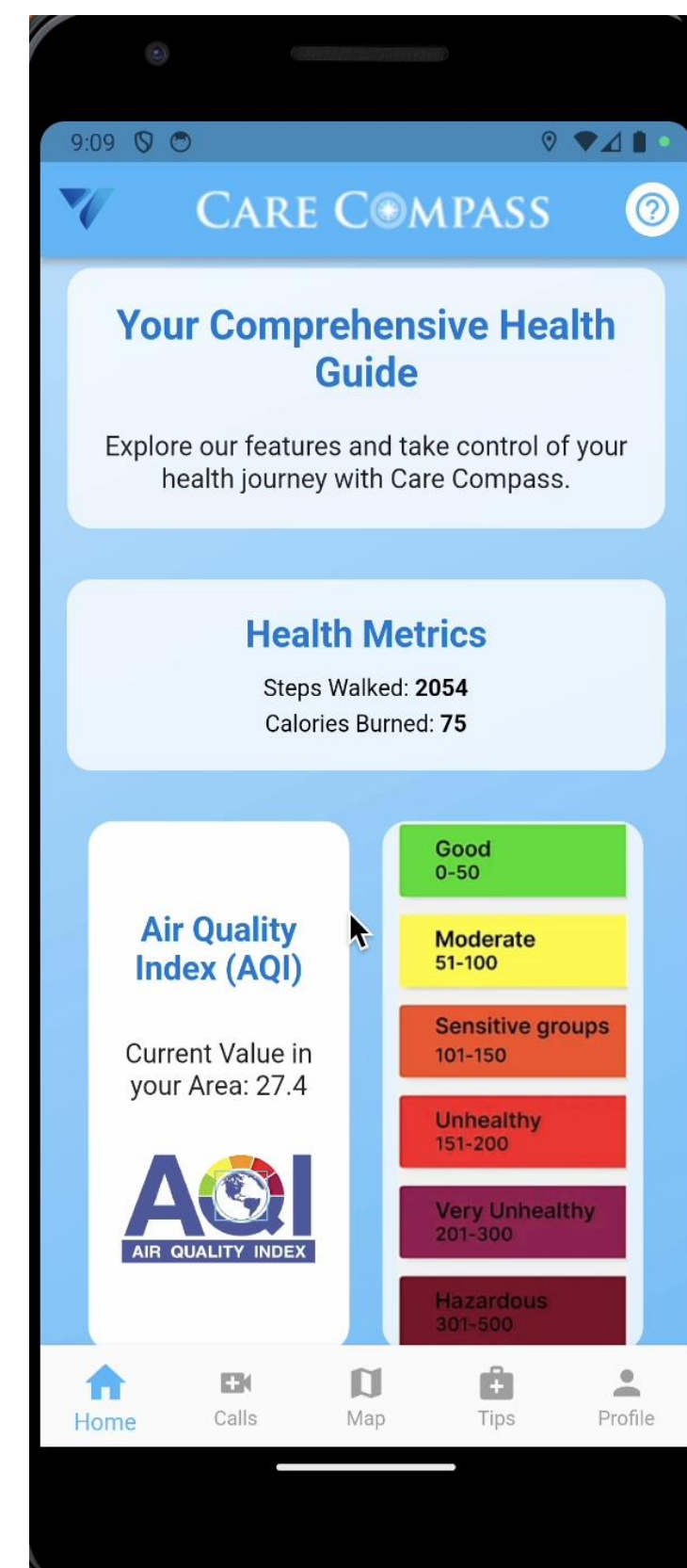
Care Compass

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Congressional App Challenge – MO-04



Health Tracking Page



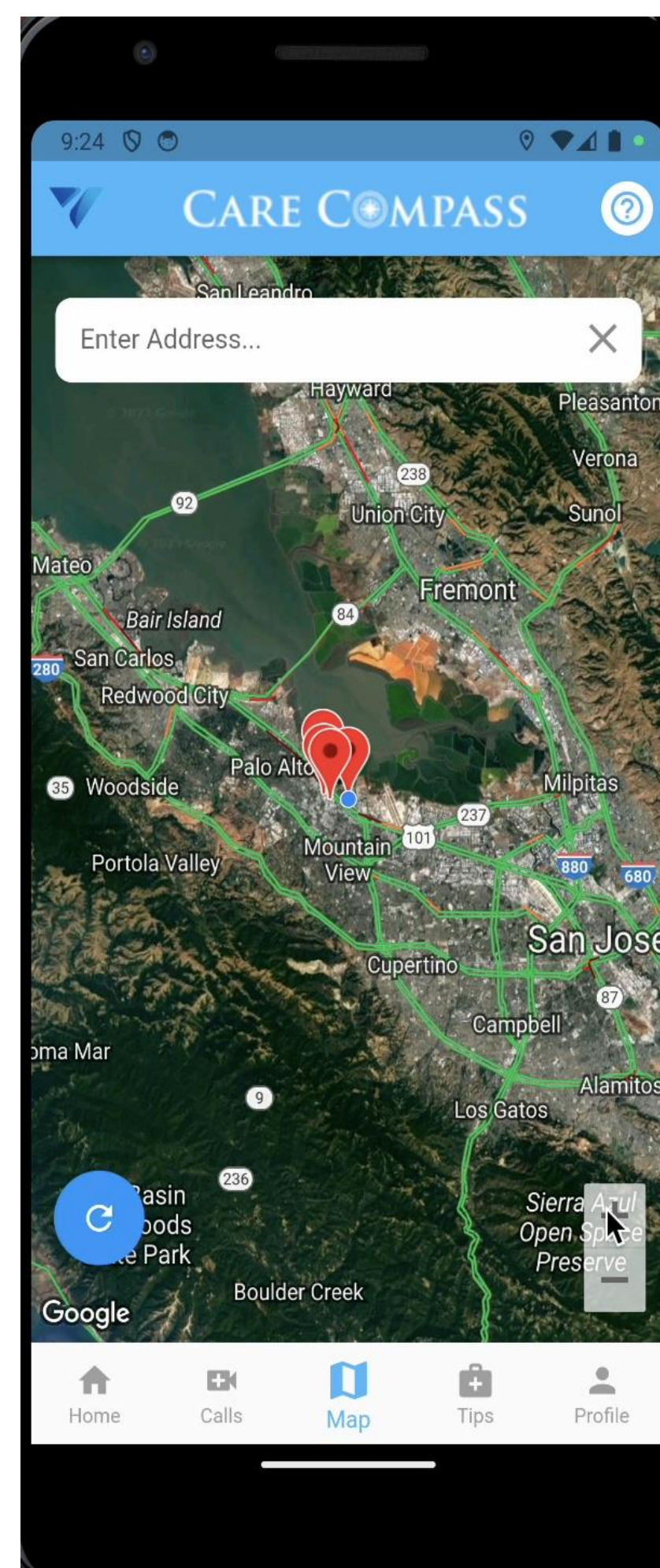
Our app's homepage greets users with vital health metrics and local air quality, enabling them to make informed decisions daily. Incorporating the phone's pedometer sensors, our app accurately tracks users daily step count and utilizes this data to calculate the number of calories burned. The personal health tracking feature encourages users to monitor their health over time and understand patterns or changes.

Medical Facilities Maps Page

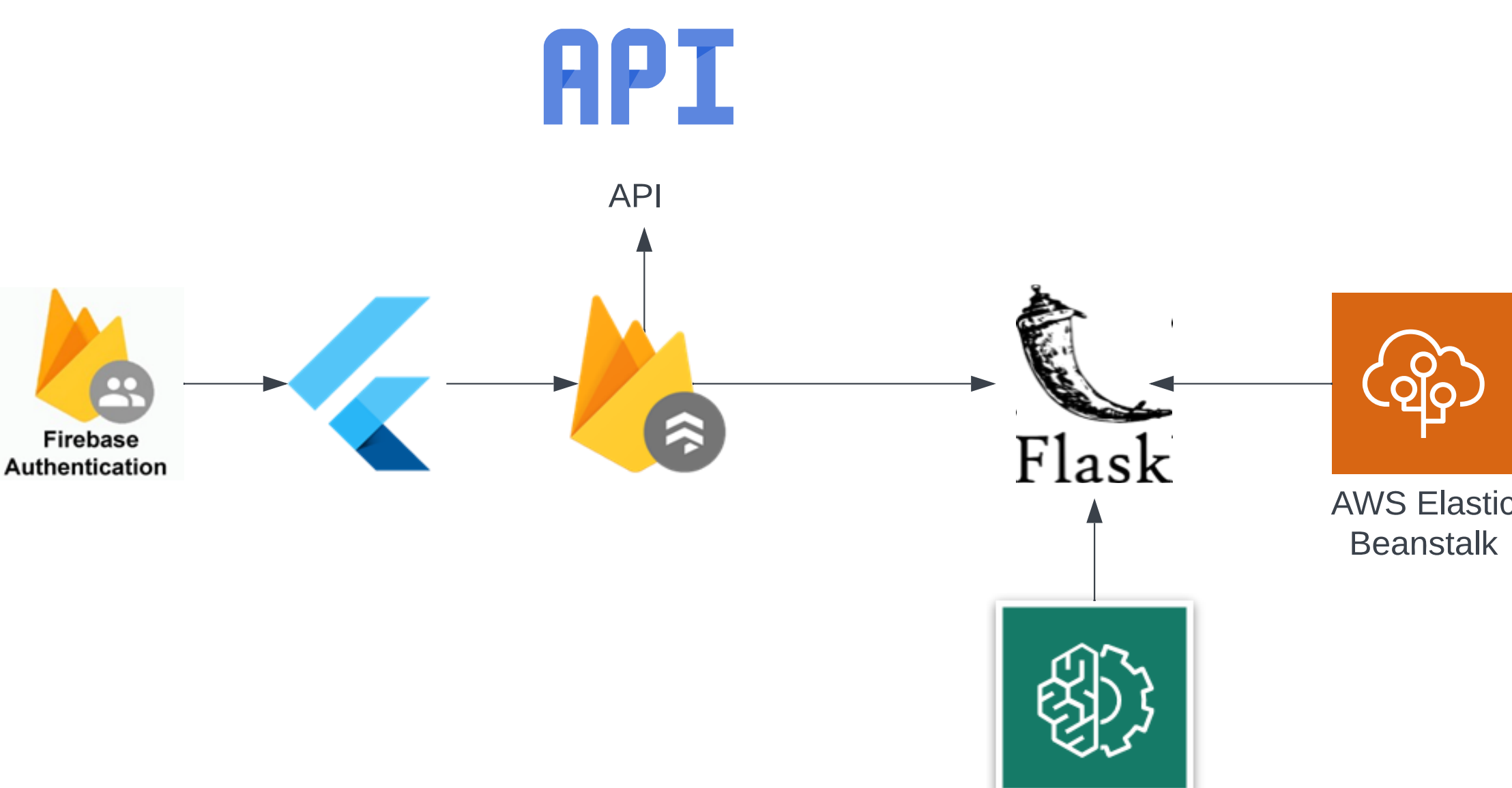
Navigating the healthcare system can be daunting, especially when finding the right hospital for specific needs. Care Compass utilizes the Google Maps API to provide users with a visual representation of nearby hospitals. Our app showcases hospitals in their vicinity, aiding in decision-making by making geographical considerations easier.



Google Maps



Tech Stack & Architecture

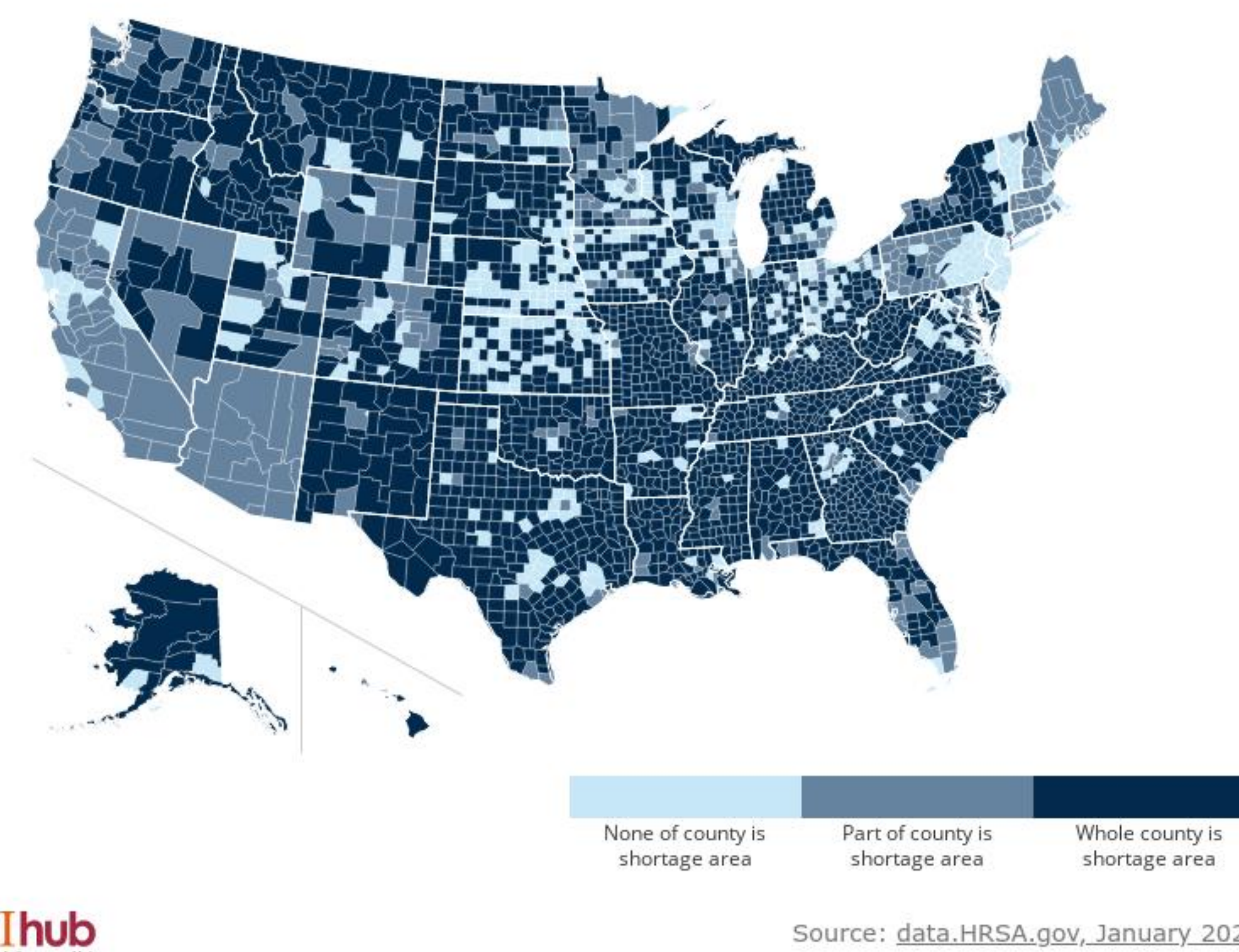


Introduction & Research

Having grown up in a rural community, we intimately understand the daunting obstacles that surround healthcare access and medical literacy. Our family and neighbors' struggles were not just statistics but real-life challenges that inspired us to find a technological solution. This is the story behind the development of Care Compass, a journey that was driven by alarming statistics and industry insights that emphasized the urgent need for such an innovation. Recent studies, such as the National Assessment of Adult Literacy, reveal that around 36% of individuals in rural areas lack adequate health literacy, significantly hindering their ability to understand and manage their health conditions. According to the Rural Health Information Hub, rural residents are 23% more likely to face barriers in accessing essential medical services than urban dwellers. These barriers include limited transportation options, long distances to healthcare facilities, and a shortage of healthcare professionals in rural areas. Furthermore, research published in the Journal of Rural Health highlights that rural populations experience higher rates of chronic diseases such as diabetes, heart disease, and obesity compared to urban populations. Rural adults are 17% more likely to have diabetes and 10% more likely to have heart disease than their urban counterparts (source: CDC). Despite these challenges, rural healthcare facilities are often under-resourced, with 20% fewer physicians per capita than urban areas (source: American Academy of Family Physicians).

Our approach, guided by data, revealed the widespread gaps in patient education and accessibility that underscored the necessity for Care Compass. This app is a reaction to anecdotal observations and a solution rooted in empirical evidence and industry conclusions.

Health Professional Shortage Areas: Primary Care, by County, 2024



Condition Prediction & Tips Page

Our app employs a machine learning model known as Support Vector Classifier (SVC) to predict health conditions based on symptoms. The model is trained on a diverse dataset that includes various diseases and their associated symptoms.

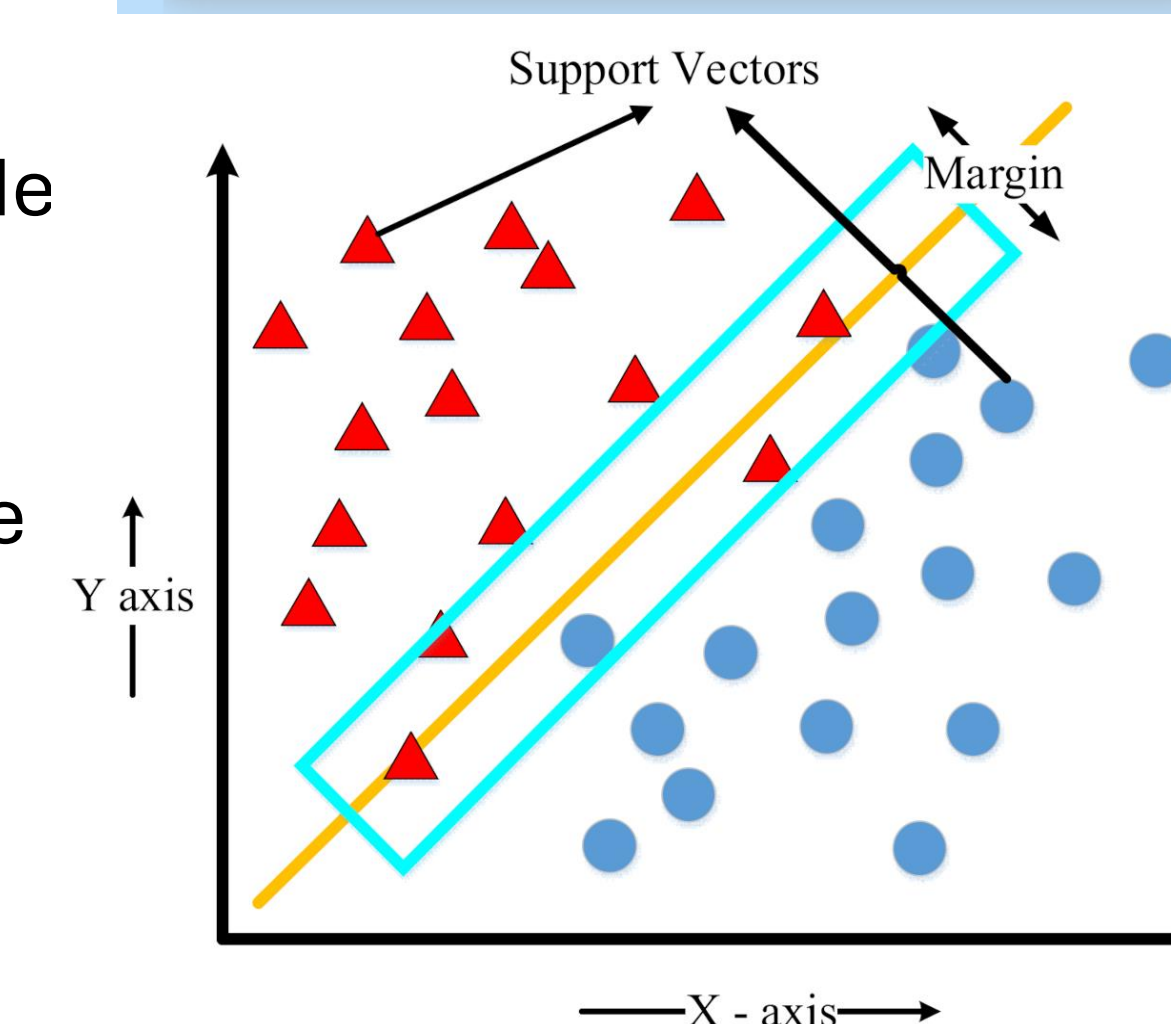
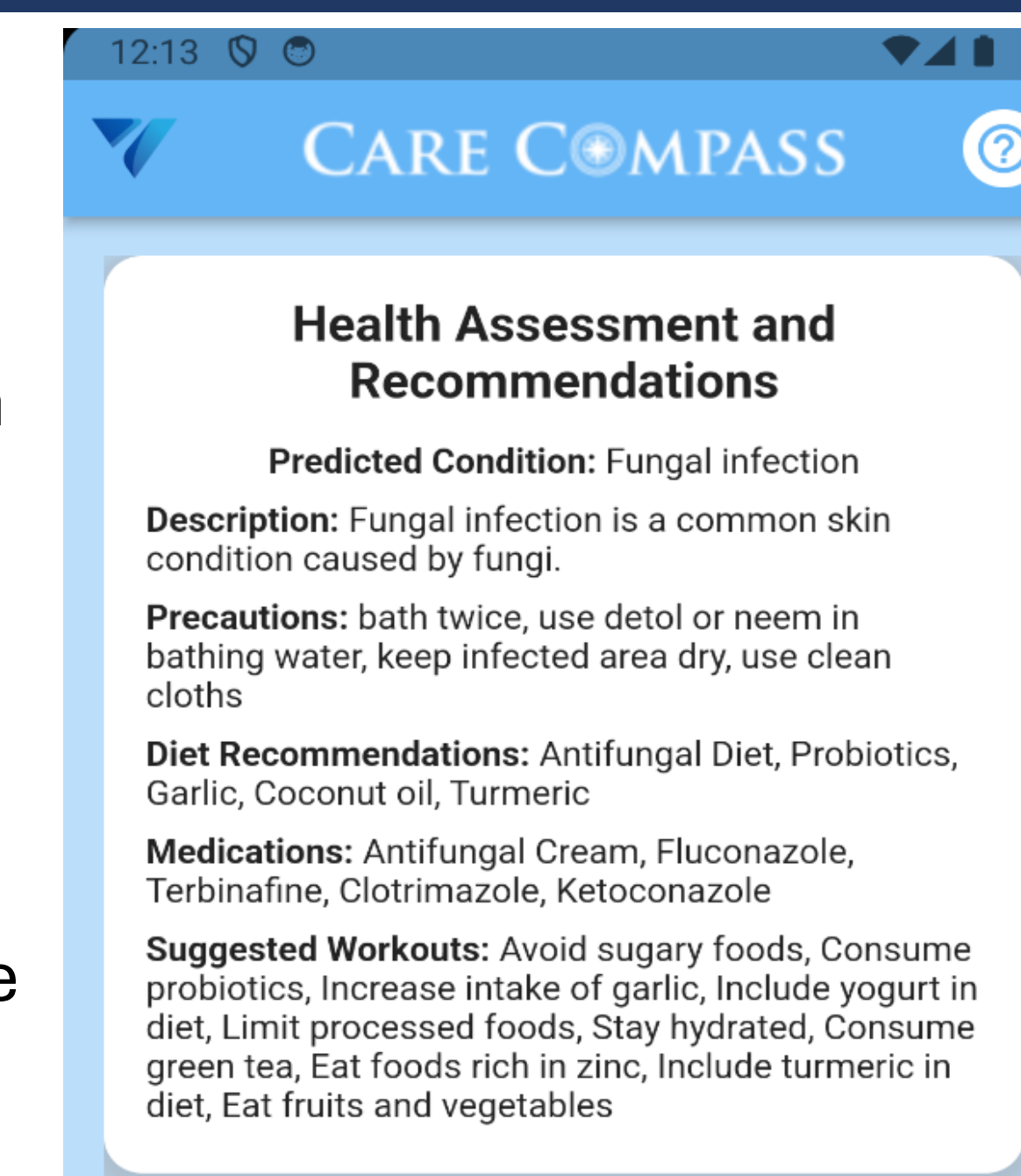
The dataset structure is straightforward – each record (row) represents a case, detailing a specific disease and its corresponding symptoms. For example, a record in our dataset might look like this:

'Fungal infection, itching, skin_rash, nodal_skin_eruptions, dischromic_patches'

During the training process, the SVC learns to distinguish between different diseases based on the presence or absence of specific symptoms. In machine learning terms, each symptom is treated as a feature, and the SVC constructs a multi-dimensional space where each dimension corresponds to one symptom. The model then finds hyperplanes in this space that best separate cases of different diseases.

When predicting a condition, the SVC considers the input symptoms, locates the point representing those symptoms in its multi-dimensional space, and determines which side of the hyperplanes this point lies. This decision informs the model's prediction about which disease these symptoms most likely indicate.

Our model not only predicts the likely disease but also provides relevant information like a brief description, suggested precautions, possible medications, diet recommendations, and workouts, all geared towards assisting users in managing or understanding their condition better.



Virtual Consultations Page

Travel constraints and expenses often deter individuals in rural areas from seeking timely medical advice. Care Compass offers a unique solution – a seamless video call interface for consultations. Utilizing the robust and reliable Zegocloud service, our video call feature ensures high-quality, real-time video communication. This feature drastically reduces the need for physical travel and ensures even those in remote areas can access quality healthcare advice.

ZEGOCLOUD

Objectives

- Enhance healthcare accessibility and quality in rural areas.
- Integrate a condition prediction tool using symptom analysis to inform users about potential health issues.
- Reduce travel and costs associated with medical consultations.
- Promote medical literacy and empower residents with accessible health information.
- Provide tools for proactive health management, including disease prevention tips and nearby medical facility guidance.
- Enable easy health tracking and empower users to make informed well-being decisions.
- Concentrate on addressing unique healthcare challenges prevalent in rural communities, ensuring that their specific needs are met effectively.