## Problem:

We will be addressing health access disparities across underserved populations and communities in San Diego County. Our focus today will be on health literacy in honor of health literacy month. According to the Network of the National Library of Medicine, “Nearly 9 out of 10 adults struggle with health literacy.” Now what is health literacy? Health literacy is the ability to find and understand basic health information, including common medical terms, and use that understanding to make informed and meaningful decisions about one's health.

Low health literacy is commonly found in communities that are rural, racially and ethnically diverse, have lower levels of education (along with patients with limited English proficiency or English as a second language), and communities that are socioeconomically disadvantaged in terms of income, employment, transportation, etc.

Let’s address health disparities among HHSA regions in San Diego County.

Here is a map of the HHSA regions. Based on our research, we found that cancer and heart disease are the leading causes of death in San Diego County. The Central and South regions, which together account for 30% of the county’s population, experience the greatest health disparities due to higher rates of poverty, unemployment, and lower levels of educational attainment.

## Solution:

Our solution is edU, an education app that is tailored to patients. Our goal is to put health education into the palms of everyone.

## How it works:

### On the patient side, (Frontend)

edU: Here is the input section of our app, where it asks for your sex, race, zip code, and medical history. You have the option to manually input the data fields or upload this information from your healthcare provider.

[figma of the data input page]

Based on the data provided, our algorithm tags the user with diseases they are at risk of. Which is then used to recommend the user with appropriate resources.

[figma of the recommended resources page]

[machine learning models]

The type machine learning model we used to predict the diseases that patients are at risk of are k-nearest neighbor classification models. The model is trained on a dataset containing over ten thousand patients in California, with information including their age, gender, and race/ethnicity. 80% of the data is used to train the model, and 20% of it is used to test the model. The predicted results of the tested portion are compared to the original labels in the dataset to estimate an accuracy of the models. These models would be implemented into the backend of our application to determine what diseases they are at risk of and what information to provide to the patient

[figma of the rating page]

After the patient is done reading the intended resources on our app, they would be shown a scale to help rate the usefulness of the information they were provided. This information would later be used to help reinforce the recommendation algorithm.

[figma like what you read?]

### On the healthcare side,

Because the patient have the option to upload their information through their healthcare provider, the resources that the patients are interested in could be collected to show healthcare professionals what their patients are interested in and worried about. Furthermore they are notified of

These are some examples of how geospatial mappings can be leveraged to access environmental and health challenges faced by San Diego County regions. These will be seen on the medical/developer end when users input their information. The maps will be populated and will help track areas in need of resources. The providers can hover over different areas, see the basic statistics of disease occurrences as well as user feedback, represented in the 5-point scale rating. User input supports AI to garner the ability to provide health plans and resources, including access to care, health management as well as education, tailored to those regions.

[sentiment analysis machine learning model]

To analyze the patient’s feedback, we would implement a sentiment analysis machine learning model to read the patient’s comment and classify it as a positive, negative, or neutral comment. On the graph, we can see the results of a model we created that was trained on a set of sample data containing patient surveys done in hospitals around California.

## Scalability + Moving Forward:

Currently edU is only predicting for noncommunicable diseases. In the future we can include other threats to health like pollution or food deserts.

Moving forward, we need to incorporate data security measures, because we are collecting sensitive information from patients and need to protect them.

edU is just the easy to access gate to health education. Through the pamphlet we can link to more resources to help the patient more. From voice chats to health care professions to educational videos, the possibilities are endless.

We are team Lekt, and we hope you do not miss out on putting health education into the palms of everyone.

Thank you.