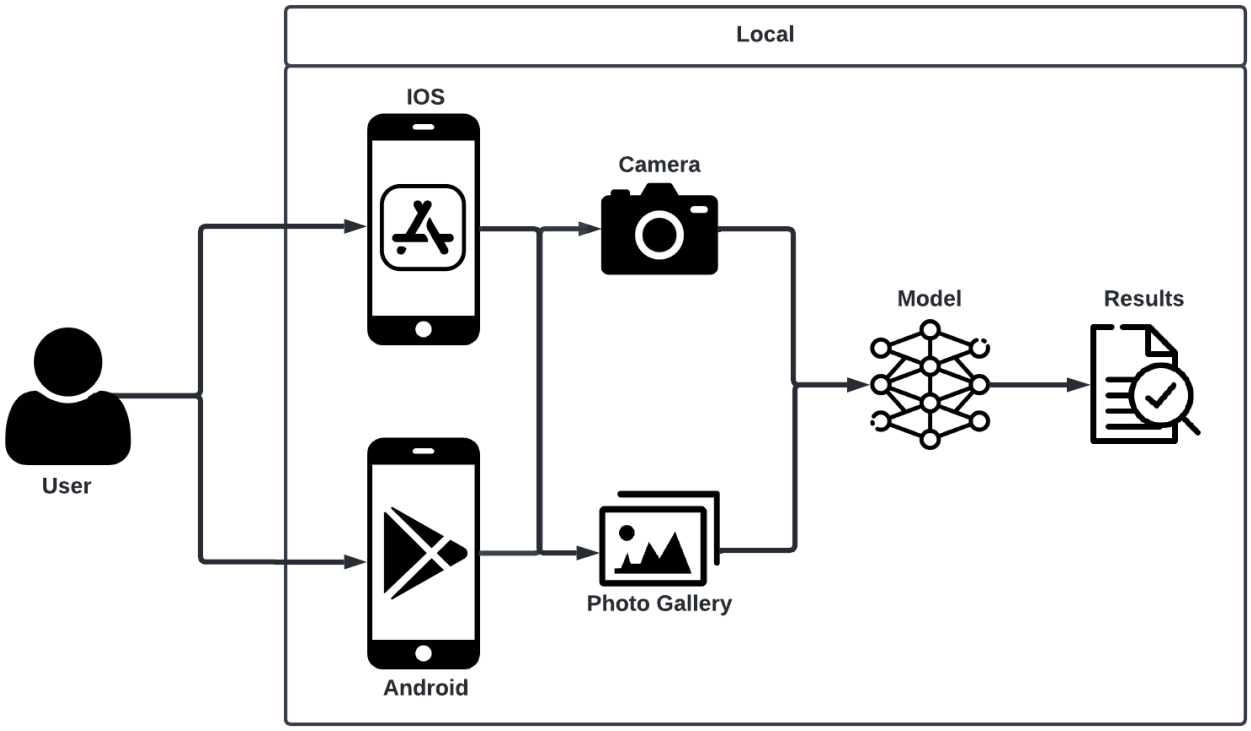
Cole Hopkins
CSCI 490
Professor Siewert
August 31, 2022

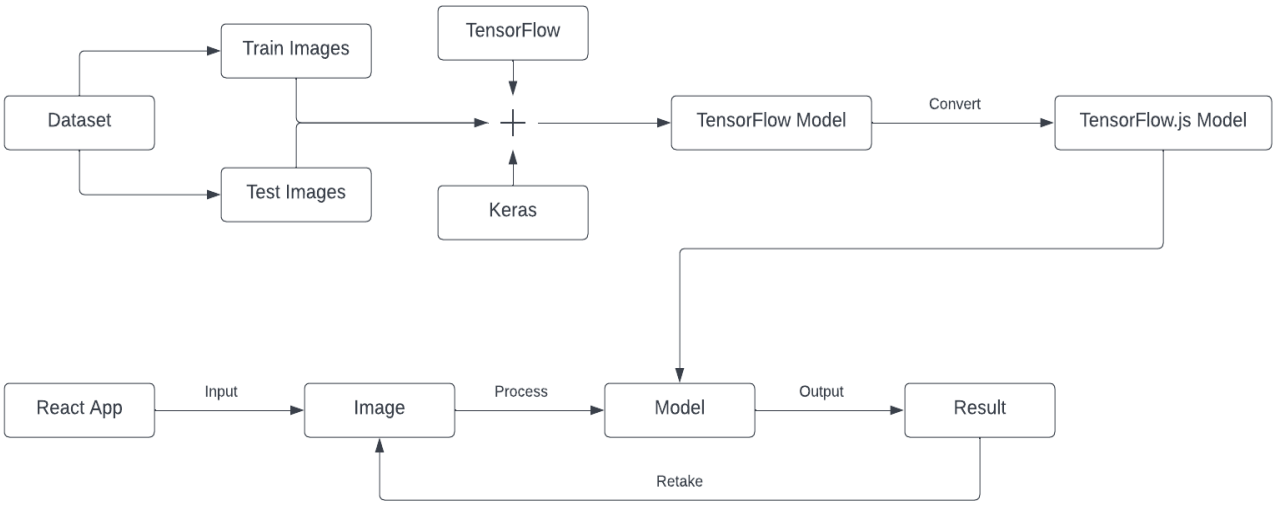
Draft Proposal

1) Summary Description

The project in which I wish to propose is an application that uses machine learning to analyze and return accurate results for pox-related skin conditions. The application will be made using React Native, which will be deployable onto both IOS and Android devices and using TensorFlow and Keras to build a model in which I will train and test from the ground up. The application will allow users to take photos of objects on their skin, or use an existing photo from their photo camera roll, and display accurate results based on the condition of the skin. Below is a graphical flow of the app.



Most of the work done for this project will be on making an accurate and precise model that has the lowest chance of giving false positives and true negatives and directing the user about the next steps they should take given their results. The following is a Block Diagram that goes into more depth.



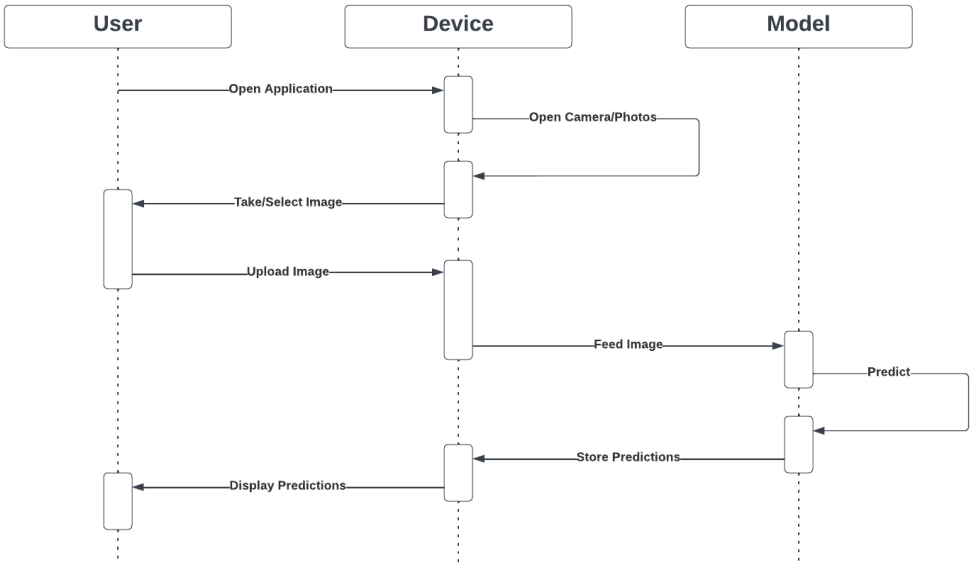
2) Major goals and objectives

The goals that I want to set for myself are the following...

1) Develop a strong and accurate model that can predict different common human pox diseases
2) Develop an application that allows users to use their own photos to get fast results
3) Make sure the app has a simple design that makes it easy to use
4) Give the user a direction of what they should do based on their results
5) Make the app run completely locally, for both speed and privacy
6) Publish the application to Google Play Store and Apple Store if possible

3) What do you envision that you will demonstrate and deliver

I envision that I will be able to deliver an impactful app that many different people would find useful. I also want to demonstrate that my app is unique and better than the alternatives on the market today, which I will get into in the value proposition. Furthermore, I want to demonstrate that my app can give results that are based on a well-structured and trained model, and is able to predict accurately from the dataset that I provide it. The following image is a UML diagram of the application, which shows the flow I want to demonstrate and deliver by the end of the semester.



4) Value Proposition

There are two things that I believe make my app better than the other alternatives on the market, which adds value to my product and makes users more inclined to use my application over others.

1) I want to make my app run completely locally. This means no database or backend in which I or anyone else can access users' data. The reason for this is because of privacy, which my application values greatly. Pox diseases most usually occur in revealing areas, and also most users want to know that pictures of themselves will not be accessible by anyone other than themselves. This is the main reason for my application since almost all alternatives collect user data. By making my application incognito, I feel that a large majority of users will see the benefit

2) I understand the user base. Although my application can be used by any age group, I feel that the application draws more attention to users of older age in which skin conditions occur more frequently. With an older user base in mind, I want to ensure everyone can understand how to use and operate the application efficiently, especially with generations that are not as tech-savvy. Other app alternatives can be confusing, requiring people to make an account or having a complicated or overwhelming design, leading people to struggle with the main objective. With my app, I want users to start it up, take a picture, and get their results, without the clutter and wasted time of navigating and setting up an account. Most users will only use the app once and not need it again, so having to make an account is sometimes unnecessary.

I want the results to be fast, and accessible. Because the model is run locally, and the design is simple yet elegant, my users will save on the most valuable thing possible, which is time. I

believe my app will fill the void in the market and help people by giving them resources to care for the disease they have.