

Computer Aided Diagnosis of Chest X-Ray Images

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PROBLEM

Currently, the Computer Aided Diagnosis of Chest X-Ray Images app does not check whether the given image is an x-ray or not. The current app also does not have much to show in terms of the UI as it only displays one page where the user will upload and generate their x-ray image results. During the course of this semester our team worked on adding those functionalities and improvements.

CURRENT SYSTEM

The current system uses the open source machine learning platform, Tensorflow, to classify x-rays images in four categories (COVID-19, Normal, Viral Pneumonia, and Lung Opacity), and generates a heatmap of the x-ray image. The current system runs on web frameworks by using Flask for the backend where the classifying is done, and React for the frontend and UI.

REQUIREMENTS

 Python: 3.8+

 Tensorflow: v2.11

 NodeJS: v14.17.0

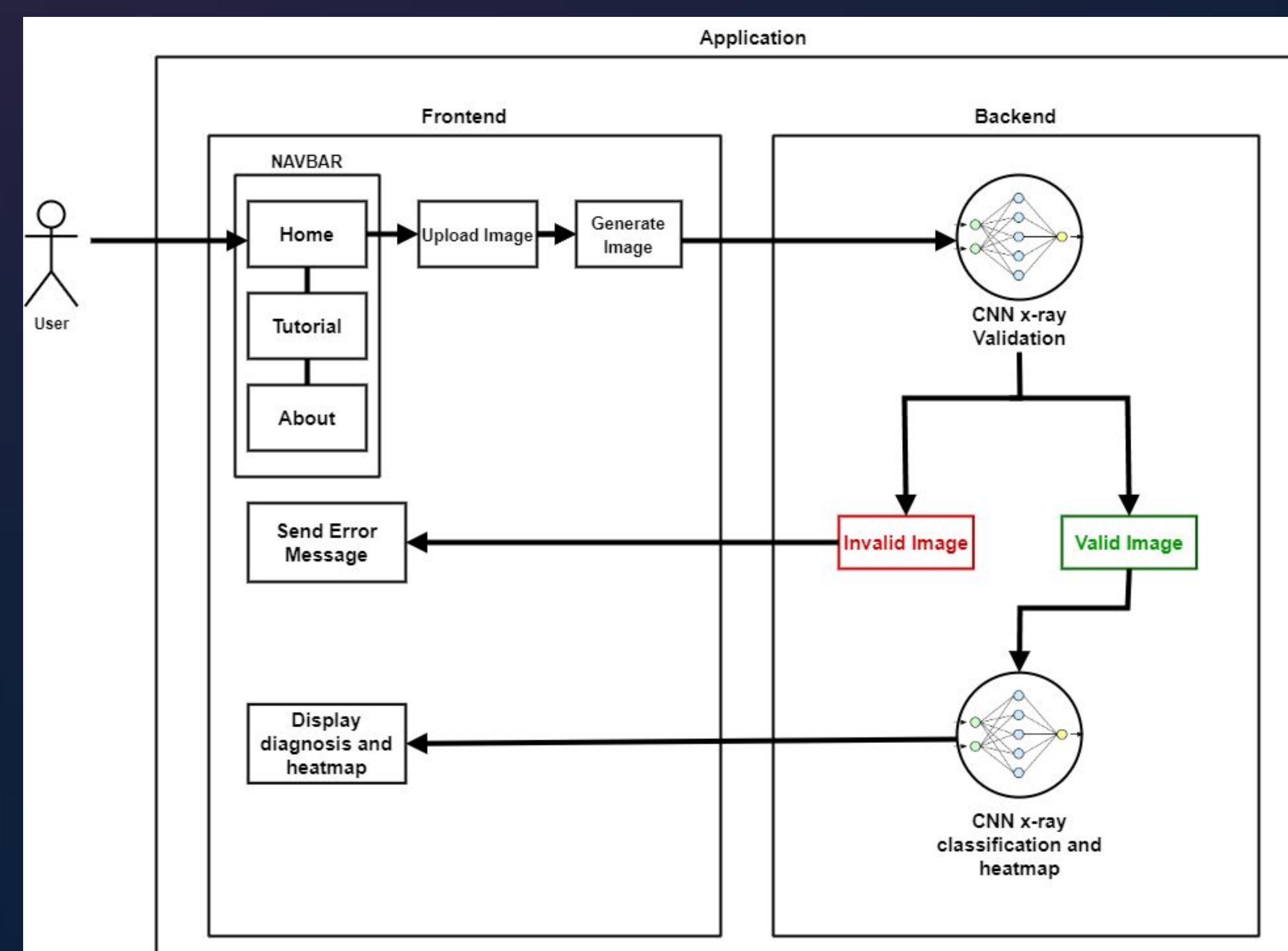
 VS Code (Recommended)

 Yarn

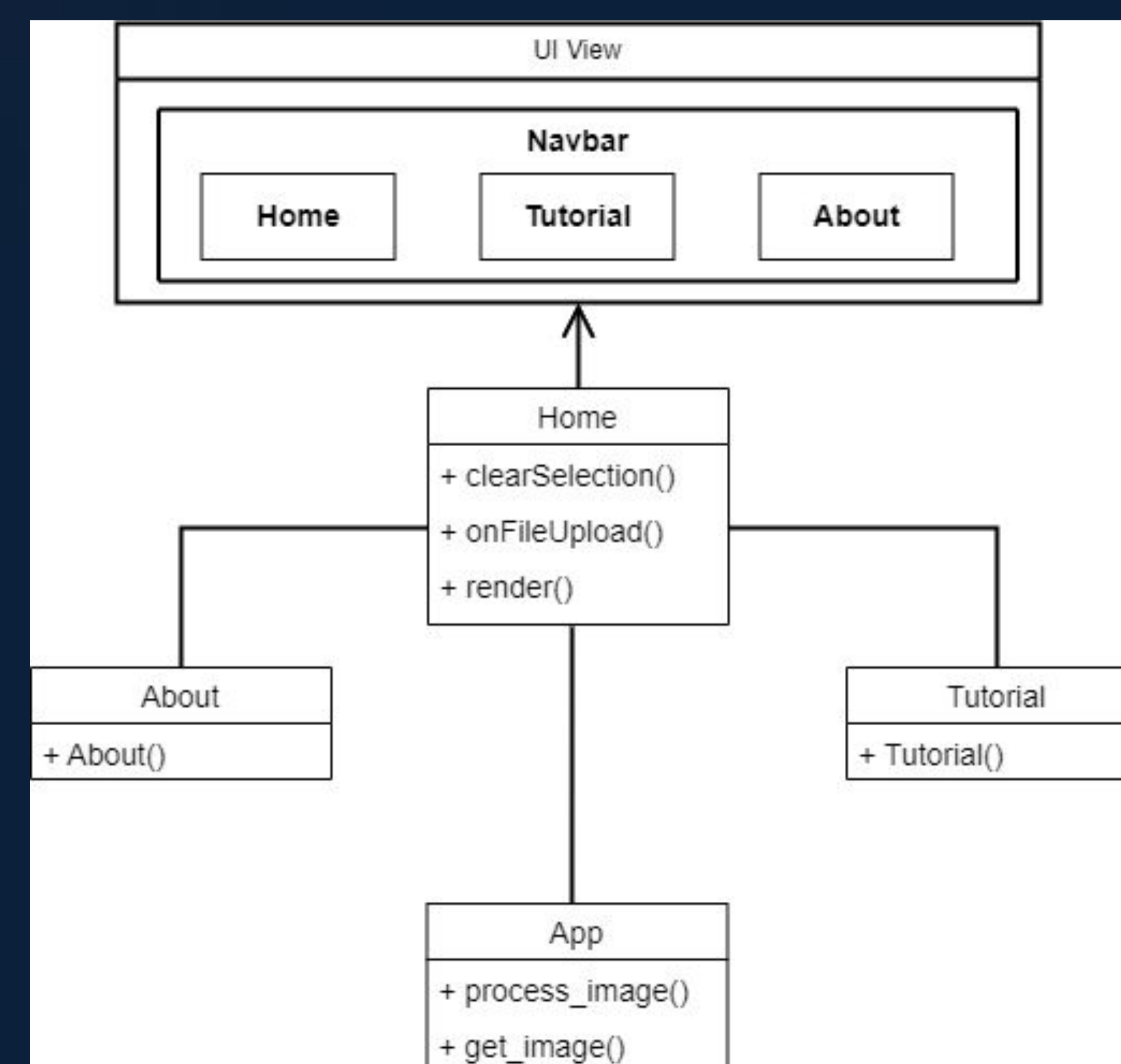
 GitHub

 Flask: v1.1.2

SYSTEM DESIGN



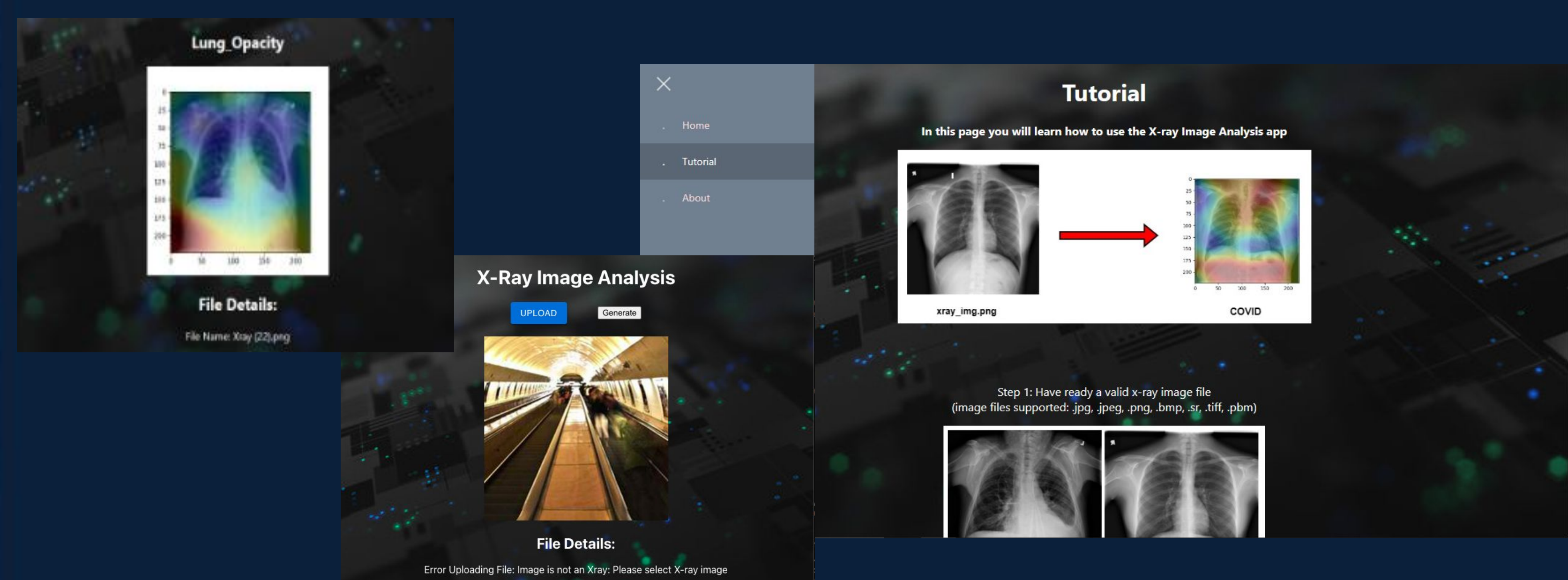
OBJECT DESIGN



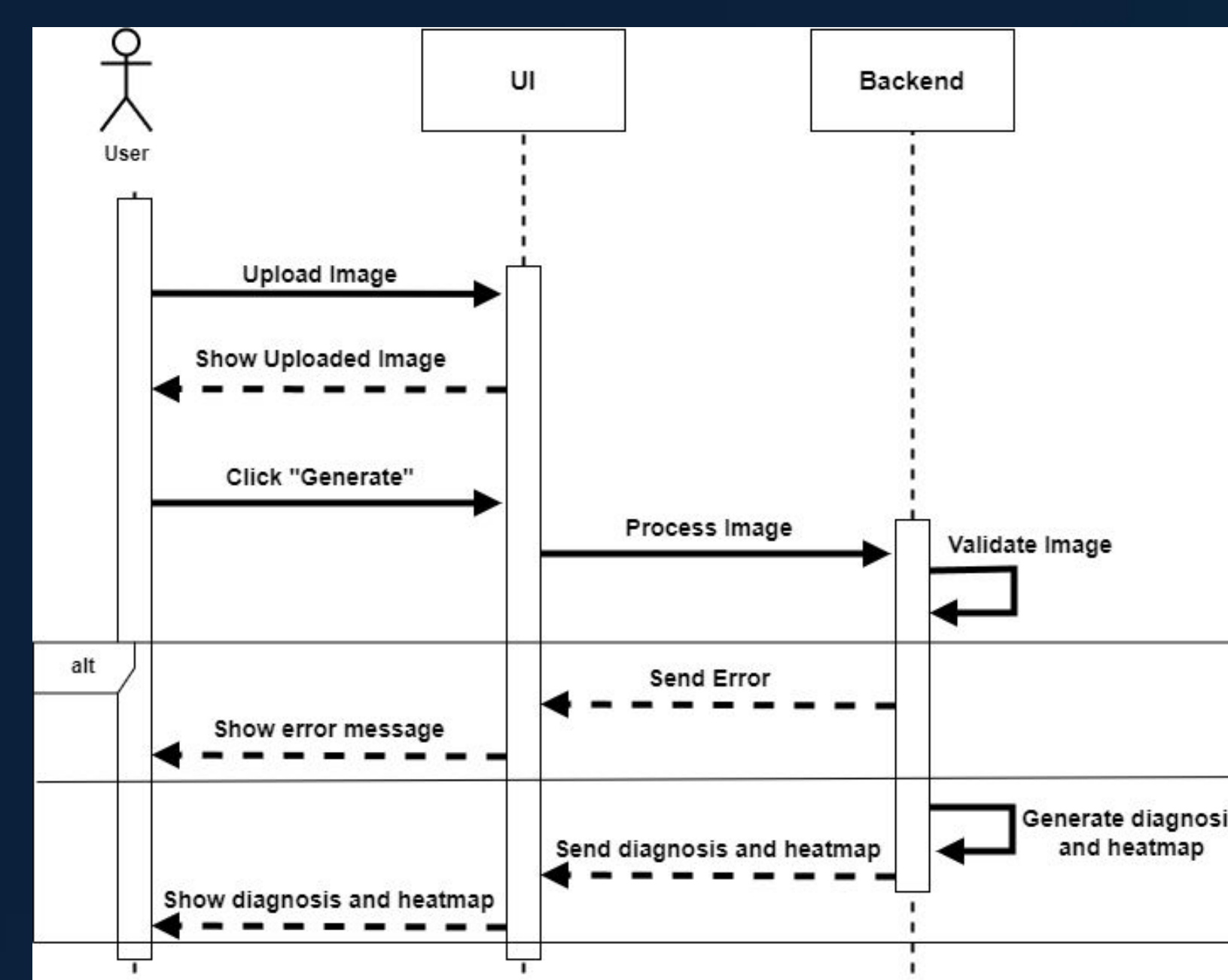
IMPLEMENTATION



SCREENSHOTS



SEQUENCE DIAGRAM



SUMMARY

Worked on creating and training the convolutional neural network used to validate x-ray and non-x-ray images. Used Tensorflow and stratified K-fold for a less biased model and to maintain the same class ratio to get the desired model. Also worked a little on the frontend by adding a tutorial page so new users can learn how to use it.

ACKNOWLEDGEMENT

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