My name is Klaudia Schnittker and my team members Christopher Knox, Emily Stevens and William Lin created X-Raydar an algorithmic chest x-ray analysis. Currently, when patients go for an x-ray, their x-ray images are analyzed by a radiologist on a first come, first serve basis. Hospitals do not have a radiology triage system in place to flag x-ray images with emergent diseases. This results in patients with dire health concerns to wait longer for healthcare treatment and surgery and can ultimately lead to higher mortality rates. Our machine learning model function as a triage system to flag high-risk x-ray images to prioritize patients with potentially deadly conditions. This in turn reduces the wait times for ER admittance and the rates of Adverse, Sentinel and Never Events in ER settings. Our machine learning model utilizes x-ray images from the National Institute of Health from Kaggle. Our dataset includes approximately 112K x-ray images that can have been taken from front-to-back or back-to-front and show multiple health conditions. We created a Mortality\_Rate\_Classifiction.csv that listed each of the diseases with their associated triage level. There are 14 different lung disease with triage levels of Emergent, Acute and Chronic in descending order of severity. The Mortality\_Rate\_Classification file was used to help create the triage rankings in our machine learning model and database. Working with images has required extra attention in order to properly allow our machine learning model to more accurately identify the diseases in each x-ray. Weights and counts were created on our filtered data to select training and testing. A smaller sample of 300 training, 75 validation and 75 testing images were selected to validate our model prior to optimizing a large sample size. These were the questions we wanted to answer:

* How can a Machine Learning Model Be Devised to Identify & Classify Lung Diseases in Chest X-Rays?
* How can we use our Machine Learning Model to increase efficiency in lung disease treatment?
* How can a Machine Learning Model Be Implemented in a Real-World Medical Scenario?