## Title Slide

- **Title:** Deep Learning for Cancer Detection from CT Scans
- **Subtitle:** A Case Study by Ultratheraputics
- **Your Name and Title**
- **Date**

## 2. Introduction

Lung cancer is one of the leading causes of cancer deaths worldwide. Early detection is crucial for effective treatment. CT scans are a common diagnostic tool for detecting lung abnormalities. Our goal is to leverage deep learning to automatically classify CT scans into normal or cancerous categories, potentially aiding radiologists in early cancer detection.

- **Background:**
  - Explain the significance of early cancer detection.
  - Mention the role of CT scans in diagnosing lung cancer.
- **Objective:**
  - Develop a deep learning model to classify lung CT scans into normal and three types of cancerous samples.

## 3. Dataset Description

- **Data Composition:**
  - Number of samples in each category (normal, three types of cancer).
  - Example images from each category.
- **Data Augmentation:**
  - Techniques used to increase the dataset size and diversity.

## 4. Model Architecture

- **Model Selection:**
  - Describe why you chose the specific deep learning architecture (e.g., convolutional Neural Networks). Also talk about tensorflow input pipeline
- **Architecture Details:**
  - Layers used (Conv2D, MaxPooling, Dense, etc.).
  - Activation functions and why they were chosen (e.g., ReLU, Softmax).
  - Model compilation details (optimizer, loss function, metrics).

## 5. Training Process

- **Training Setup:**
  - Describe the training environment (e.g., hardware, software versions).
- **Hyperparameters:**
  - Learning rate, batch size, number of epochs, etc.
- **Training and Validation Split:**
  - Explain how the data was split into training, validation, and test sets.

## 6. Results

- **Performance Metrics:**
  - Accuracy, loss, confusion matrix, precision, recall, F1-score. (You may add these even if it isn't mentioned in the task))
- **Training and Validation Curves:**
  - Graphs showing the model's performance over epochs.
- **Test Results:**
  - Final test accuracy and loss.
- **Visualizations:**
  - Example predictions with images showing actual vs. predicted classes.

## 7. Challenges and Solutions

- **Challenges Faced:**
  - Describe any significant issues encountered during the project.
- **Solutions Implemented:**
  - How you addressed these challenges (e.g., data imbalance, overfitting).

## 8. Conclusion

- **Summary:**
  - Recap the key findings and the performance of the model.
- **Implications:**
  - How the model can be used in real-world scenarios.
- **Future Work:**
  - Possible improvements and next steps for the project. ( Maybe create a frontend and backend and used this saved model )