🫁 Lung Cancer Data Analysis Report

📌 Objective

This project explores a lung cancer dataset to analyze patient characteristics, treatment types, and correlations with comorbid conditions. The goal is to identify patterns that may inform more personalized and effective treatment plans.

📊 Dataset Overview

The dataset includes the following attributes for each patient:

- **Demographics**: Age, Gender
- **Clinical Info**: BMI, Hypertension, Diabetes, Asthma, Cirrhosis
- **Treatment**: Chemotherapy, Radiation, Surgery, Combined
- **Treatment Duration**: Measured in days

🔍 Key Analyses

1. Treatment Duration

- **Children** (ages 0–18) receiving **radiation** tend to have **shorter treatment durations**.
- **Combined treatments** (e.g., chemo + radiation) are associated with longer treatment times.

2. Comorbidities & Lung Cancer

- **Hypertension** and **asthma** are **more prevalent** among lung cancer patients.
- **Cirrhosis** appears less associated with lung cancer compared to other diseases.

3. Demographics

- Most lung cancer cases are found in **middle-aged adults** (40–60).
- A **slightly elevated BMI** is common among these patients, though extreme BMI values are rare.

📈 Tools Used

- Python (Jupyter Notebook)
- Pandas and numpy for data manipulation

- Seaborn & Matplotlib for visualization

✅ Conclusion

The analysis reveals meaningful trends in treatment duration, comorbidities, and demographic factors among lung cancer patients. These insights can help target specific groups for early screening and optimize treatment strategies.