Cirrhosis

Project Purpose

- This project is intended to help predict if someone is suffering from cirrhosis. Based on many different factors.
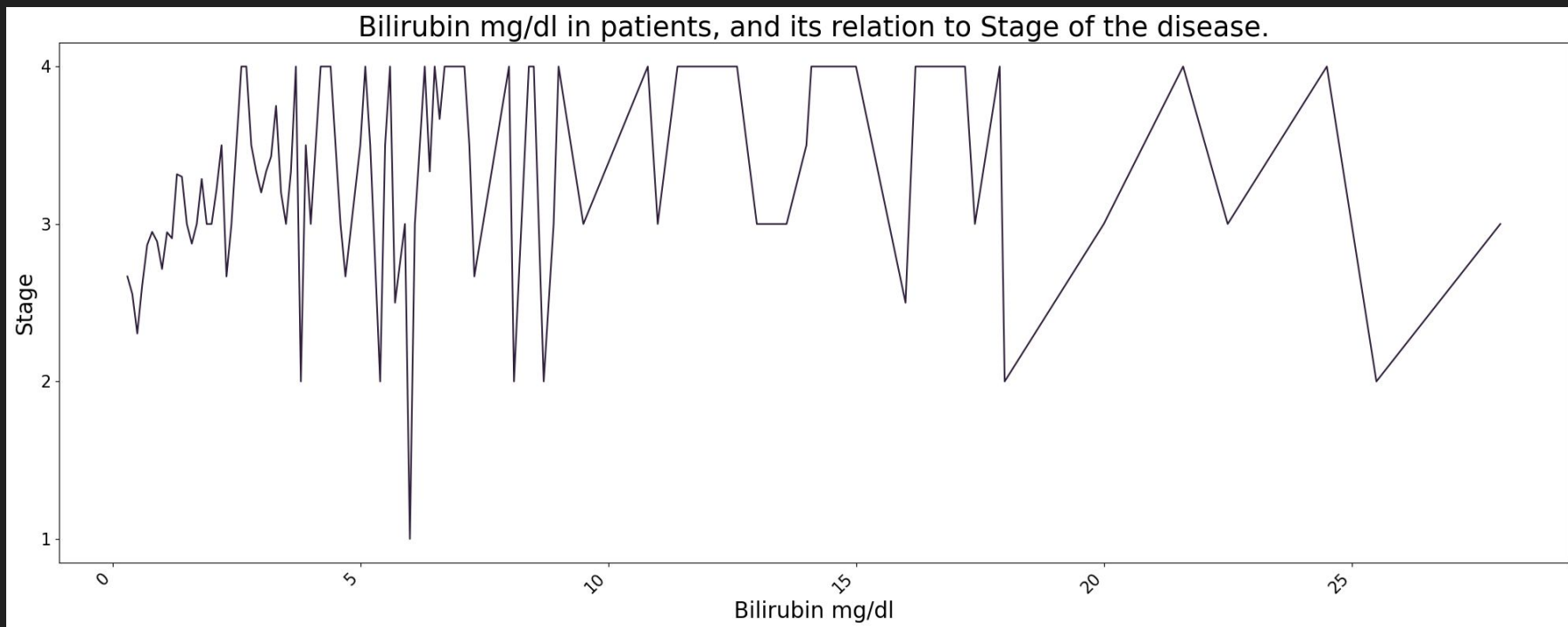
Definition of Cirrhosis

- Cirrhosis is a condition in which your liver is scarred and permanently damaged. Scar tissue replaces healthy liver tissue and prevents your liver from working normally. As cirrhosis gets worse, your liver begins to fail. (This definition is from NIDDK.)
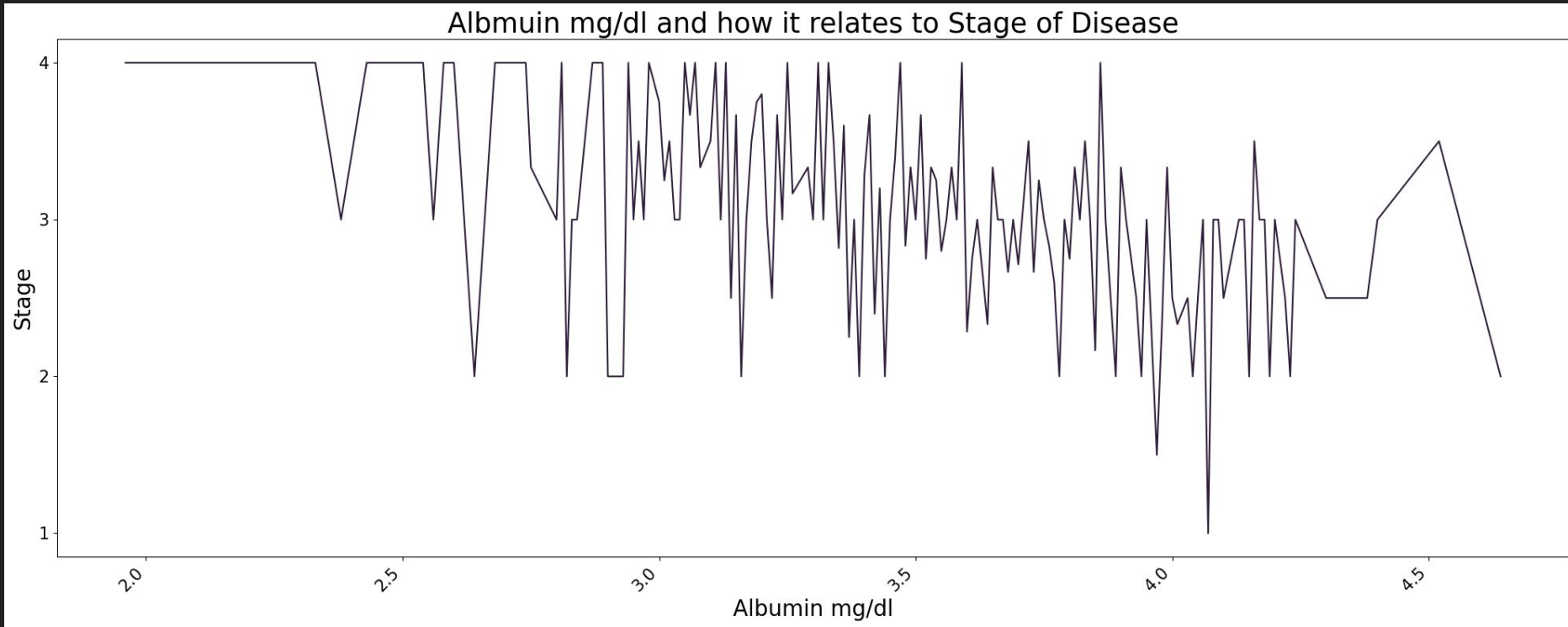
Cirrhosis Data

- Dataset is sourced from: [Kaggle](#)

- Cirrhosis is a late stage of scarring (fibrosis) of the liver caused by many forms of liver diseases and conditions, such as hepatitis and chronic alcoholism. The following data contains the information collected from the Mayo Clinic trial in primary biliary cirrhosis (PBC) of the liver conducted between 1974 and 1984. A description of the clinical background for the trial and the covariates recorded here is in Chapter 0, especially Section 0.2 of Fleming and Harrington, Counting. Source:([KAGGLE](#))

Stakeholders

- Doctors
- Pharmaceutical companies
- Medical Researchers

Bilirubin mg/dl in patients, and its relation to Stage of the disease.

This line plot shows us that when Bilirubin is above 7~mg/dl patients are at stage 2 or above of the disease

Albmuin mg/dl and how it relates to Stage of Disease

In this line plot we can see that after 2.5 mg/dl or lower is found in the blood of Albumin we see many if not all patients at stage 3-4 of the disease.

Strengths and Limitations

Strengths

- High Precision and Recall Scores
- High Accuracy

Limitations

- Test data is not close enough to the train data to reliably predict for this data set. We need more data.
- There is overfitting. This could be tuned better with a subject matter expert, but more data would be good first as well.

Final Recommendations

- Explore gathering more data, this would allow the data to perform better with models and allow for better more accurate predictions.
- Provide a subject matter expert to help with feature engineering to further the accuracy of the predictions