Likelihood of Stroke

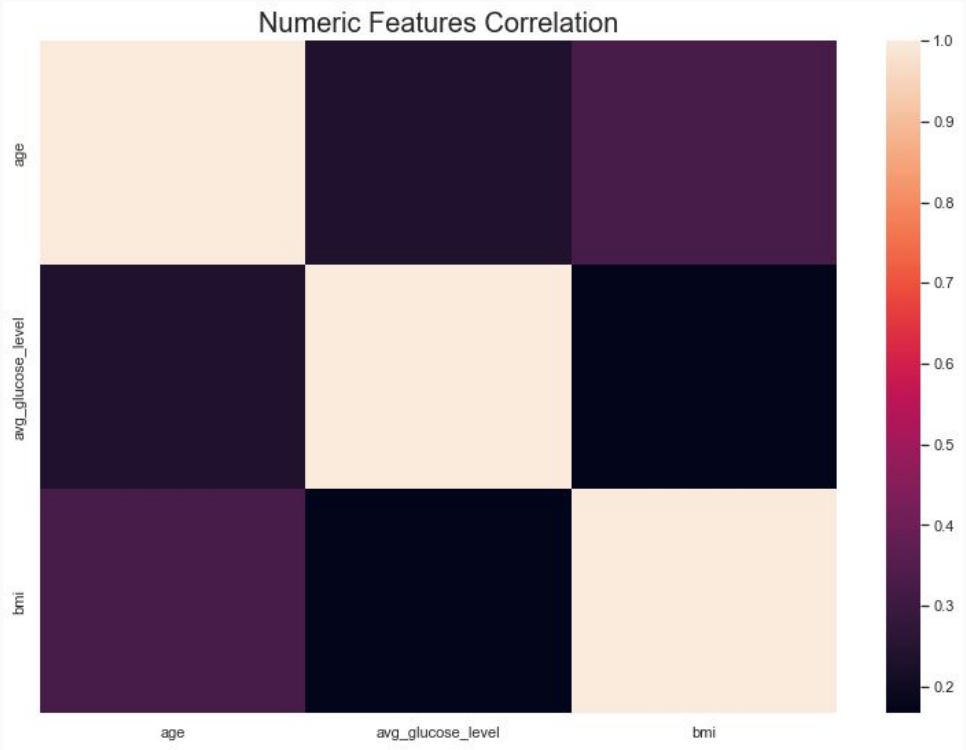
Who typically experiences strokes?

What traits are connected to strokes?

- What characteristics or features of an individual are correlated and/or possibly linked to experiencing strokes?
- Dataset used contained features such as age, bmi (body mass index), average glucose level (blood sugar), work type, residence location among others.
    - Dataset can be examined here - Stroke prediction dataset

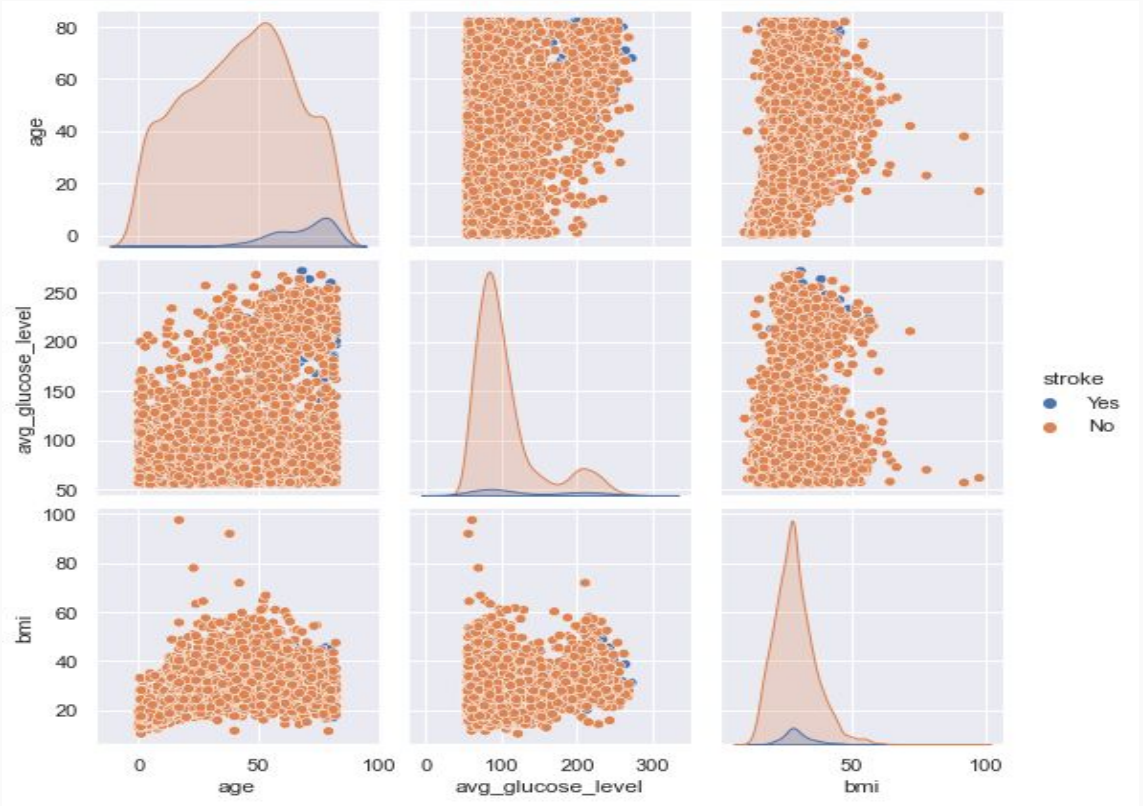
Numeric Features

- Quick examination of numeric features found in dataset
- Age and BMI with the strongest correlation
- Surprised BMI and average glucose level aren’t more positively correlated



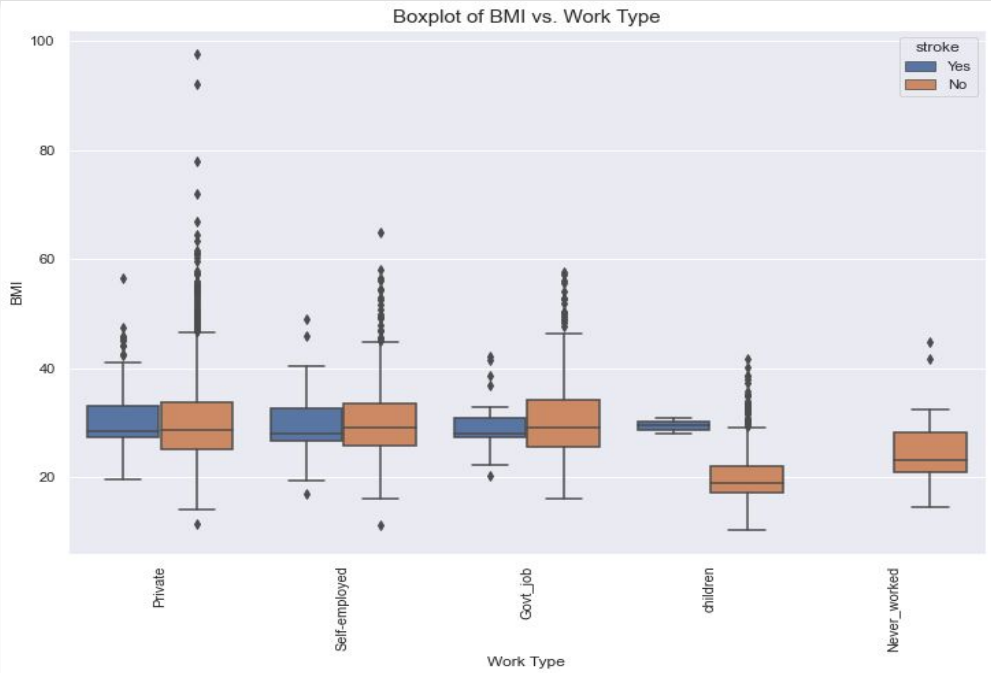
Numeric Feature Distributions

- Closer look at numeric feature and their distributions
- Unsurprisingly older age seems to be tied to higher chance of stroke
- BMI (body-mass index) doesn't seem to be clearly correlated



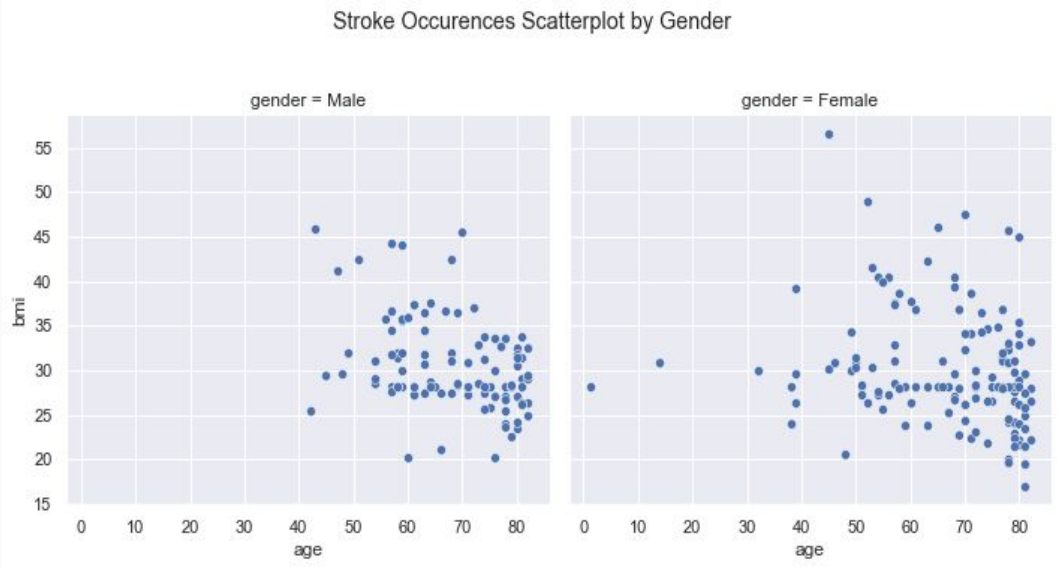
How does a person's work impact stroke chance?

- The boxplot seems to indicate no correlation between type of work and stroke
- Surprisingly those with strokes have slightly lower BMI on average than those without (outside of children)

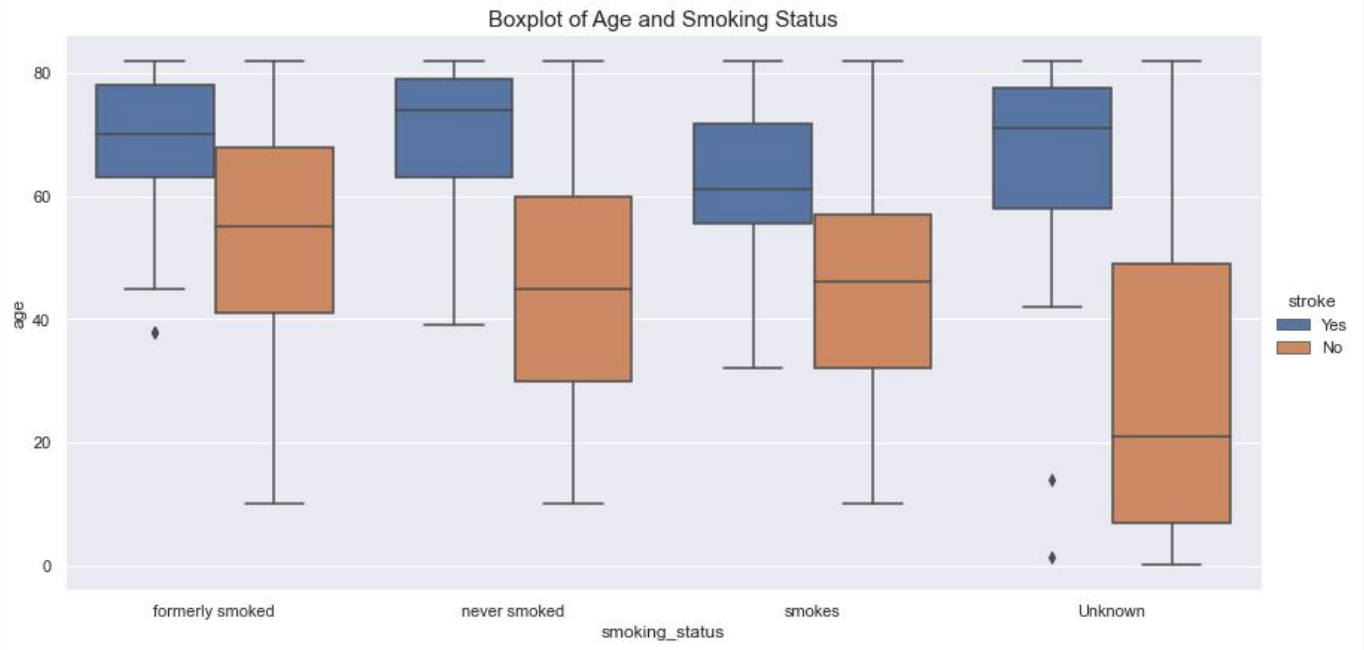


Stroke and Gender

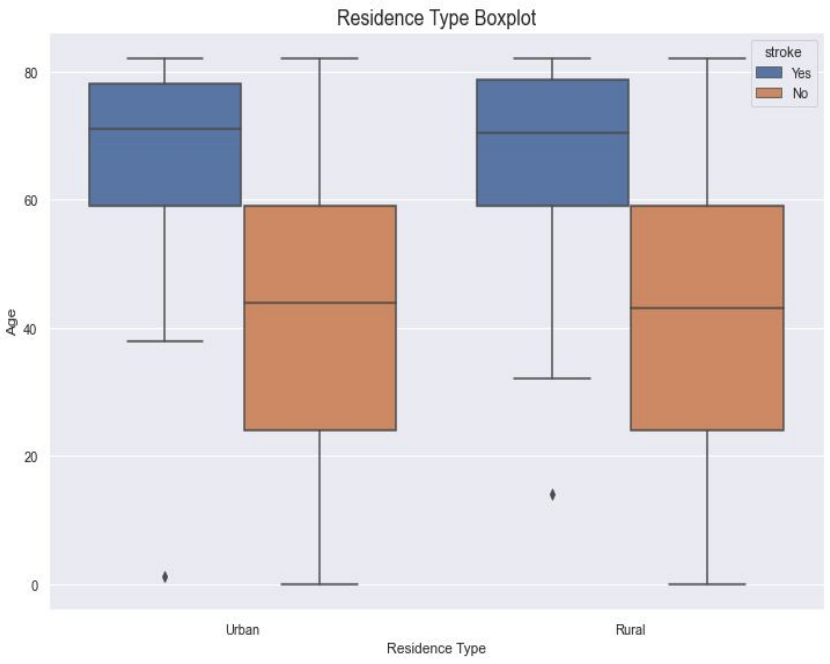
- Graph shows scatter plot of just individuals with strokes
- Gender doesn't seem to have too much impact or correlation with experiencing a stroke
- This dataset does seem to indicate more young women have strokes then young men
    - Could very well just be outliers (small sample)

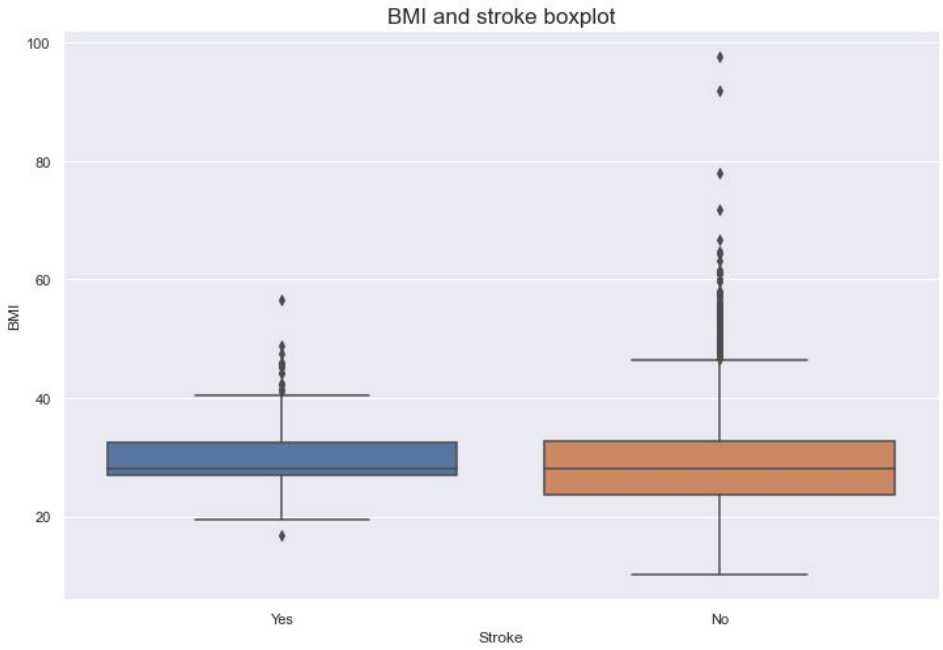


Smoking Status and Stroke Events



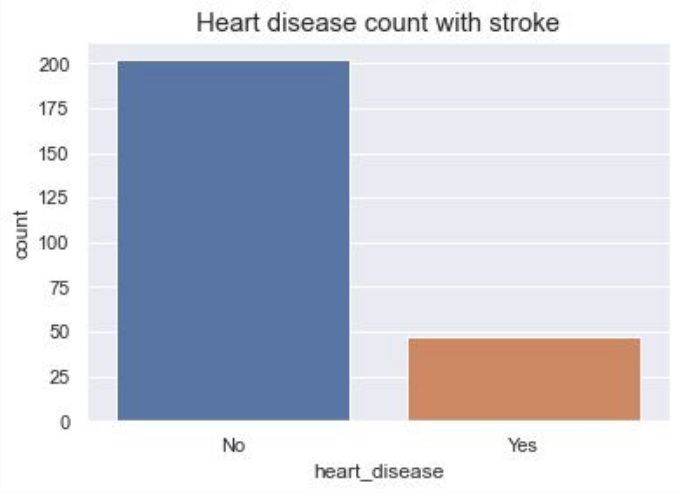
An individual's type of residence and surprisingly BMI don't seem to impact likelihood of stroke

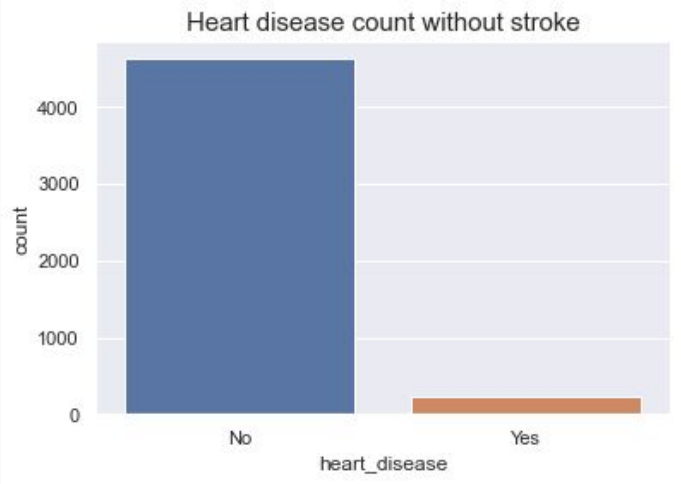




Heart Disease

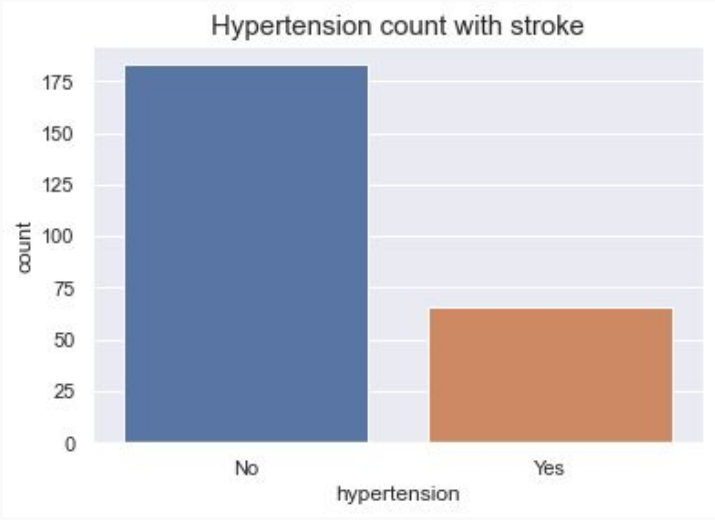
- The figures are separated into those with and without strokes
- Clearly those with heart disease were several magnitudes more likely to experience a stroke

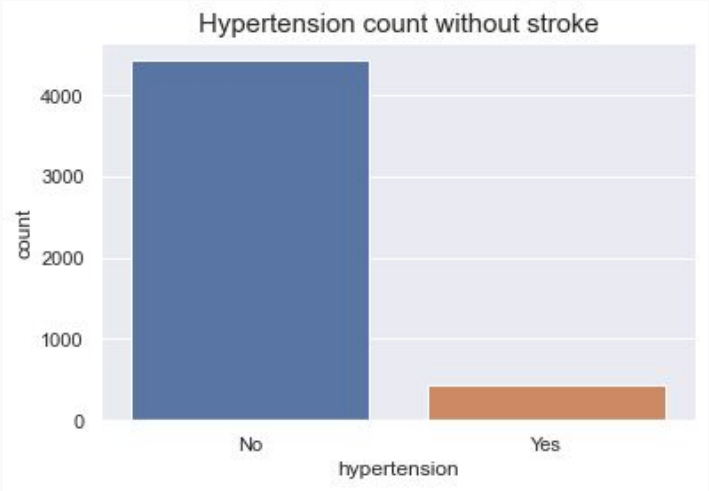




Hypertension

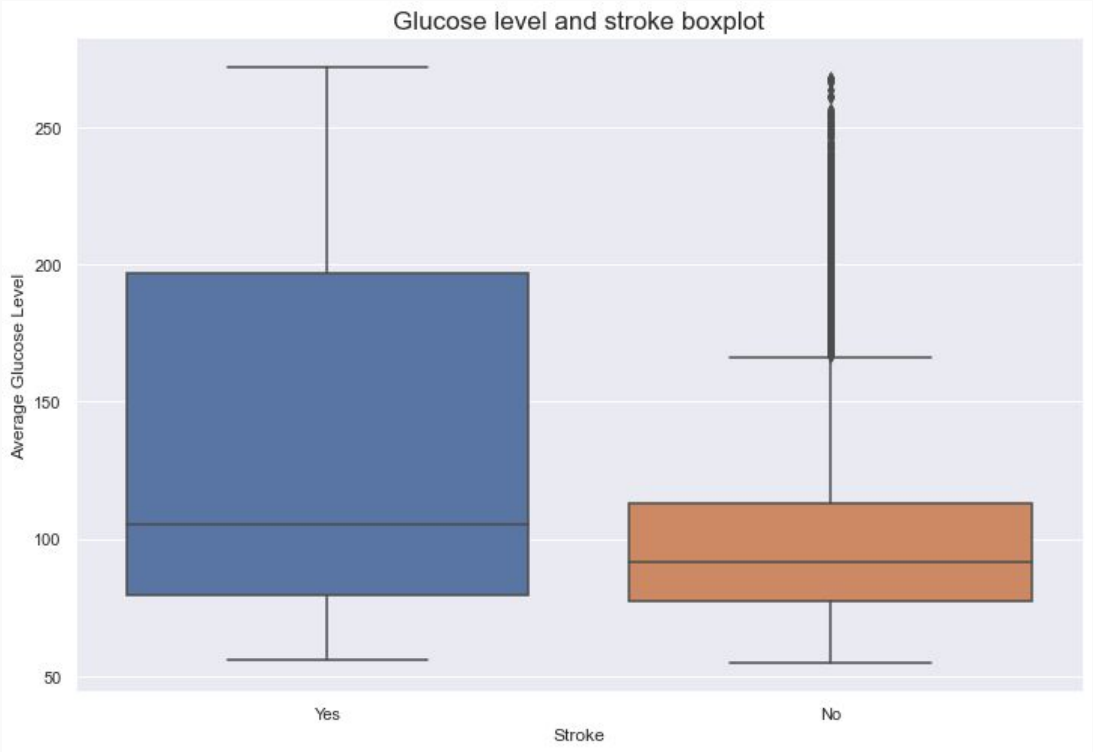
- Same visualization here except now for hypertension
- Once again those with strokes were much more likely to have hypertension than those without



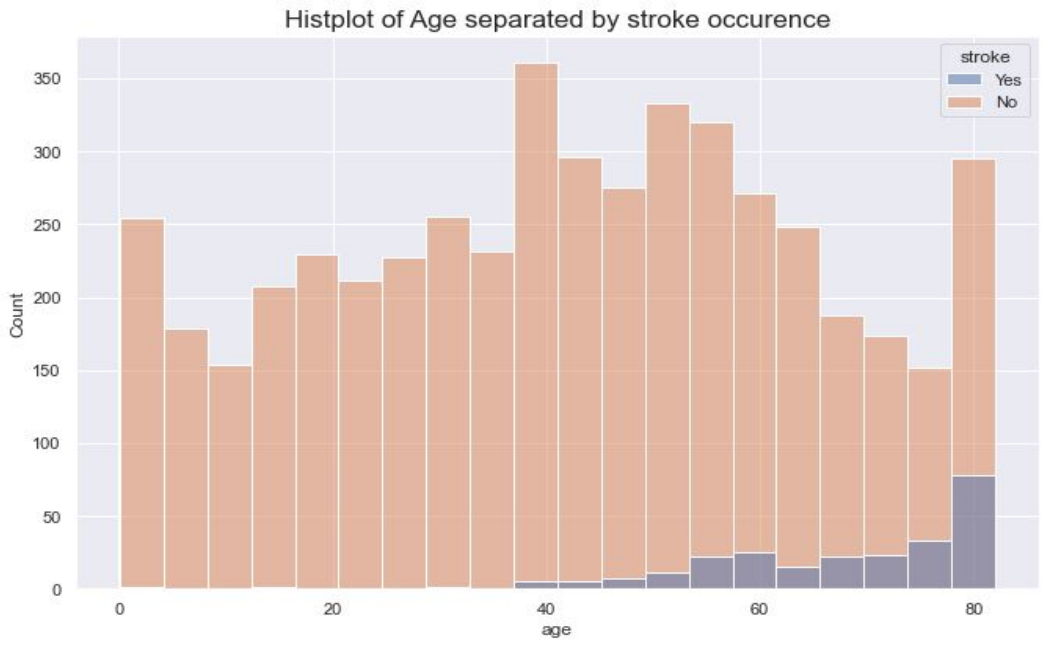


Glucose level

- The boxplot highlights the average glucose level of those with and without strokes
- Individuals with strokes had a much higher value than those without - 105.2 vs 91.5 mg/dL (milligrams per deciliter)



Closer look at connection between Age and stroke



Older age seems to be the primary risk factor for strokes with hypertension and heart disease unsurprisingly highly correlated as well. Smoking and higher average glucose levels also seem to be linked to greater risk.

Further Thoughts

- Would be interesting to have a time component included to see how stroke rates have changed over time for various demographics (if the have at all)
- Dataset included very few physical numeric features (only really age, bmi, glucose level). Others such as height, weight, resting heart rate, blood pressure etc. would be interesting to explore
- Geographic location (such as country or continent) may highlight differences and impacts