

# Stroke Prediction

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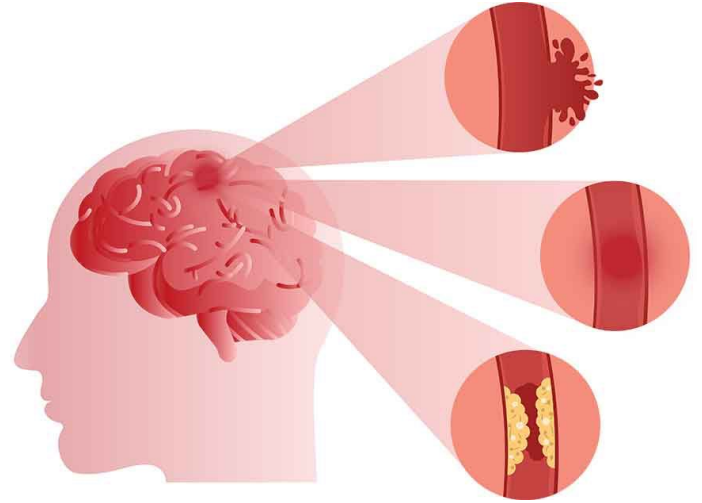
# Overview

- Background
- Problem Statement
- Data and EDA
- Model and Evaluation
- Conclusion



# Background

- #5 leading cause of death and disability
- Disease that affects the arteries leading to and within the brain
- Risk factors



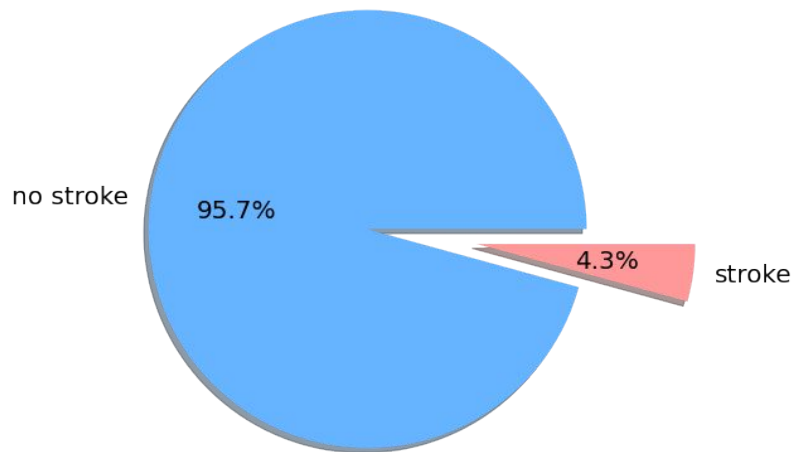
# Problem Statement

- Build and train a classifier to predict stroke
- Minimize false negatives
- Optimize recall score

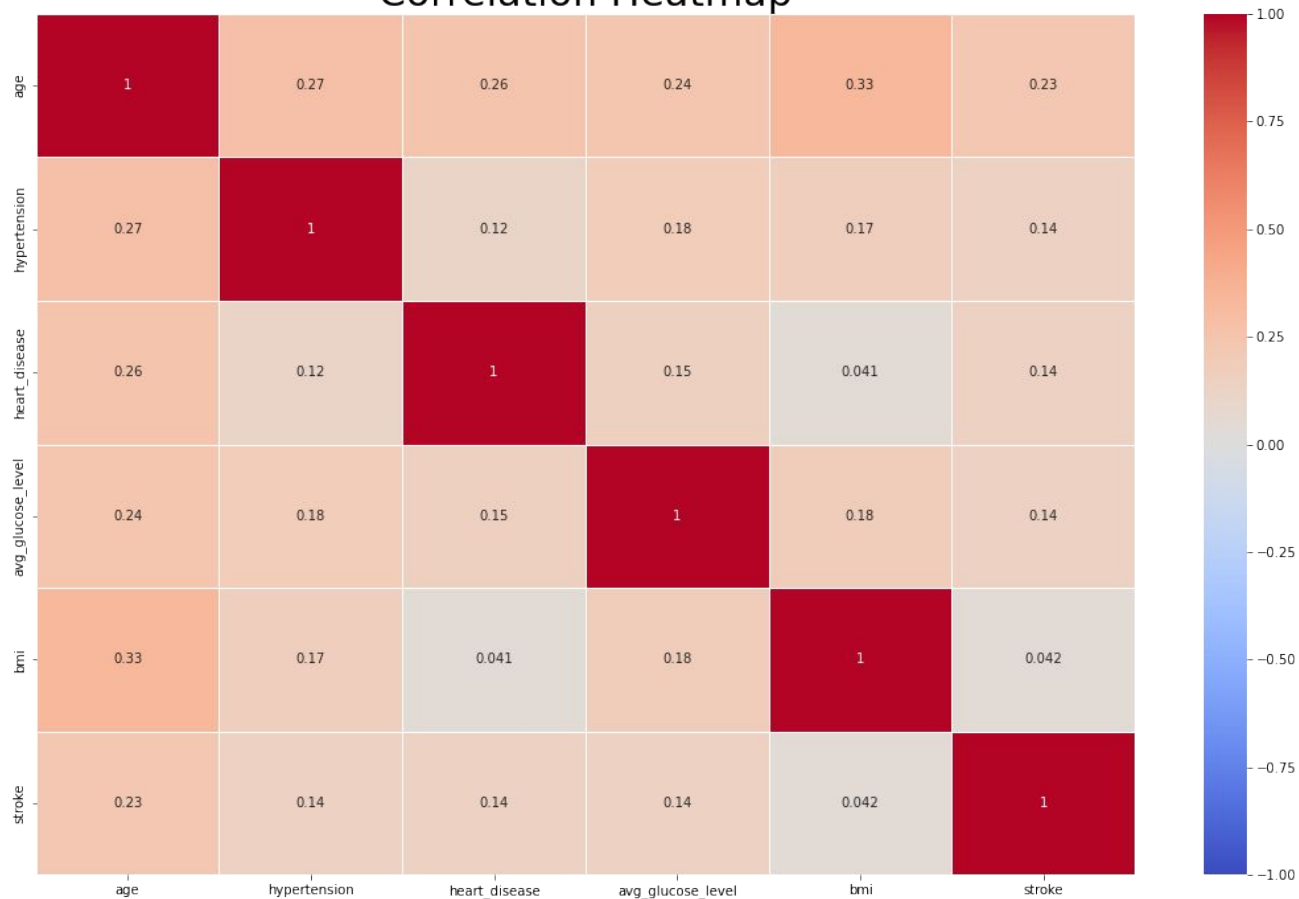
# Data

- Stroke dataset from Kaggle
- 4909 rows, 11 columns
  - gender, age, hypertension, heart disease, marital status, work, residence, average glucose level, BMI, smoking status, stroke

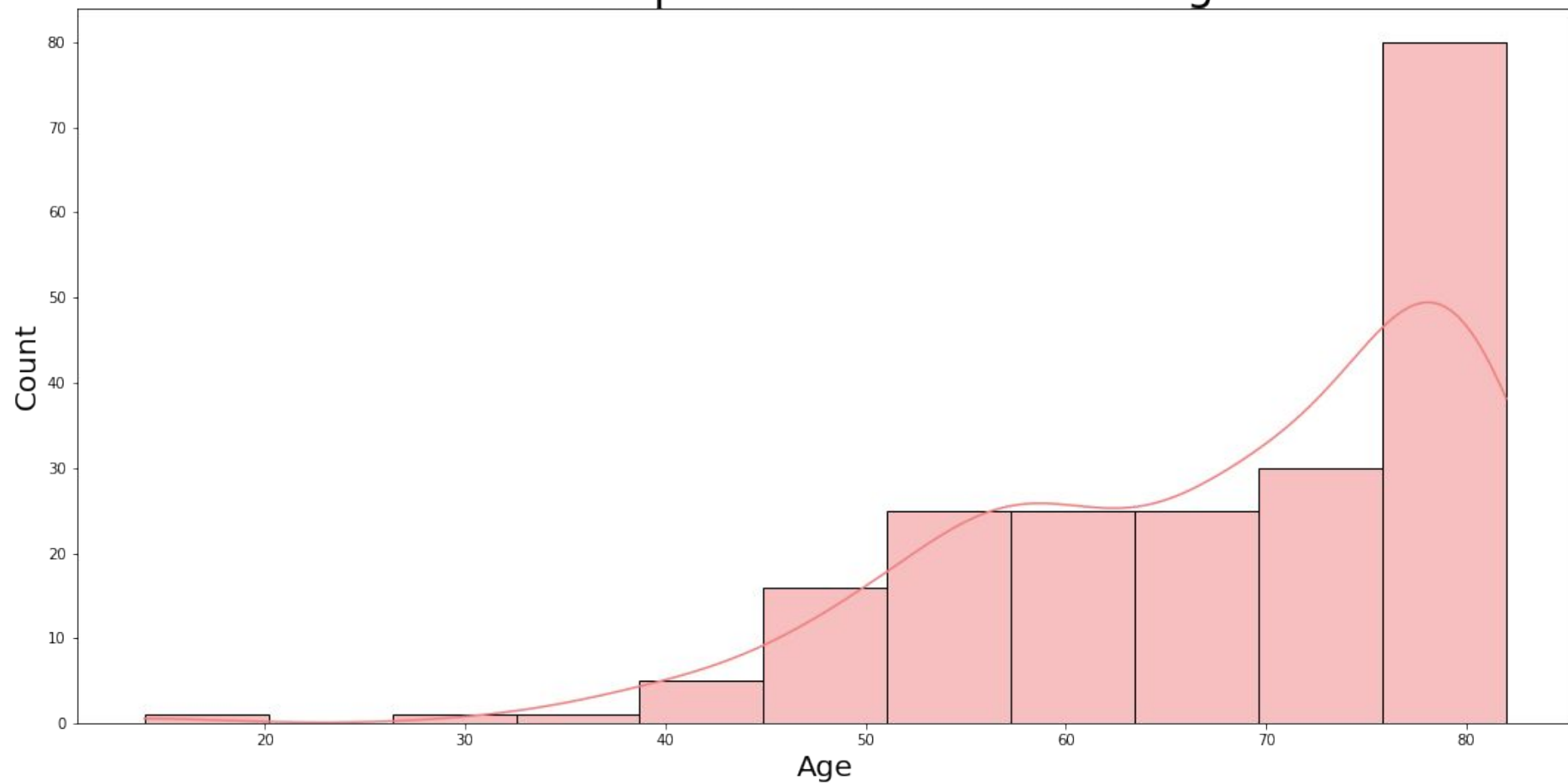
Distribution of Stroke in Dataset



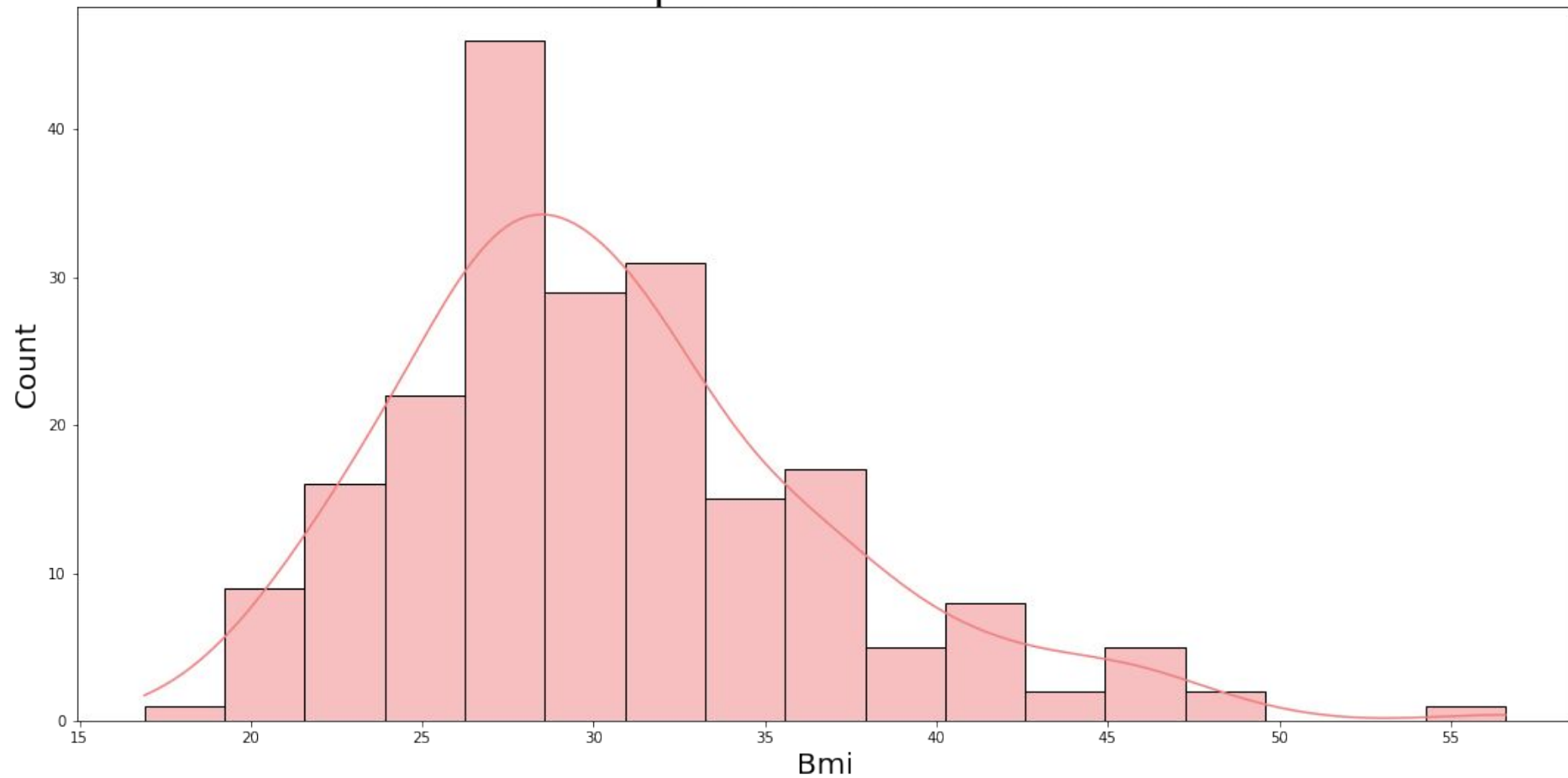
# Correlation Heatmap



# Relationship Between Stroke and Age

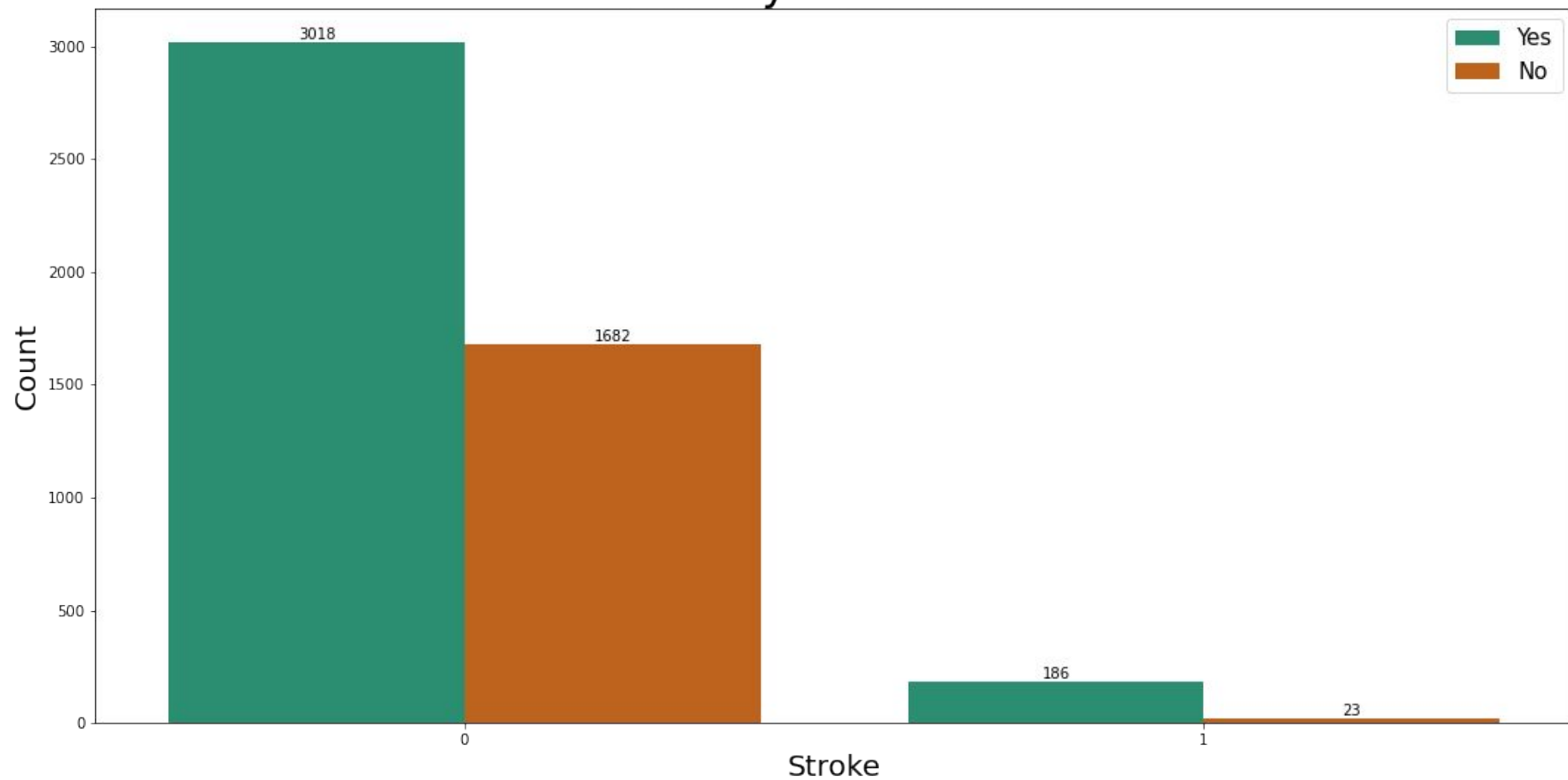


# Relationship Between Stroke and Bmi

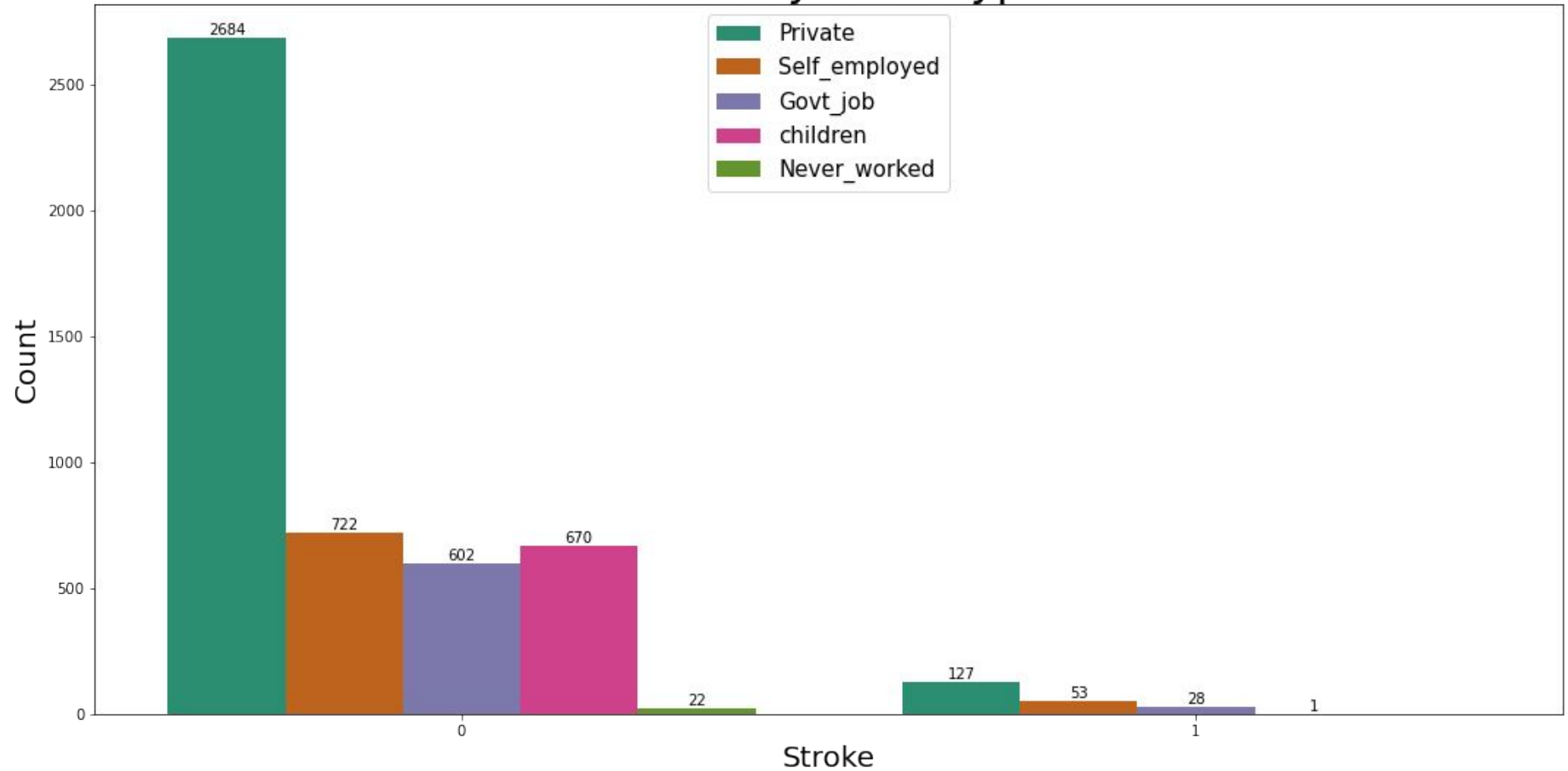




# Stroke by Ever married



# Stroke by Work type

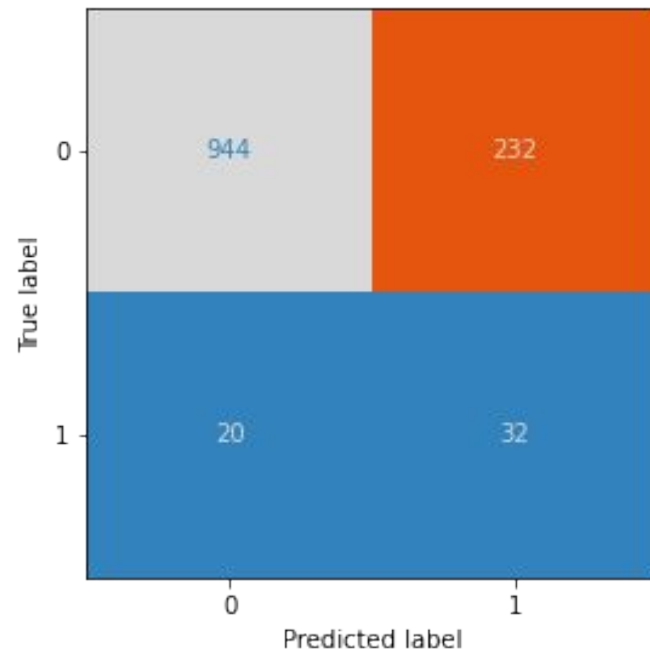


# Models

Model	Recall	Accuracy
Logistic Regression	0.6154	0.7948
K-Nearest Neighbors	0.2692	0.8746
K-Nearest Neighbors w/GridSearch	0.1154	0.9072
Random Forests	0.0	0.9487
Random Forests w/GridSearch	0.0	0.9495
Support Vector Machines	0.5962	0.7866
Support Vector Machines w/GridSearch	0.6154	0.7891
AdaBoost	0.0	0.9430
AdaBoost w/GridSearch	0.0192	0.9438

# Conclusion

- Logistic Regression
- Recall score: 61.5%
- 20 false negatives



# PREVENTION



Keep Your  
Blood Pressure Low



Lower  
Your Cholesterol



Eat Healthy Food



Exercise Regularly



Treat Sleep Apnea



Manage Your Diabetes



Drink in Moderation



Stop Smoking



Avoid Stress



Maintain  
Healthy Weight



# Reference

- <https://www.stroke.org/en/about-stroke>
- <https://www.mayoclinic.org/diseases-conditions/stroke/symptoms-causes/syc-20350113>
- <https://www.kaggle.com/fedesoriano/stroke-prediction-dataset>
- <https://www.vectorstock.com/royalty-free-vector/brain-cartoon-with-questions-and-glasses-human-vector-19802506>
- <https://www.news-medical.net/news/20211117/Raising-awareness-of-stroke-and-how-to-prevent-it.aspx>
- <https://elitelv.com/first-aid-for-stroke/>
- <https://www.memorialcare.org/services/stroke-care/stroke-prevention>