Table of Contents

Stroke is the second leading cause of death worldwide, and current treatment options are limited; prevention is the key approach to combating this disease.

Literature Review

FAST TRACK — ARTICLES | VOLUME 376, ISSUE 9735, P112-123, JULY 10, 2010

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Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study

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PlumX Metrics

Summary

Background

The contribution of various risk factors to the burden of stroke worldwide is unknown, particularly in countries of low and middle income. We aimed to establish the association of known and emerging risk factors with stroke and its primary subtypes, assess the contribution of these risk factors to the burden of stroke, and explore the differences between risk factors for stroke and myocardial infarction.

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60834-3/fulltext

Dataset Introduction

gender

age

hypertension

heart_disease

ever_married

work_type

Residence_type

avg_glucose_level

bmi

smoking_status

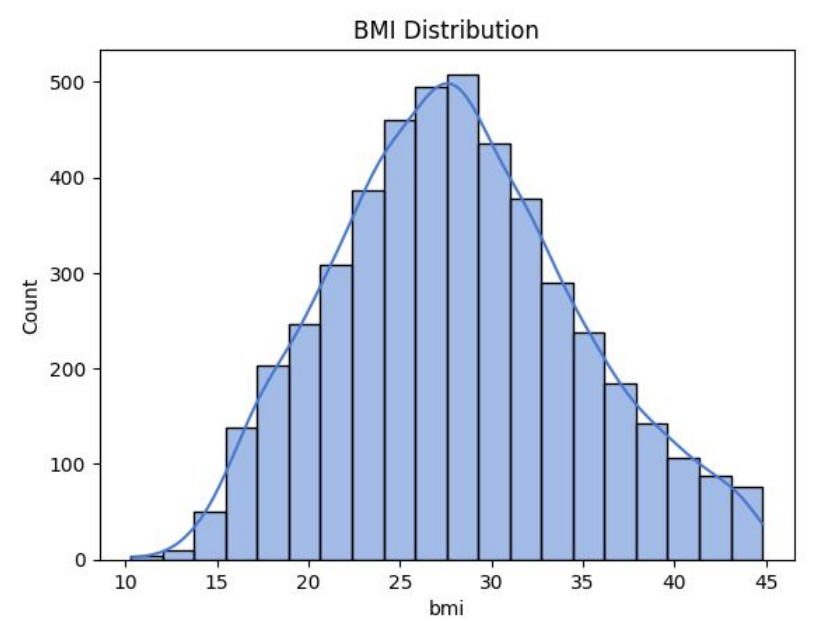
stroke

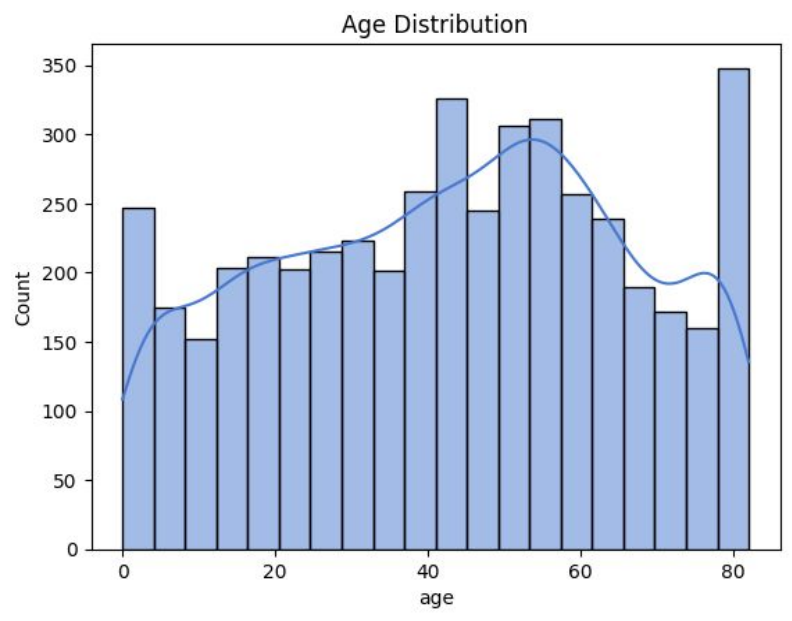
1

Univariate Analysis

Data Distribution Visualization

Univariate Analysis: BMI & Age

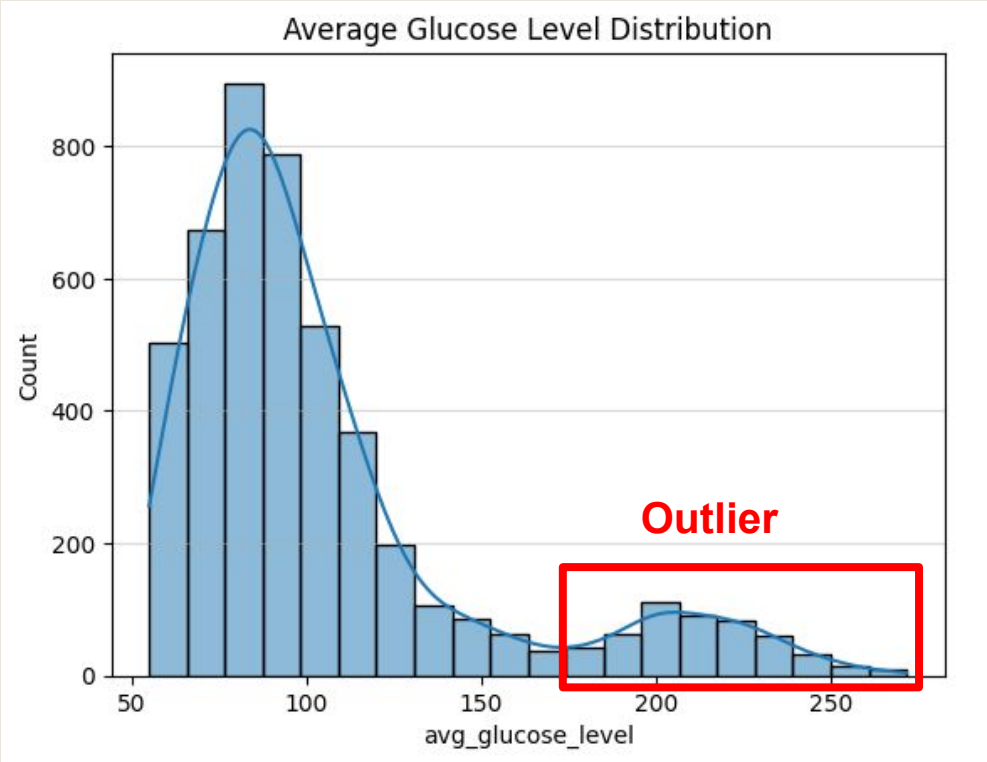




Q1: 23.3 | Q2: 27.6 | Q3: 32.1

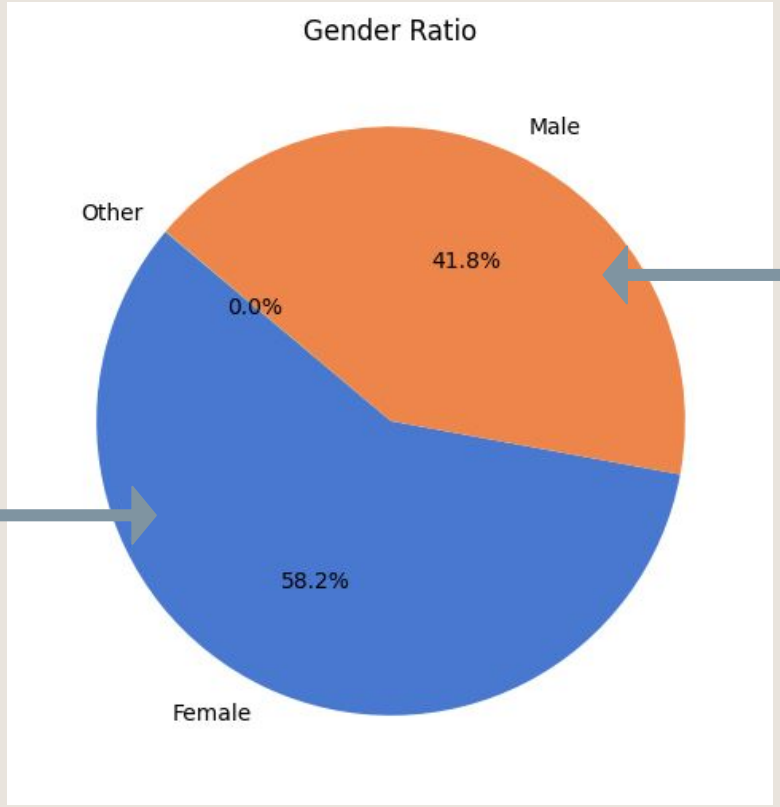
Q1: 24 | Q2: 44 | Q3: 61

Univariate Analysis: Avg Glucose Level



Mean : 104.6
Q1: 77.02
Q2: 91.61
Q3: 112.99

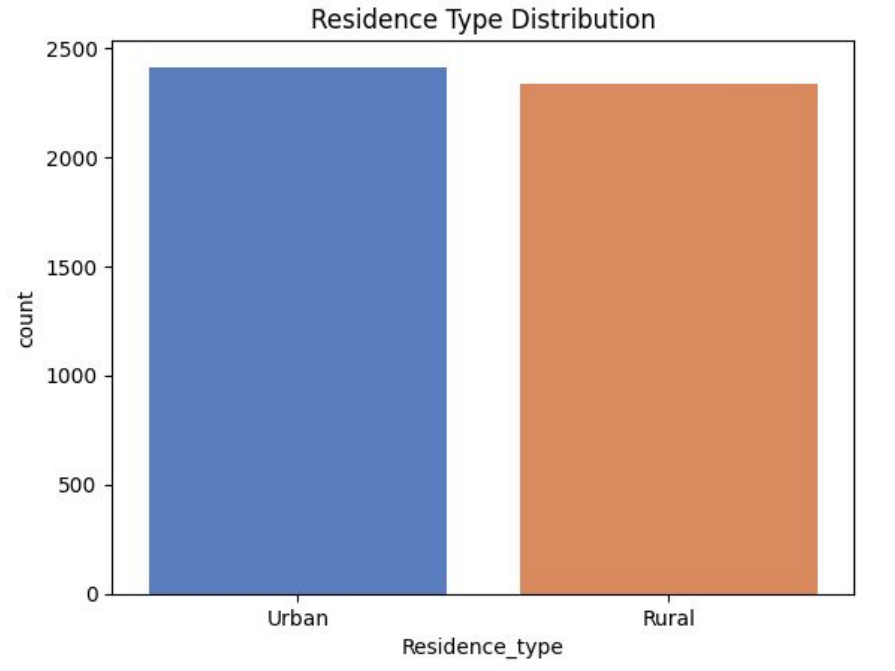
Univariate Analysis: Gender Ratio

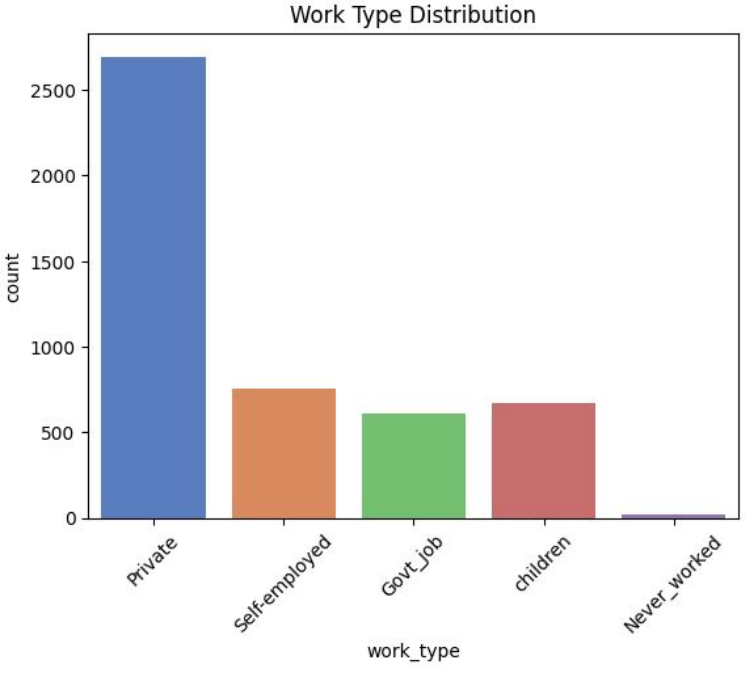


Female
41.8%

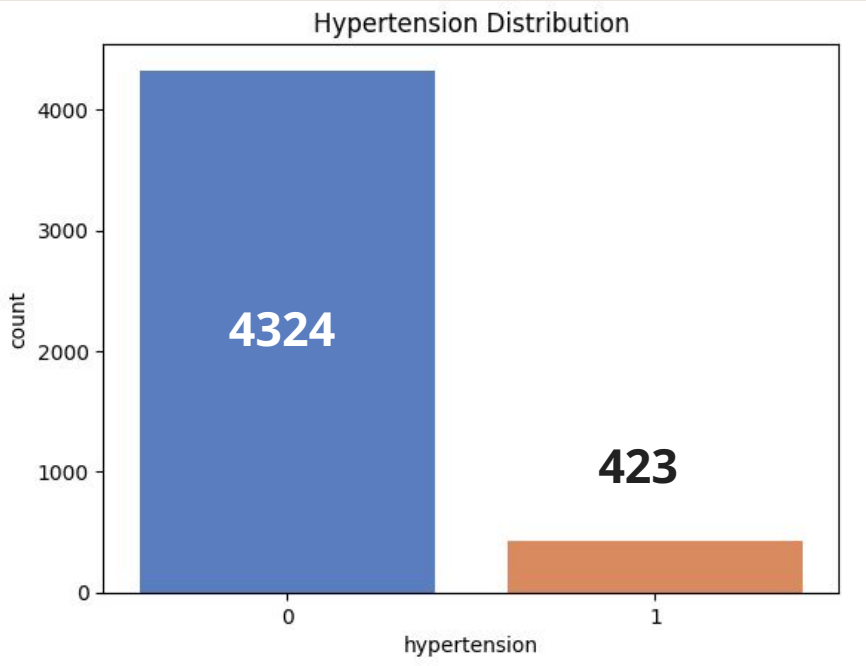
Female
58.2%

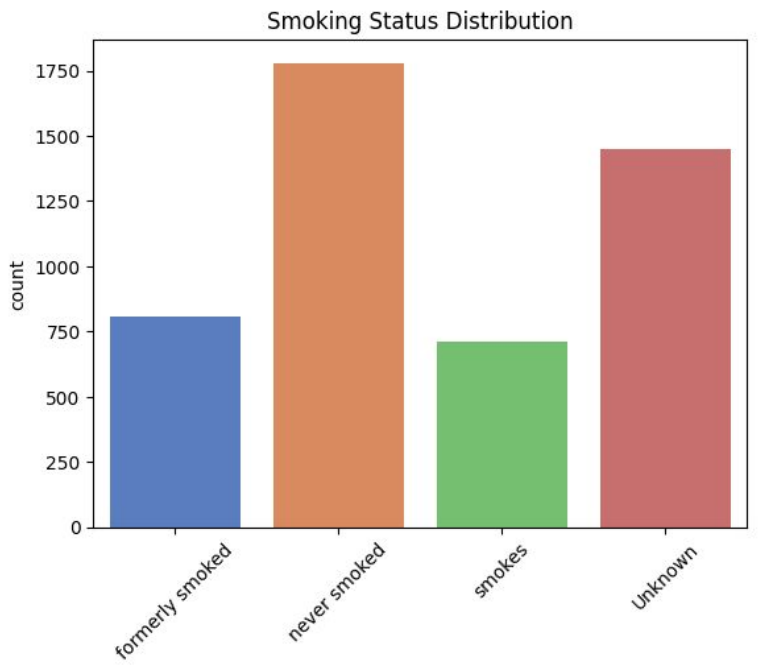
Univariate Analysis: Work & Residence Type



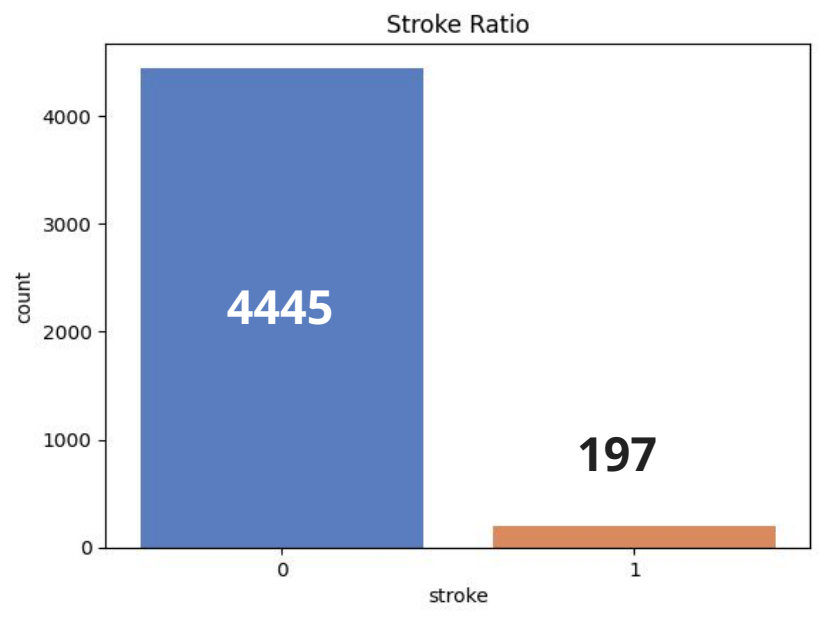


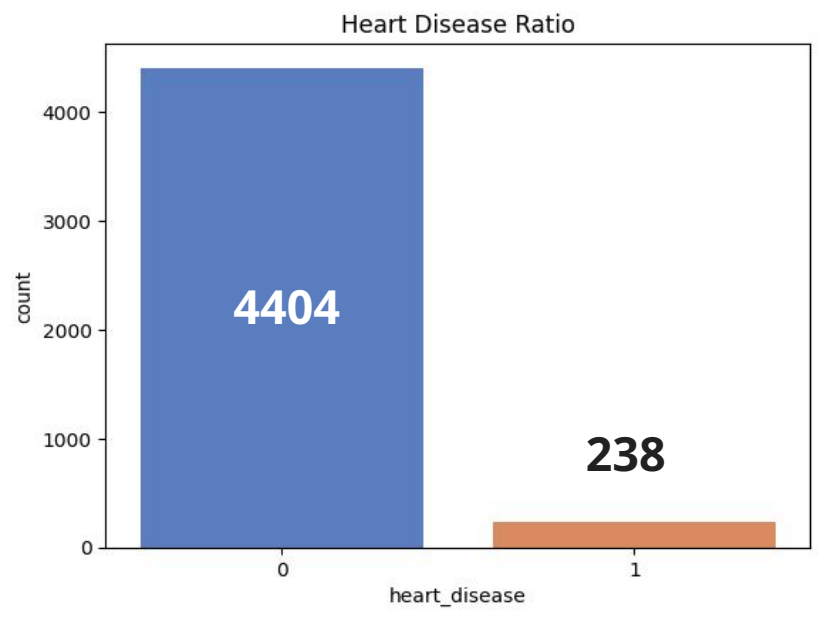
Univariate Analysis: Hypertension & Smoking



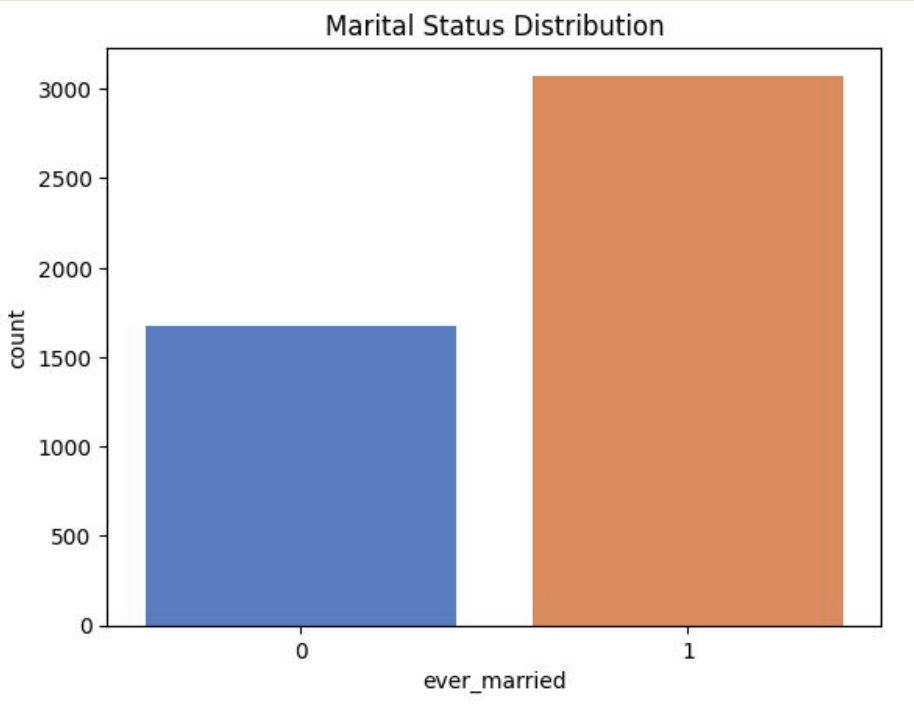


Univariate Analysis: Stroke & Heart Disease





Univariate Analysis: Marital Status



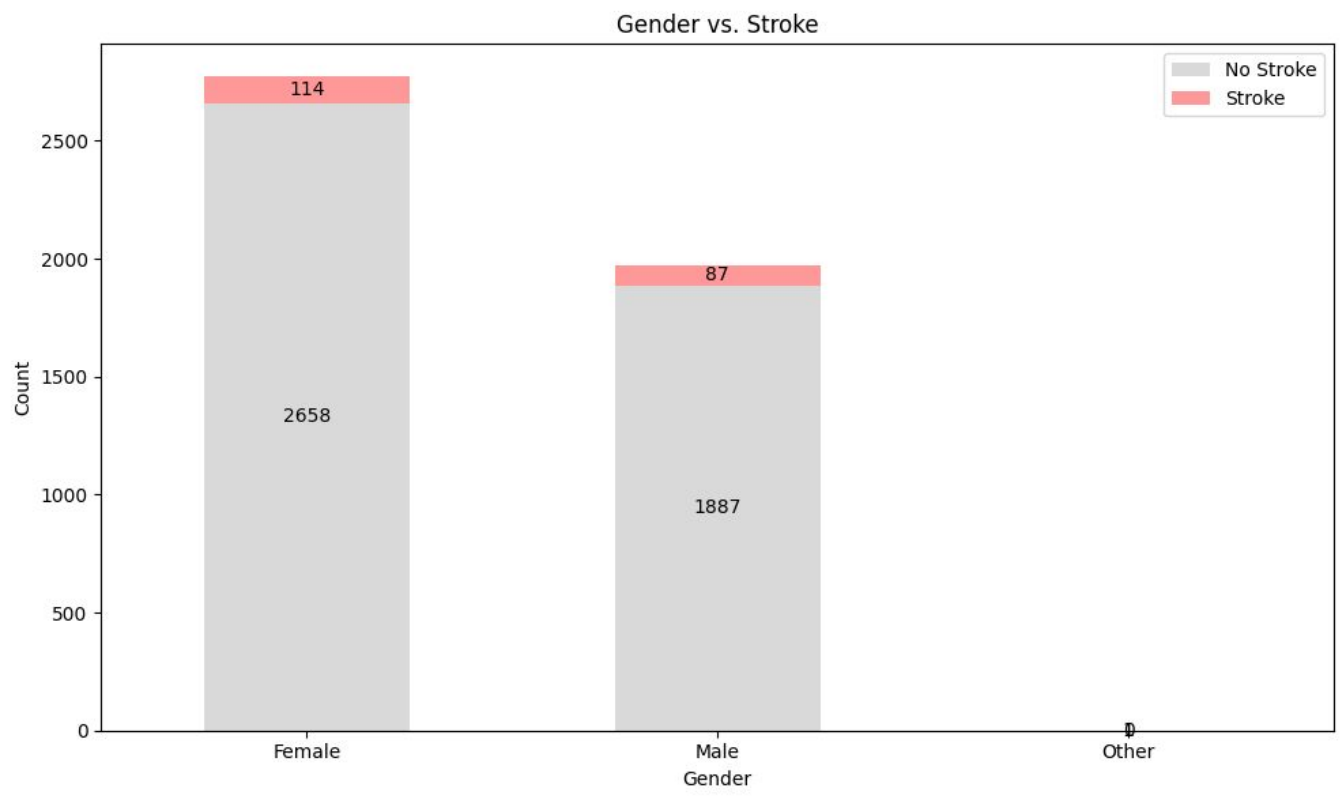
2

Bivariate Analysis

Data Distribution Visualization

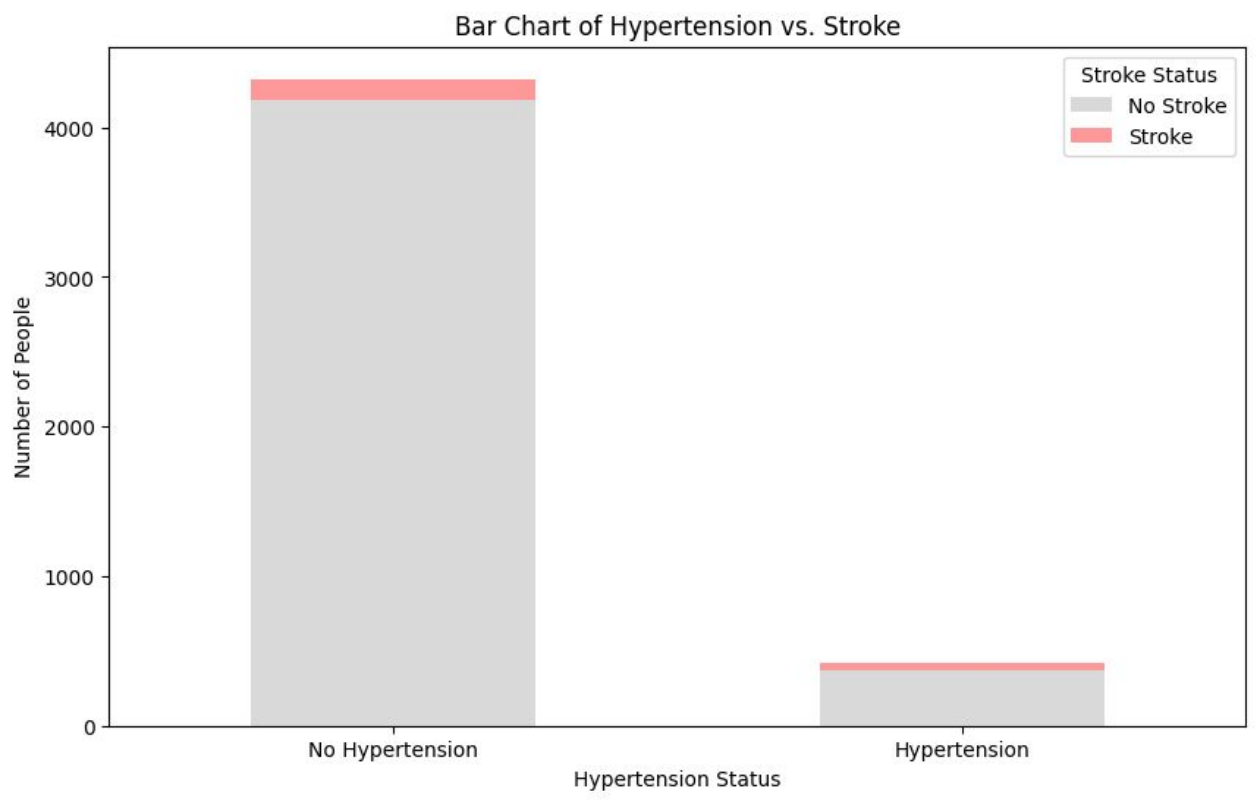
gender

```
Chi-squared value: 0.2912
P-value: 0.8645
There is no significant association between gender and stroke.
```



hypertension

```
Chi-Square Value = 95.3094
P-value = 0.0000
There is a significant association between hypertension and stroke.
```

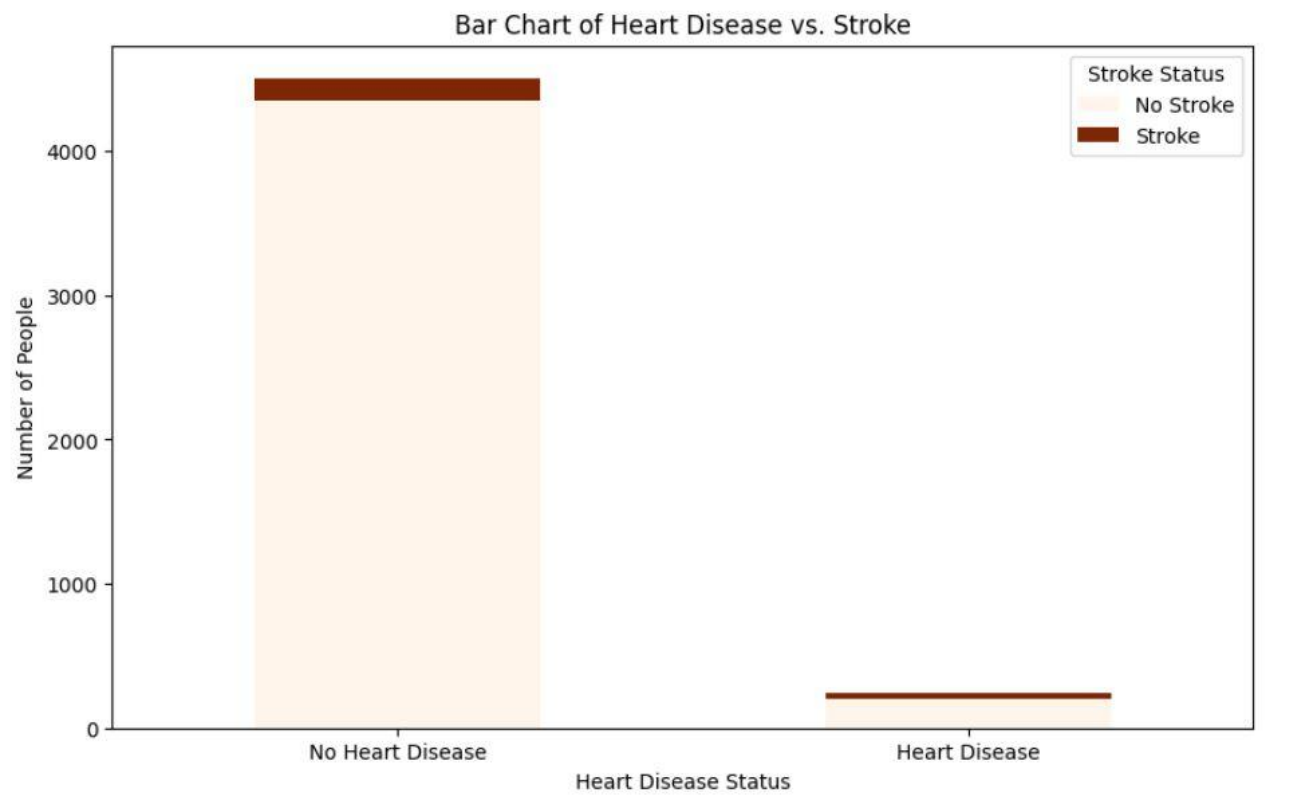


stroke	0	1
hypertension		
0	4180	144
1	366	57

heart_disease

```
Chi-Square Value = 92.5176
P-value = 0.0000
There is a significant association between heart disease and stroke.
```

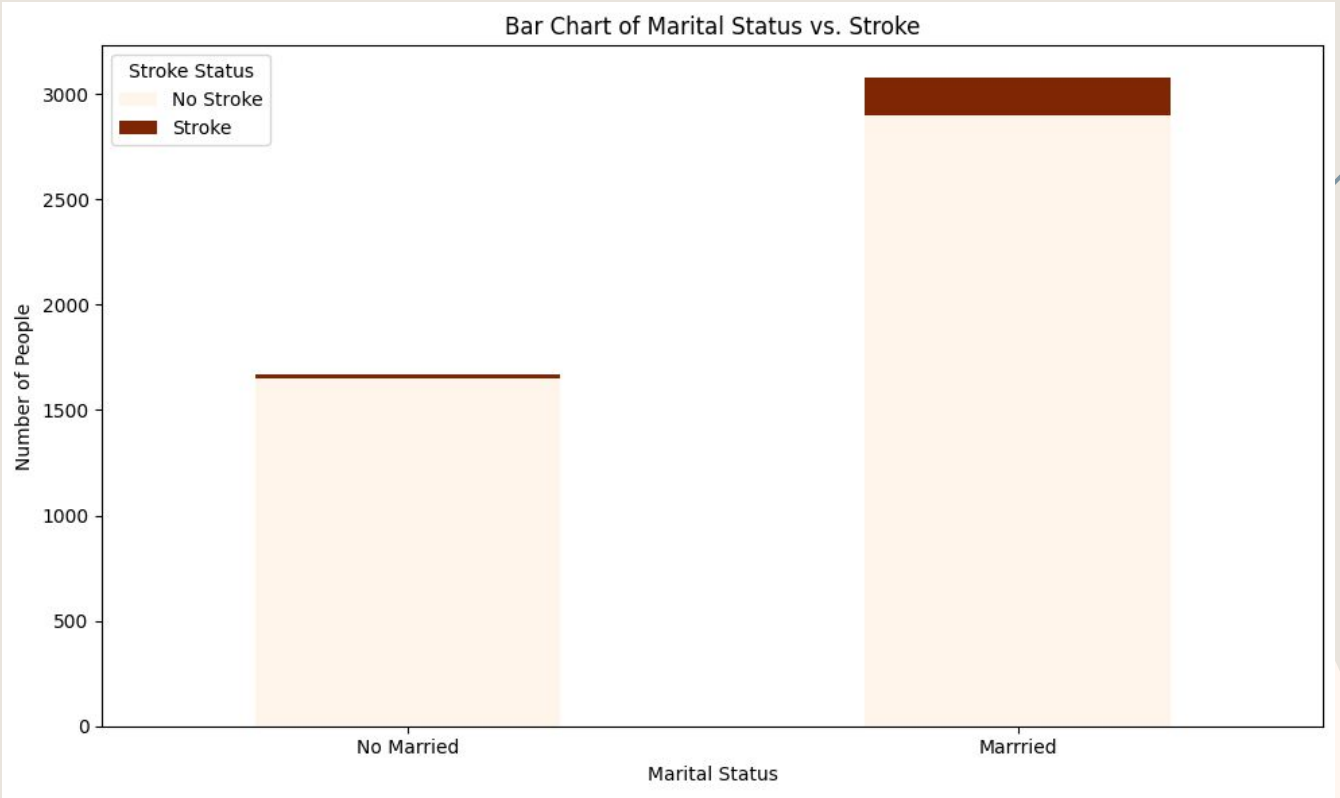
stroke	0	1
heart_disease		
0	4345	161
1	201	40



ever_married

```
Chi-Square Value = 53.0326
P-value = 0.0000
There is a significant association between marital status and stroke.
```

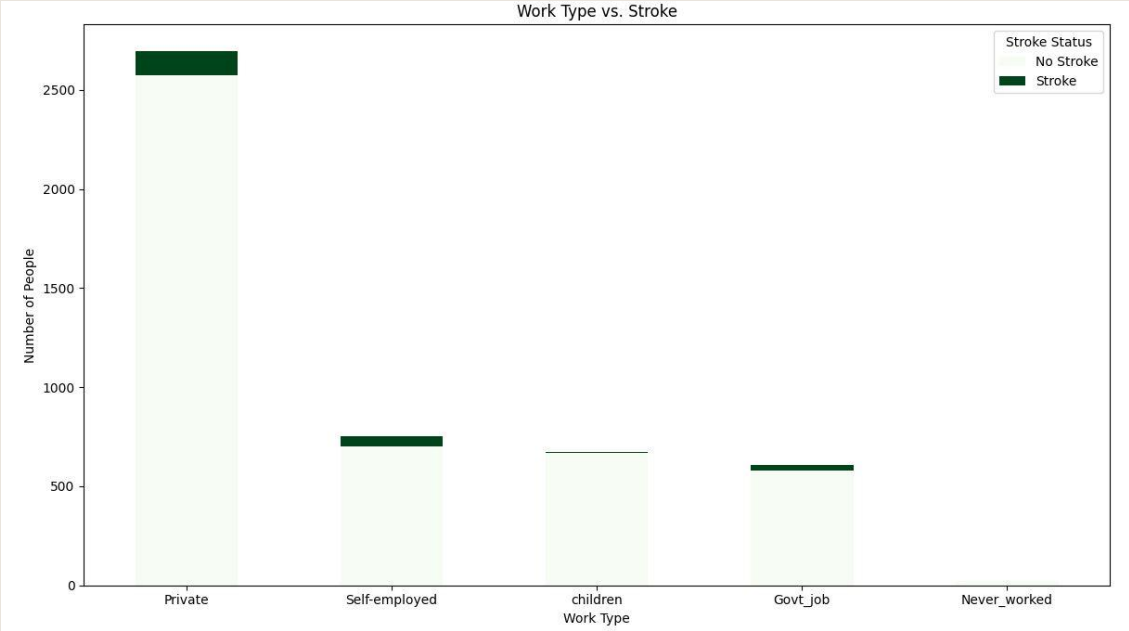
stroke	0	1
ever_married		
0	1649	22
1	2897	179



work_type

stroke	0	1
work_type		
Govt_job	579	28
Never_worked	21	0
Private	2574	121
Self-employed	702	51
children	670	1

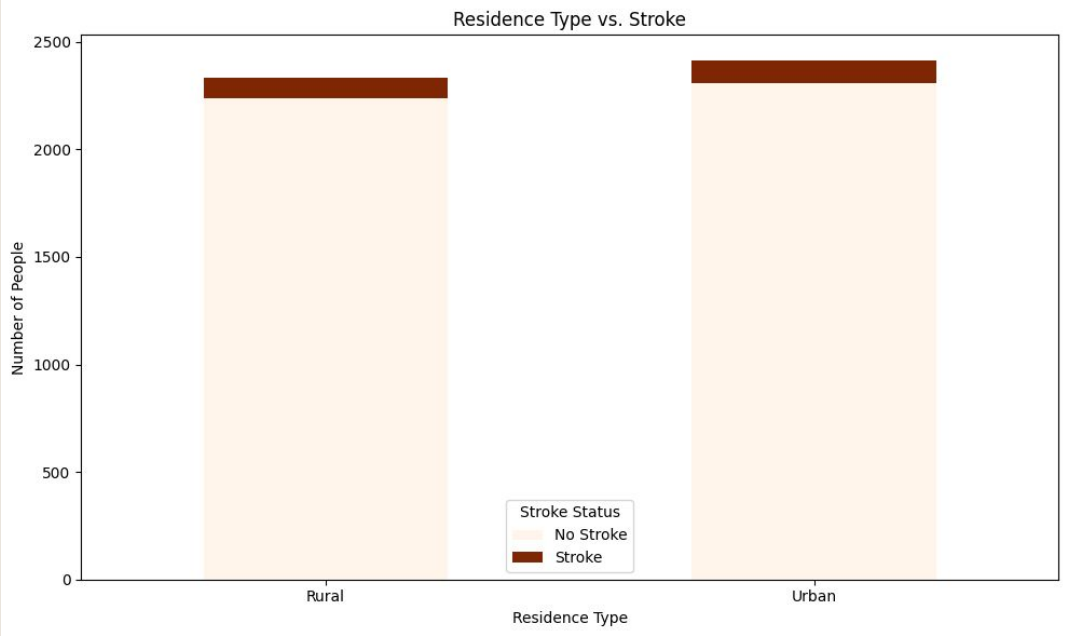
```
Chi-Square Value = 41.1613
P-value = 0.0000
There is a significant association between work type and stroke.
```



Residence_type

```
Chi-Square Value = 0.0028
P-value = 0.9575
There is no significant association between residence type and stroke.
```

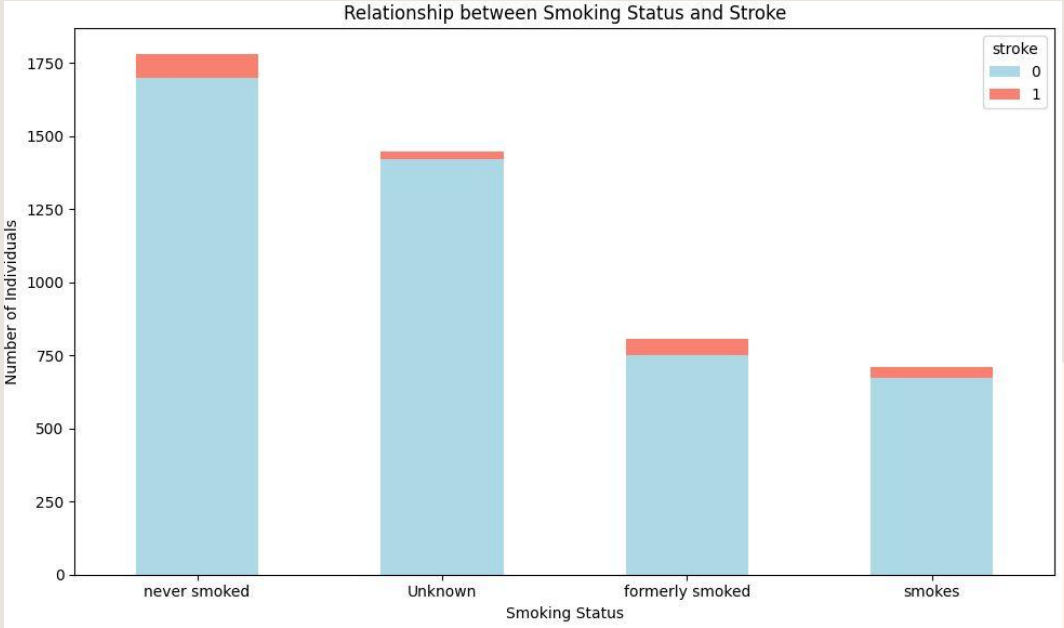
stroke	0	1
Residence_type		
Rural	2237	98
Urban	2309	103



smoking_status

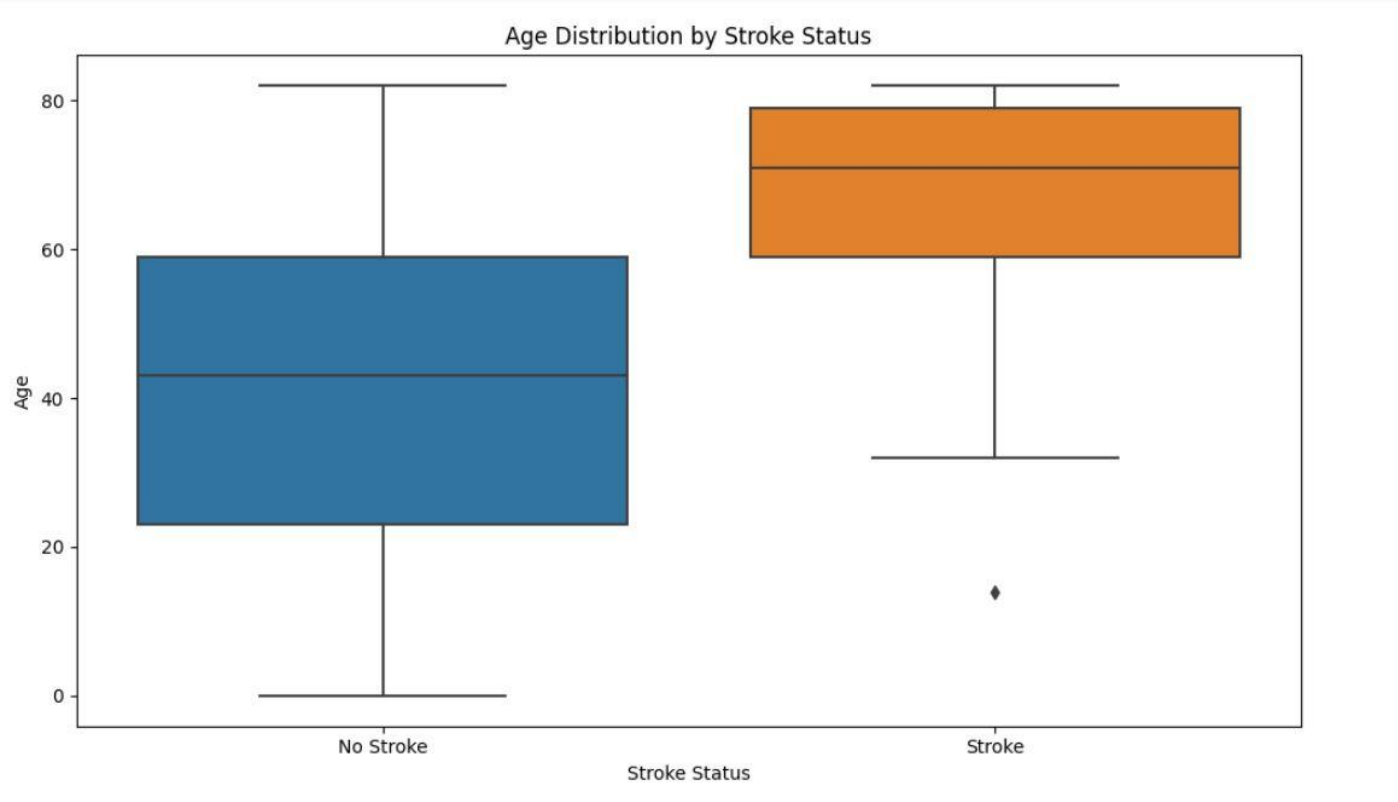
```
Chi-squared Value: 35.1601
P-value: 0.0000
There is a significant association between smoking status and stroke.
```

stroke	0	1
smoking_status		
Unknown	1421	28
formerly smoked	751	55
never smoked	1701	79
smokes	673	39



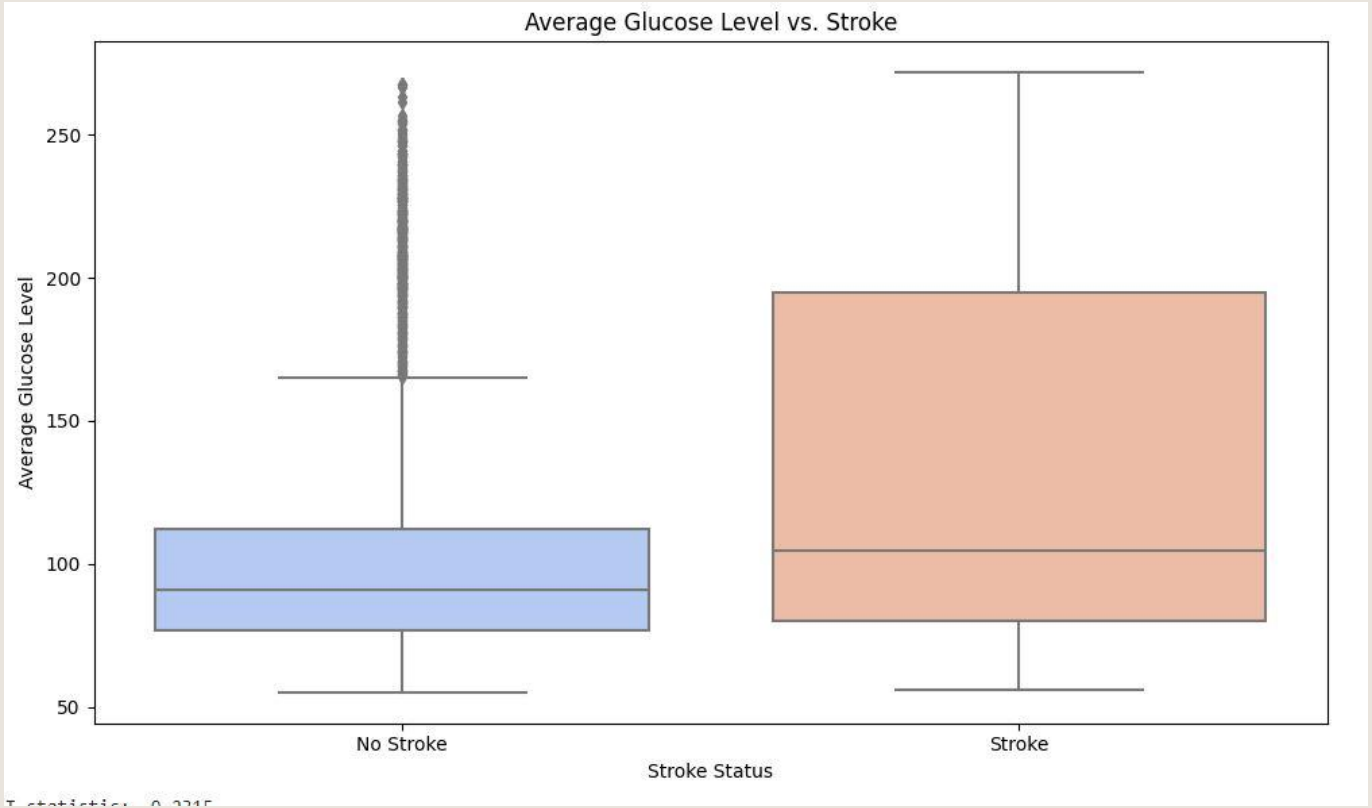
age

```
T-statistic: -16.4059
P-value: 0.0000
There is a significant difference in age between those with and without a stroke.
```



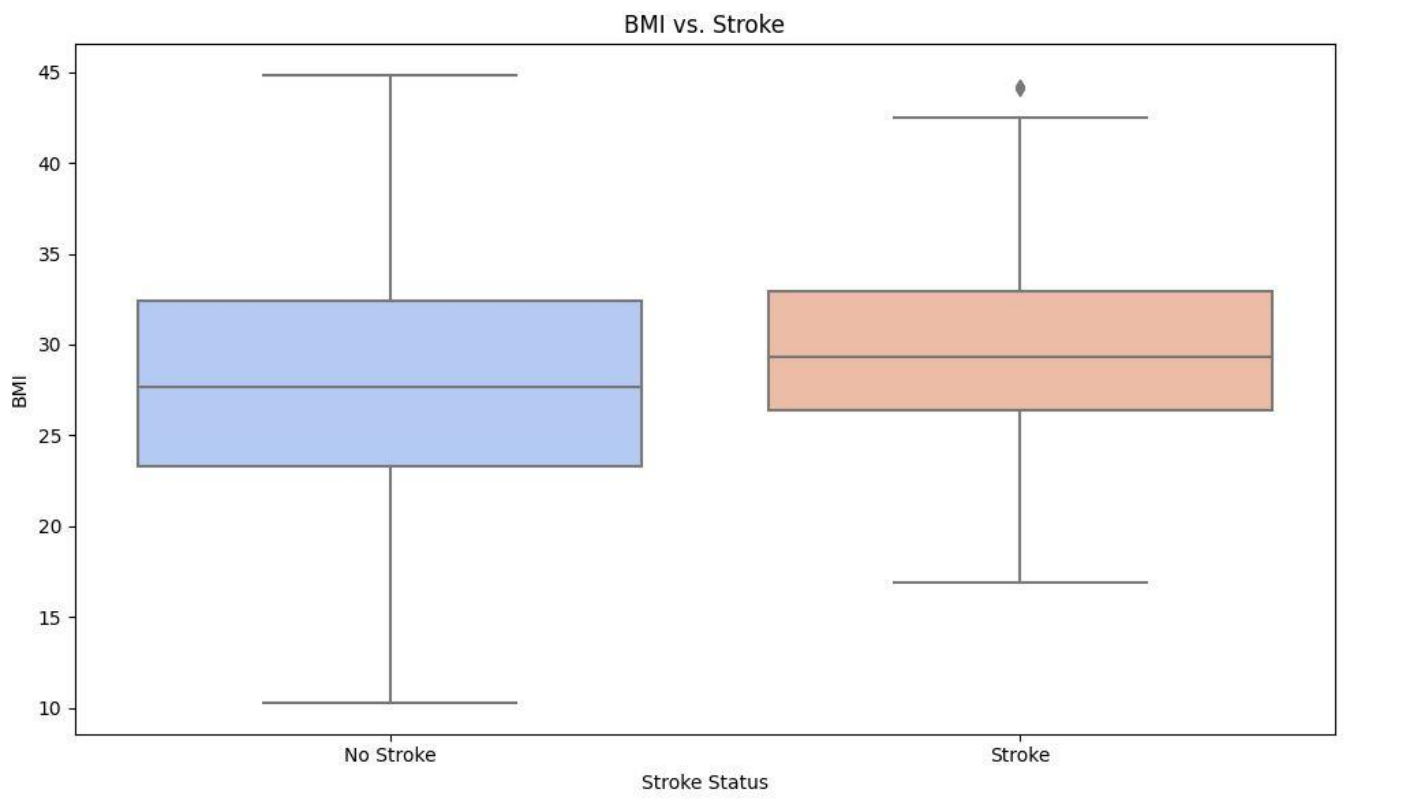
avg_glucose_level

```
T-statistic: -9.2315
P-value: 0.0000
There is a significant difference in average glucose levels between the two groups.
```



bmi

```
T-statistic: -3.6512
P-value: 0.0003
There is a significant difference in BMI between the two groups.
```



Analysis Results

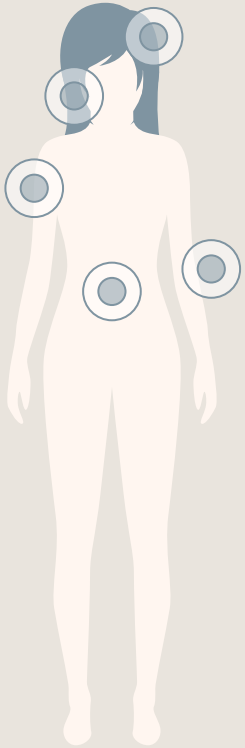
Significant features

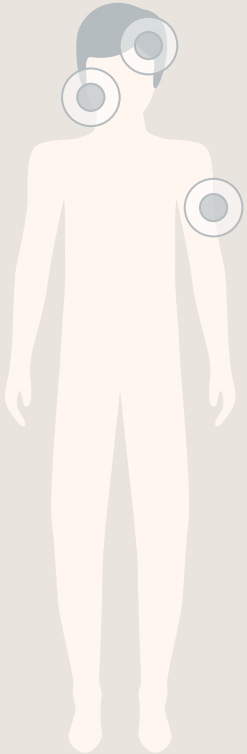
- hypertension
- heart_disease
- ever_married
- work_type
- smoking_status
- age
- bmi

Non Significant features

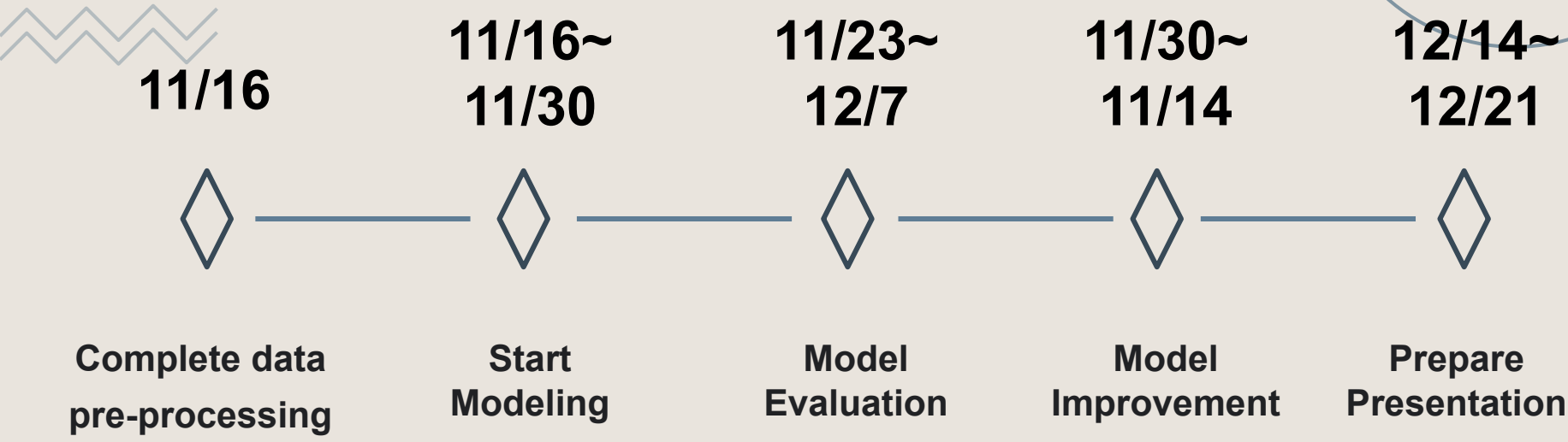
- gender
- residence_type

Expect Outcome





Schedule


11/16
11/16~
11/30
11/23~
12/7
11/30~
11/14
12/14~
12/21
Complete data pre-processing
Start Modeling
Model Evaluation
Model Improvement
Prepare Presentation

Thanks

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