Snapshot: Stroke Prediction

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Capstone

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A little story...

- One random night, driving like usual...
- No check-in.. Know one knew where he was...
- Ischemic stroke... Most likely from thrombus due to heart defect
- He regained consciousness and realized he crashed...
- Finally called someone...
- Months later had surgery to fix defective valve...

01

What is a stroke?

Three Types:

Ischemic

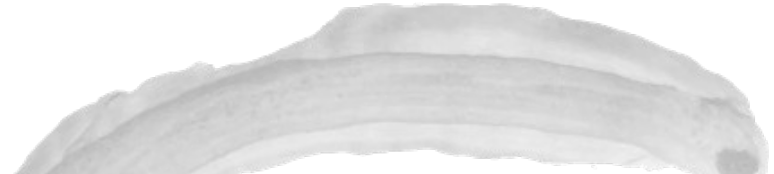
These are strokes caused by blockage of an artery (or, in rare instances, a vein). About 87% of all strokes are ischemic.

Hemorrhagic

These are strokes caused by bleeding. About 13% of all strokes are hemorrhagic.

TIA

A “mini-stroke” which lasts only for a short period of time but can signal that a major stroke will occur if proper care is not taken.



Symptoms:

1.

Blurred vision or blindness in one/both eyes

2.

Weakness, numbness, or paralysis on one side of the body

3.

Severe headache

Dizziness

Nausea

Lack of Coordination

Seizures

Fainting

Who is at risk?

Age

People of the age of 55 have a significantly higher risk of stroke and death due to stroke.

‘Gender’

Biological males have higher risk

Comorbidities

- Hypertension
- Diabetes
- Heart Disease
- Previous stroke or TIA

02

Data

Kaggle Dataset

Data Dictionary:

Feature	Type	Description
Age	Int64	Participants age
Hypertension	Int64	0 for No and 1 for Yes
Heart Disease	Int64	0 for No and 1 for Yes
Avg Glucose Level	Int64	Calculation made after 2-3 hrs from time of ingested glucose
BMI	Int64	Calculation based on weight and height
Stroke	Int64	0 for No and 1 for Yes

Data Dictionary Cont. :

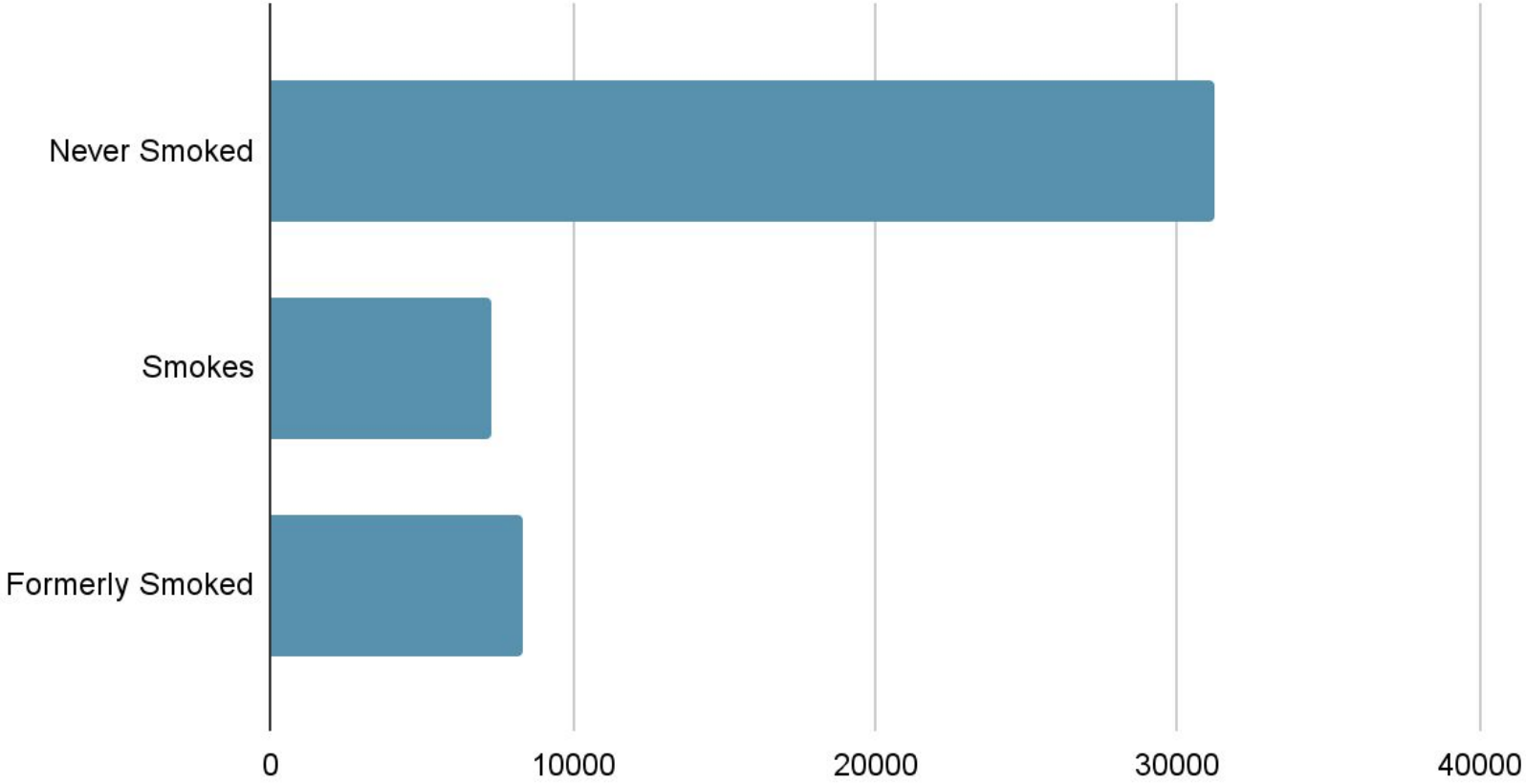
Feature	Type	Description
Smoking Status	Int64	Participants age
Diabetes	Int64	0 for No and 1 for Yes
Ever Married	Object	Yes or No
Work Type	Object	Type of work someone is does
Residence Type	Object	Urban or Rural
Gender	Object	Male, Female, or Other

03

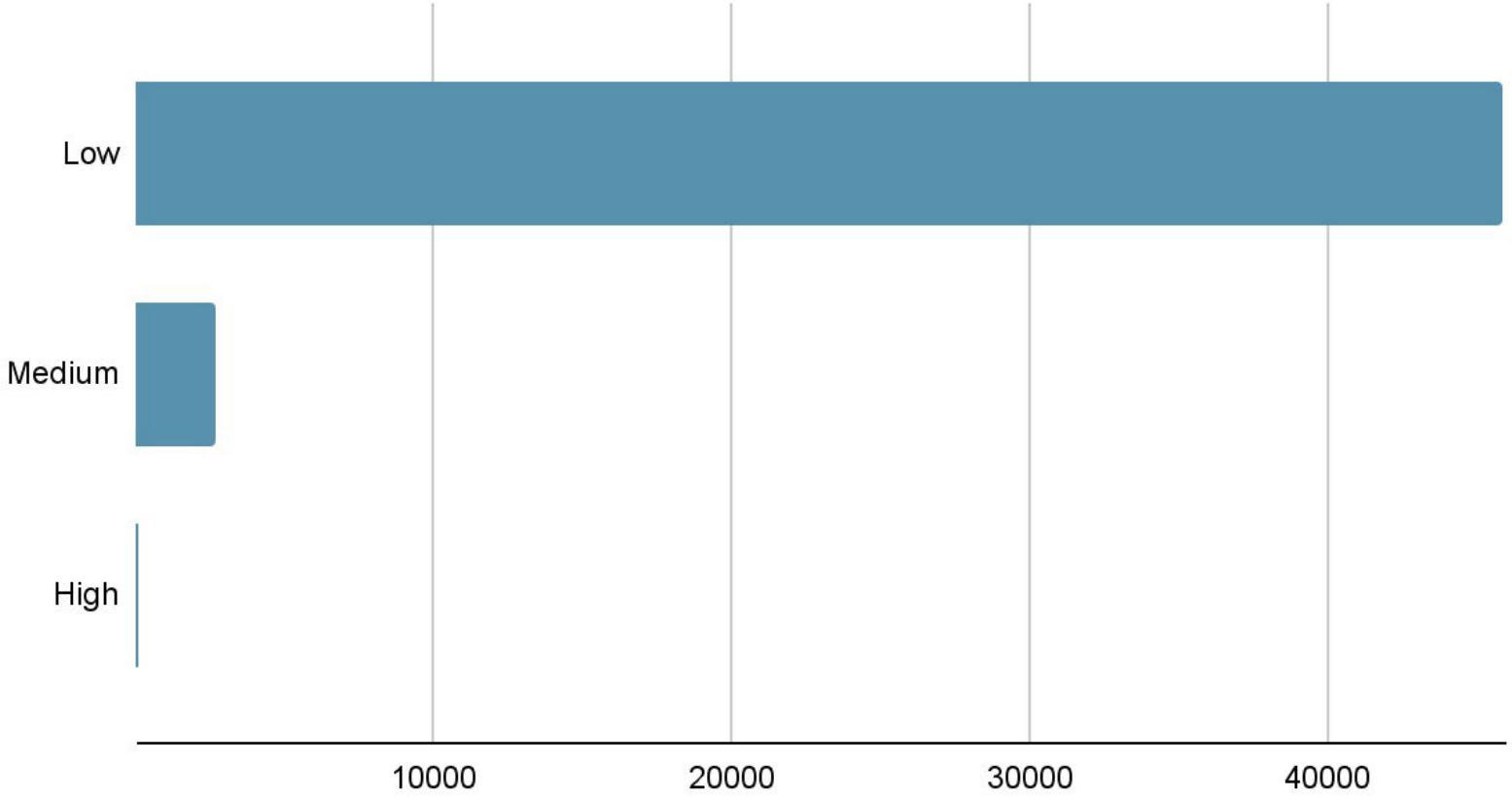
Exploratory Analysis

You can enter a subtitle
here if you need it

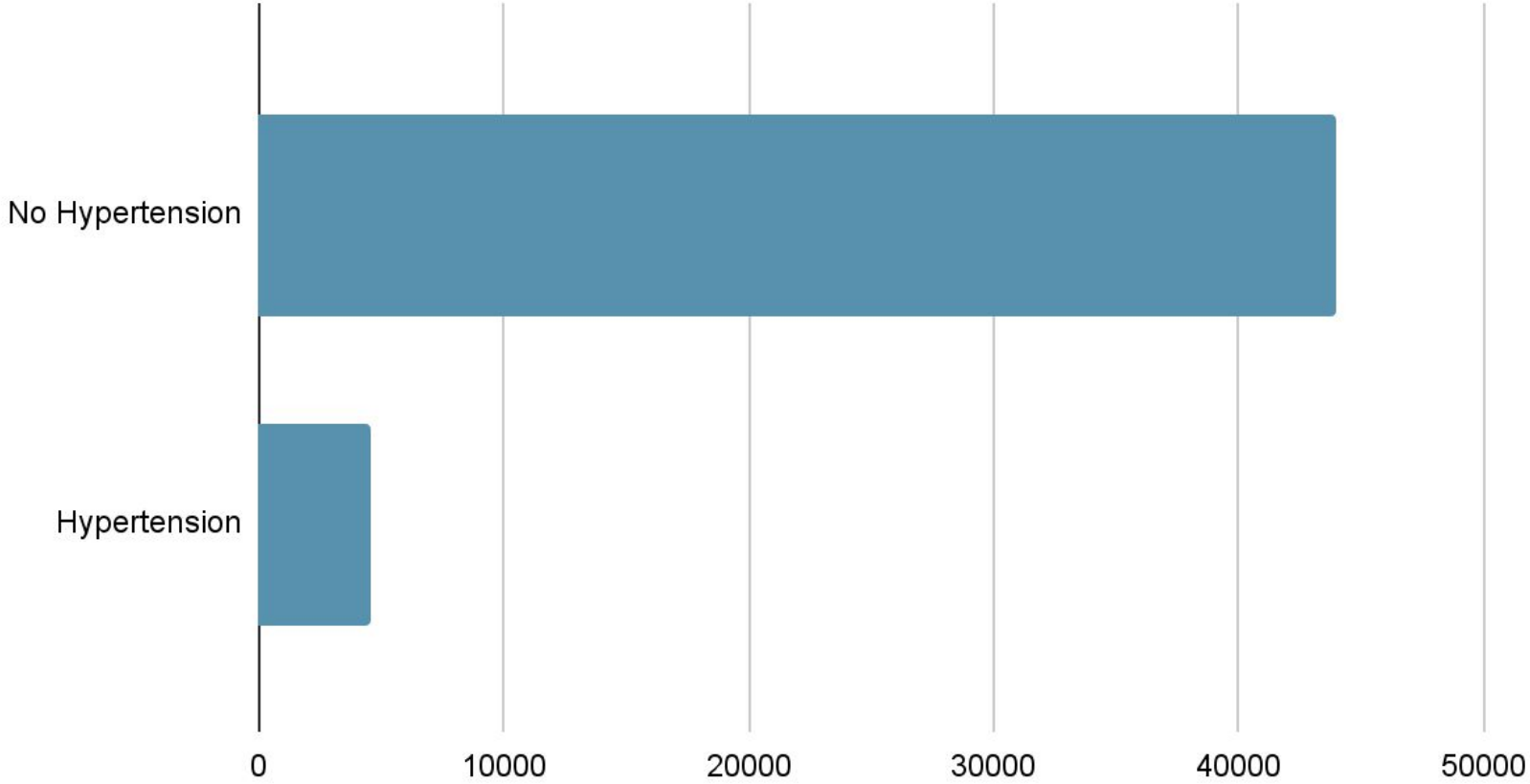
Smoking Status



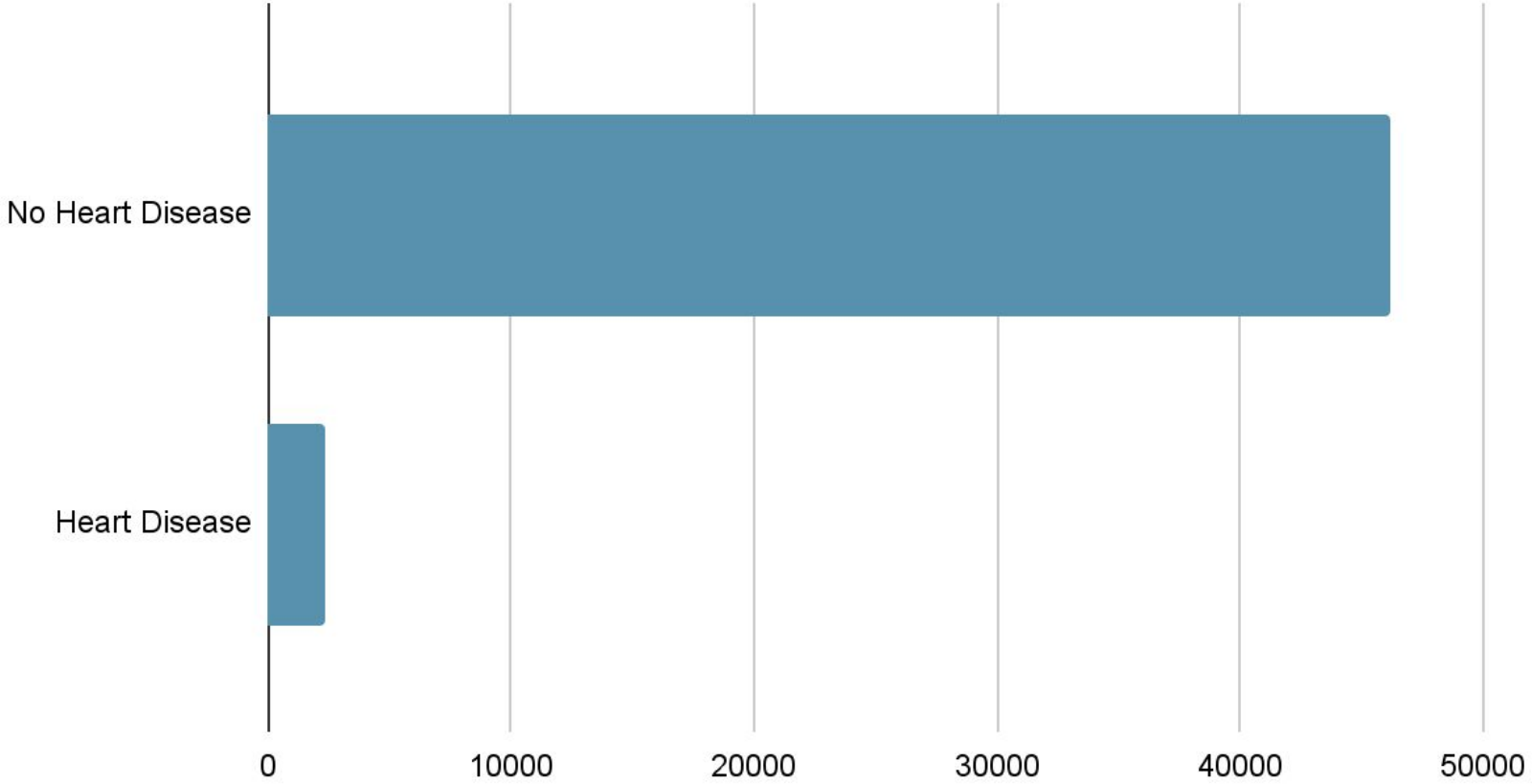
Stroke Risk



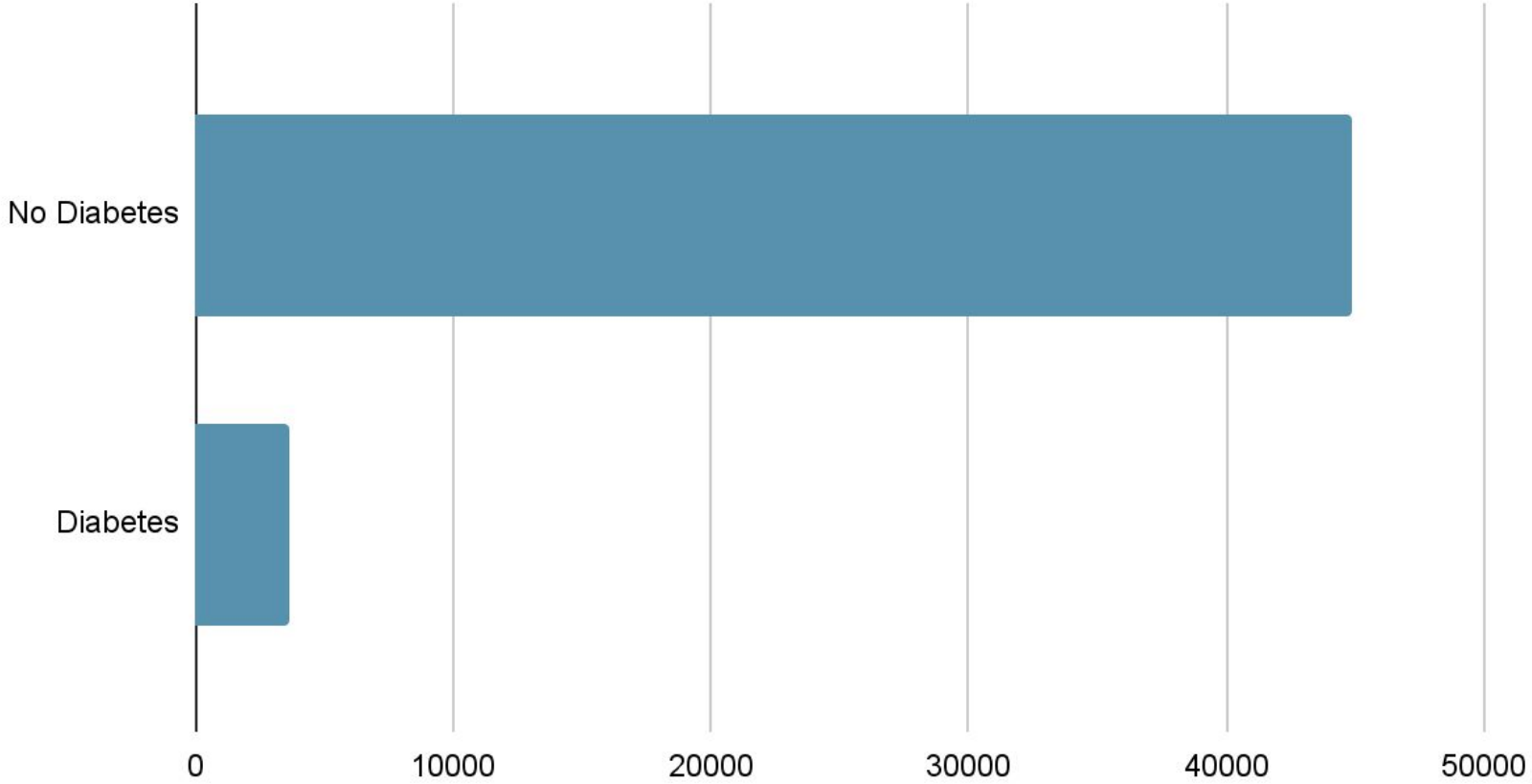
Hypertension



Heart Disease



Diabetes Status



04

Model Selection

Models	Accuracy	TP	FN
Baseline	.979	N/A	N/A
Logistic Regression	.980	7129	148
Gradient Boost	.987	7119	85
KNN	.973	7072	140
Decision Tree	.977	7091	127
Random Forest	.979	7129	147
Bagging	.985	7128	103

05

Recommendations

How can I prevent?

How can I prevent?

The best ways to prevent a stroke from happening are as follows:

- Consult a primary care physician to assess risk
- If you have any comorbidities, you need to get them under control
- Add healthy habits such as exercise and portion control
- Stay on top of medications
- Weight loss if BMI is in the obese range
- STOP SMOKING!!!!

Questions?