



Predicting Stroke Risk

- Exploring the Relationship between Demographic Factors and Health Indicators



Goal

Address challenges by developing
a **reliable stroke prediction model**:

- Provide personalized risk assessments
- Understand one's own susceptibility to stroke
- Take proactive steps to reduce one's risk



Data Collection

The dataset was collected from
Kaggle Playground Competition:

- Predicts whether a patient is likely to have a stroke based on the input parameters
- Consists 12 features



+ Data Features



id

Unique identifier for each individual

 gender

Gender of the individual
(Male or Female)



age

Age of the individual



bmi

Body mass index (BMI)
of the individual



hypertension

Whether the individual
has high blood pressure
(Yes=1, No=0)



heart_disease

Whether the individual has a
heart disease
(Yes=1, No=0)



ever_married

Whether the individual is
married
(Yes or No)



smoking_status

Smoking status of the
individual



work_type

Type of work the
individual is engaged in
(i.e. Private, Self-
employed, etc.)



residence_type

Type of residence of the
individual
(Urban or Rural)



avg_glucose_level

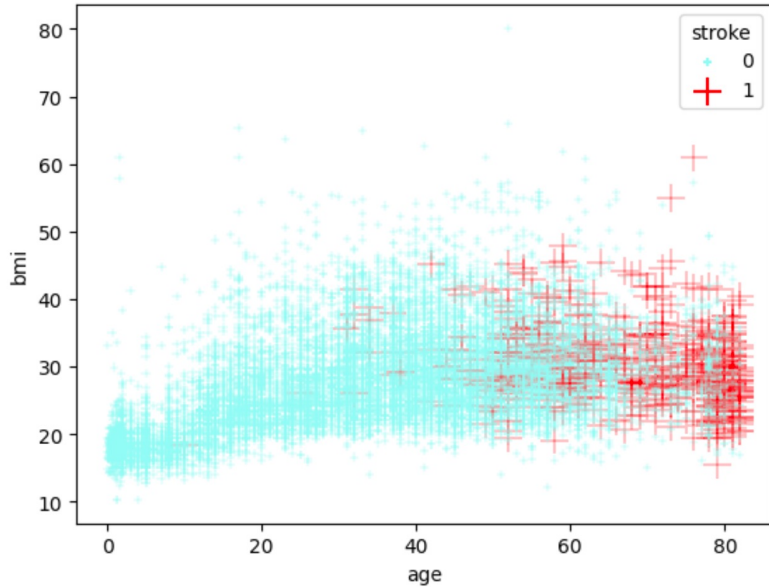
Average glucose level in the
individual's blood



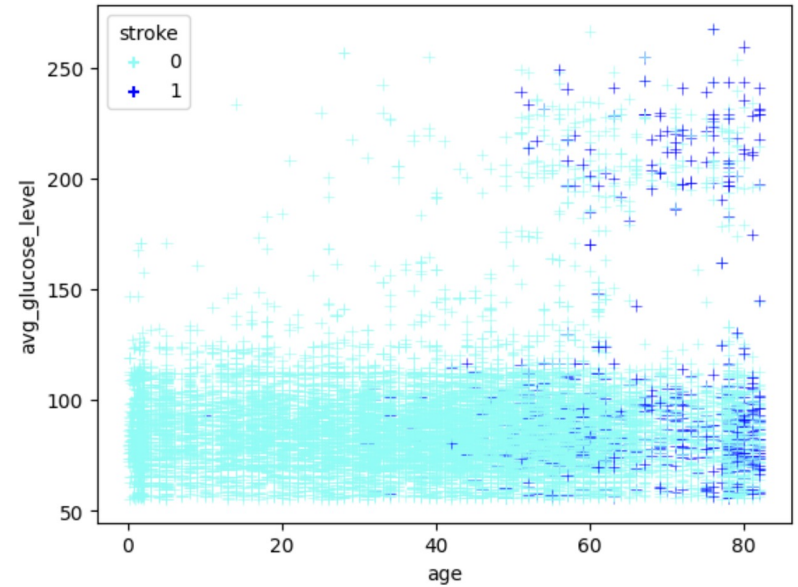
stroke

Whether the individual has
had a stroke
(Yes=1, No=0)

Visualization Process



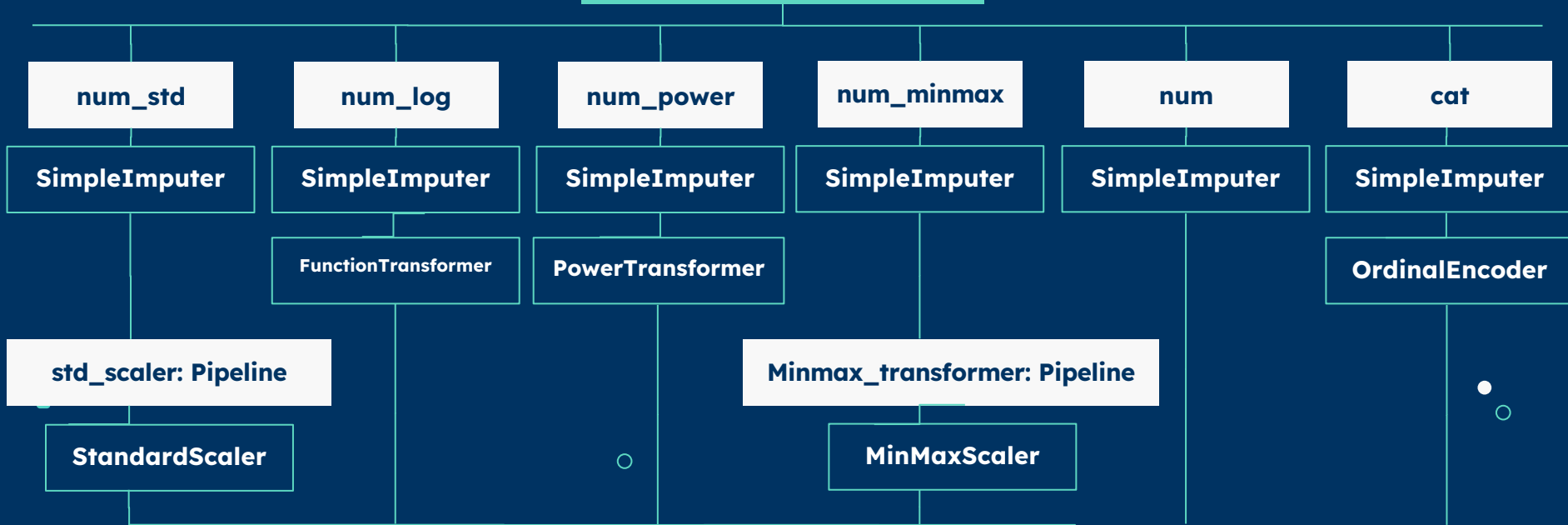
Highest correlation between age and stroke



avg_glucose_level separating into two groups: below 125 and above 180

Building Pipeline

ColumnTransformer





Results



• **Limitation & Suggestion**

References

[1] <https://slidesgo.com/>

[2] <https://www.kaggle.com/competitions/playground-series-s3e2/>

[3] H.-K. Wang et al., “Smoking paradox in stroke survivors? - aha/ASA journals,” Smoking Paradox in Stroke Survivors?, <https://www.ahajournals.org/doi/pdf/10.1161/STROKEAHA.119.027012> (accessed Jun. 30, 2023).

[4] “Diabetes tests,” Centers for Disease Control and Prevention, <https://www.cdc.gov/diabetes/basics/getting-tested.html> (accessed Jun. 30, 2023).

[5] “Stroke,” Stroke | ADA, <https://diabetes.org/diabetes/stroke#:~:text=If%20you%20have%20diabetes%2C%20your,risk%20of%20getting%20a%20stroke> (accessed Jun. 30, 2023).

[6] M. Tobias Kurth, “Body mass index and the risk of stroke in men,” Archives of Internal Medicine, <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/754810> (accessed Jun. 30, 2023).