STROKE RISK PREDICTOR

FOR BASIC HEALTH SCREENING

PROJECT AIM

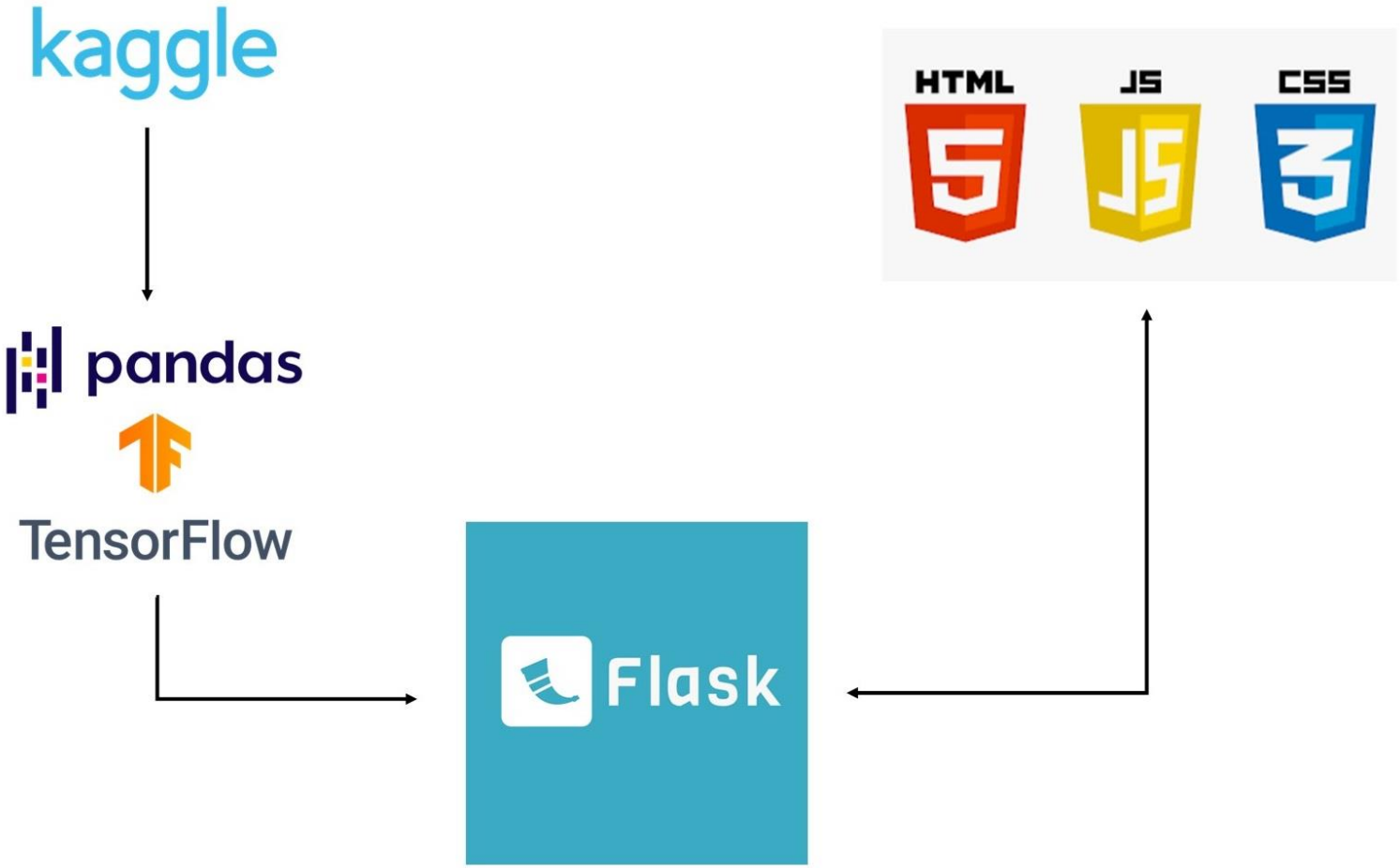
Design a stroke prediction web app that:

- accepts user input of demographic and medical information
- generates a stroke risk classification using ML model
- can be used in a basic health screening setting
- allows the user to save results for further follow-up

APP BENEFITS

- Reach communities that do not have regular access to healthcare services
- Encourage individuals to follow up with their doctor and take better care of their health
- Enable provision of targeted health services to individuals who may otherwise get missed

PROJECT MAP

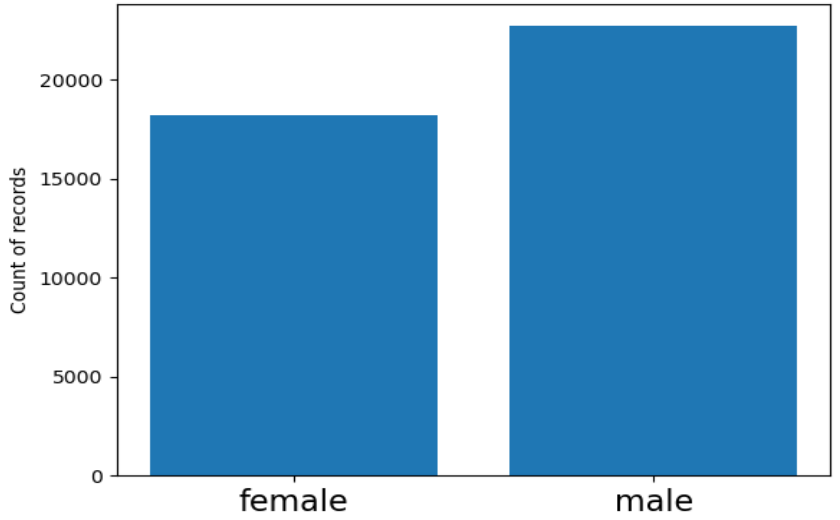


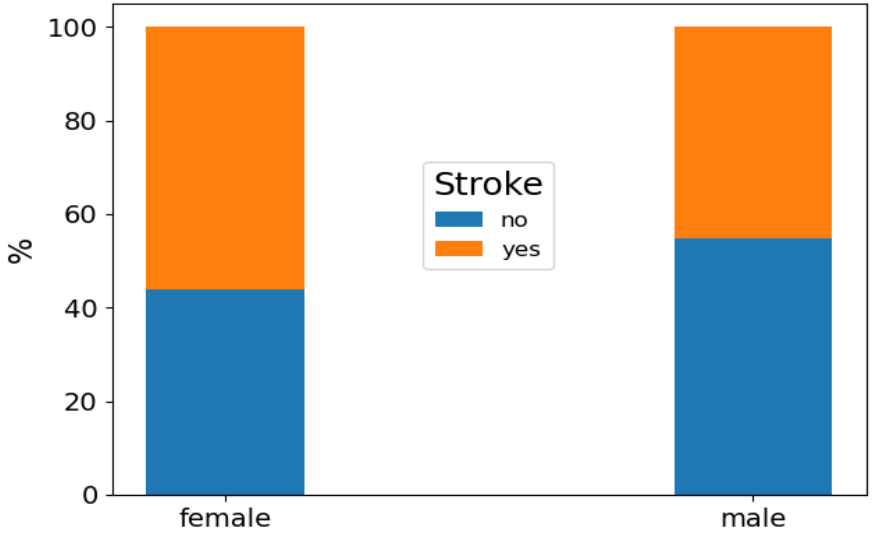
DATA

Clean stroke dataset obtained from Kaggle

- all features already numerically coded
- three unhelpful features and any null values removed
- seven features retained
- target variable - had a stroke (1) or not (0)
- 40,907 total records

DATA AT A GLANCE





MACHINE LEARNING MODEL

- Sequential model built using TensorFlow and Keras
- Data scaled using Standard Scaler (mean and SD)
- Model trained on 75% of data (~30,680 records)
- Model tested on 25% of data (~10,227 records)

MACHINE LEARNING MODEL – cont'd

- Model optimized over 8 iterations to achieve:
  - Accuracy of 96.7%
  - Loss of 0.09
- Final model consists of:
  - Four hidden layers – relu activation function
  - One output layer – sigmoid activation function for binary output
  - 8,956 total parameters

MODEL IMPLEMENTATION

Model pickled and loaded in Flask

- POST route:

  receives, scales, and formats user input

- GET route:

  feeds input into model, and generates and returns prediction

USER INTERFACE

- HTML and CSS used to:
  - create web form to accept user input
  - display risk prediction
- JavaScript (fetch and d3) used to:
  - send user input to Flask
  - retrieve risk prediction
  - download results as a CSV

APP DEMONSTRATION

VISIT MY REPO

For more information, visit my repo at

https://github.com/anna2023471/stroke_predictor