Week5: Cloud and API deployment

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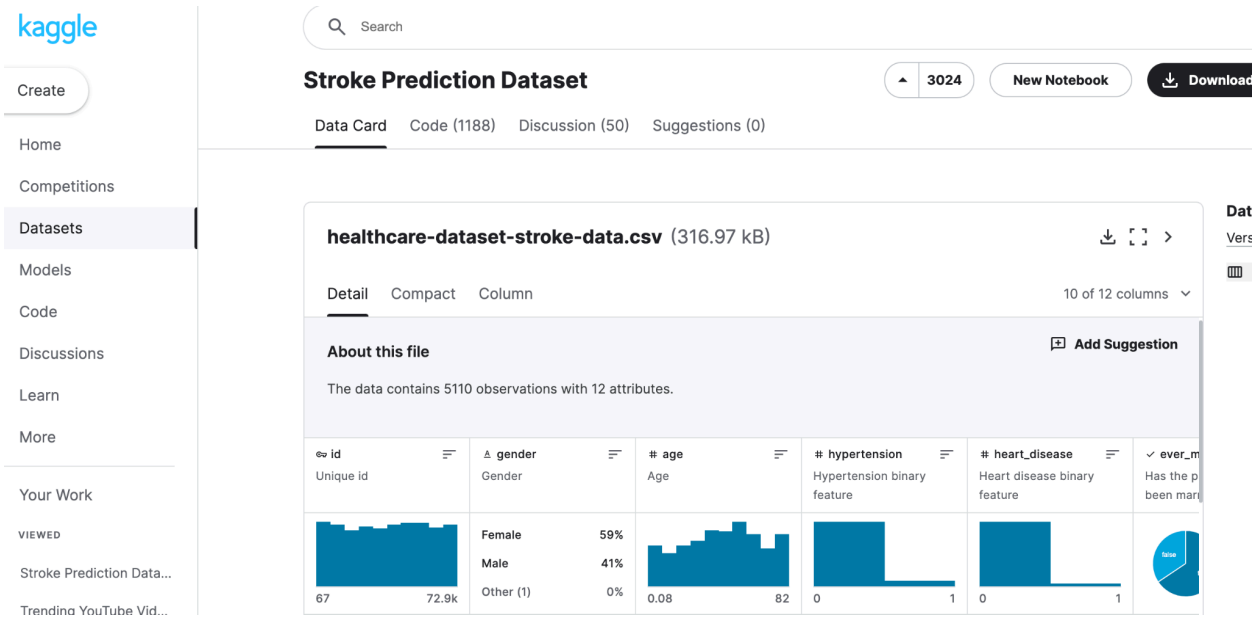
Steps of Deployment:

First, I selected the Stroke Prediction Dataset and downloaded it form Kaggle



I loaded the file into my IDE and encoded the categorical columns:

```
label_encoders = {}
categorical_columns = ['gender', 'ever_married', 'work_type', 'Residence_type', 'smoking_status']

for col in categorical_columns:
    le = LabelEncoder()
    df[col] = le.fit_transform(df[col])
    label_encoders[col] = le
```

Then, I trained the model.

```
X_train, X_test, y_train, y_test = train_test_split(x, y, test_size=0.2, random_state=42)
```

```
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_test = scaler.transform(X_test)
```

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```
model = RandomForestClassifier(random_state=42)
model.fit(X_train, y_train)
```

Then, I saved the model as a pickle file.

```
pickle.dump(model,open('model.pkl','wb'))
```

Then, I created a python file to deploy the model to flask.

Week4 > app.py > predict

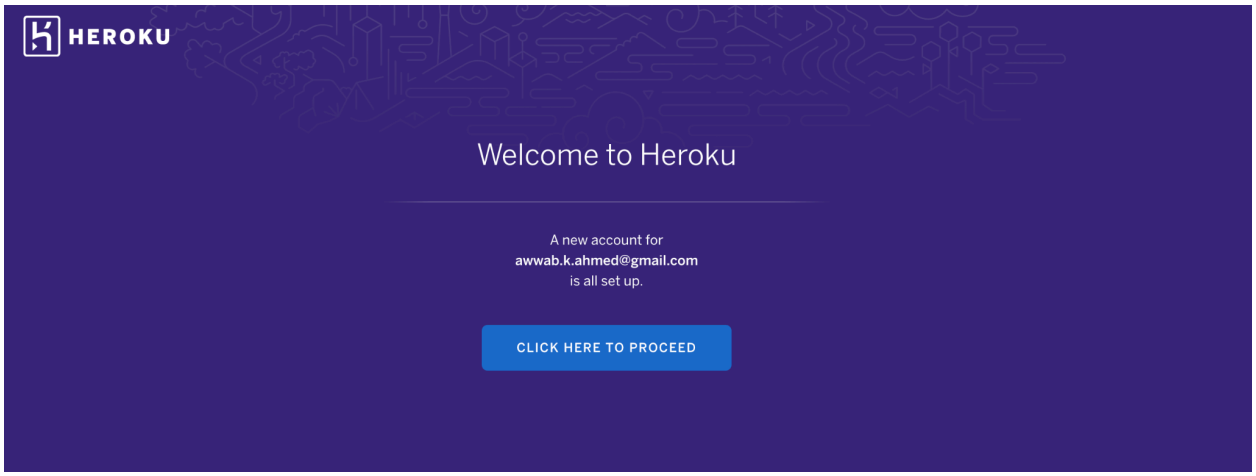
```
1  import numpy as np
2  from flask import Flask, request,render_template
3  import pickle
4
5  app = Flask(__name__)
6  m (variable) app: Flask 'model.pkl', 'rb'))
7
8  @app.route('/')
9  def home():
10     return render_template('index.html')
11
12 @app.route('/predict',methods=['POST'])
13 def predict():
14     int_features = [int(float(x)) for x in request.form.values()]
15     final_features = [np.array(int_features)]
16     prediction = model.predict(final_features)
17
18     return render_template('index.html', prediction_text='Is this patient likely to get a stroke?: {}'.format(prediction))
19
20 if __name__ == "__main__":
21     app.run(debug=True)
```

I also created the webpage in an index.html file.

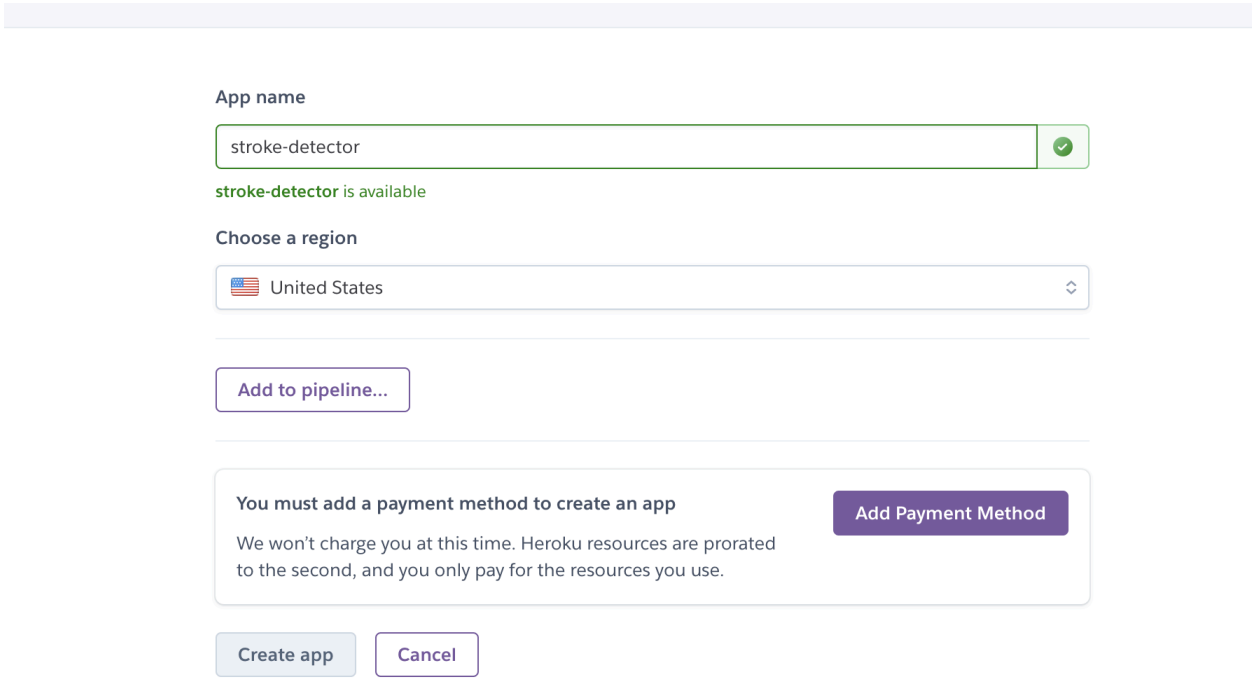
Week4 > templates > index.html > html > body > div.login > form > input

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>ML API</title>
</head>
<body>
    <div class="login">
        <h1>Predict Stroke</h1>
        <form action="{{url_for('predict')}}" method="post">
            <input type="text" name="id" placeholder="Enter '0' for ID">
            <br>
            <input type="text" name="gender" placeholder="Enter '0' for male or '1' for female">
            <br>
            <input type="text" name="age">
            <br>
            <input type="text" name="hypertension" placeholder="Enter '0' for no and '1' for yes">
            <br>
            <input type="text" name="heart_disease" placeholder="Enter '0' for no and '1' for yes">
            <br>
            <input type="text" name="ever_married" placeholder="Enter 1 for 'Yes' or  0 for 'No'">
            <br>
            <input type="text" name="work_type" placeholder="Enter 1  for 'self-employed', 2 for 'private', or 3 for 'govt_job'">
            <br>
            <input type="text" name="Residence_type" placeholder="Enter 1 for 'urban' or 0 for 'rural'">
            <br>
            <input type="text" name="avg_glucose_level">
            <br>
            <input type="text" name="bmi">
            <br>
            <input type="text" name="smoking_status" placeholder="Enter 1 for 'never smoked', 2 for 'formerly smoked', 3 for 'smokes' or 4 for 'Unknown
```

Then, I created an account on Heroku.



Then, I created a new app called stroke-detector.



Then, I connected to my github repository with the following URL:

https://github.com/awwab-ahmed/DataGlacier/tree/main/Week4

Finally, I deployed the app and it was ready in a few minutes.