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Submitted through: https://github.com/AZHChen/weekfour-flask.git

I did the following step to finish this project:
1. Download static, template folders and put them into the project folder, which is DataGlacier on my computer
2. Select a dataset, Insurance.csv, 'Charges' column is the value needed to be predicted, and there are five features as Xs in this machine learning case.
3. In the model.py file, pre-processed the dataset, separate X, and y, fit them into the linear regression model then store the model into model.pkl file in the same folder.

```python
dataset = pd.read_csv('insurance.csv')
#dataset = pd.get_dummies(dataset,drop_first=True)

dataset = dataset.drop('region',axis=1)
X = dataset.drop('charges',axis=1)

#Converting words to integer values
def convert_to_int(word):
    word_dict = {'female':0, 'male':1, 'no':0, 'yes':1, 'southwest':0,
                 'southeast':1, 'northeast':2, 'northwest':3}
    return word_dict[word]

X['sex'] = X['sex'].apply(lambda x : convert_to_int(x))
X['smoker'] = X['smoker'].apply(lambda x : convert_to_int(x))
y = dataset['charges']
```
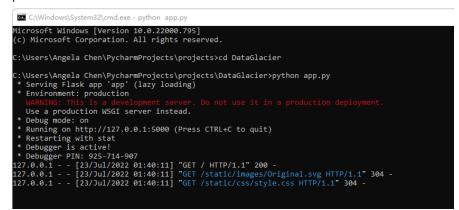
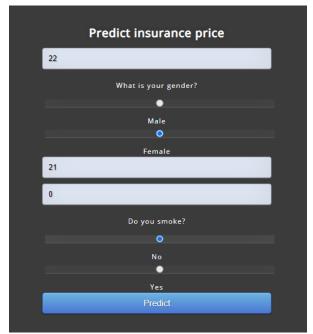4. Edit app.py file, edit index.html file in the template folder
   For index.html, for the 'sex' and 'smoker', change the input text function into radio, so that visitors can select their own options, and their inputs could be converted to the int values directly, otherwise, the input value might be hard to convert.
   The default font size is large, I further changed that as well

```html
<form action="{{ url_for('predict')}}"method="post">
    <input type="text" name="age" placeholder="Age" required="required" />
    <p style="font-size:10px;">What is your gender?</p>
    <div>
    <input type="radio" id="sex1" name="sex" value="0">
    <label for="sex1" style="font-size:8px;">Male</label>
    <input type="radio" id="sex2" name="sex" value="1">
    <label for="sex2" style="font-size:8px;">Female</label>
        </div>
    <input type="text" name="bmi" placeholder="BMI" required="required" />
    <input type="text" name="children" placeholder="How many children do you have" required="required" />
    <p style="font-size:10px;">Do you smoke?</p>

    <input type="radio" id="No" name="smoker" value="0">
    <label for="No" style="font-size:8px;">No</label>
    <input type="radio" id="Yes" name="smoker" value="1">
    <label for="Yes" style="font-size:8px;">Yes</label>


    <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
</form>
```

5. Save all files
6. Open cmd, and run the app.py file, copy the URL into browsers and do the prediction process

```
C:\Windows\System32\cmd.exe - python app.py
Microsoft Windows [Version 10.0.22000.795]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Angela Chen\PycharmProjects\projects>cd DataGlacier

C:\Users\Angela Chen\PycharmProjects\projects\DataGlacier>python app.py
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on
 * Running on http://127.0.0.1:5000 (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 925-714-907
127.0.0.1 - - [23/Jul/2022 01:40:11] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [23/Jul/2022 01:40:11] "GET /static/images/Original.svg HTTP/1.1" 304 -
127.0.0.1 - - [23/Jul/2022 01:40:11] "GET /static/css/style.css HTTP/1.1" 304 -
```

Predict insurance price

| 22 |

What is your gender?

Male

Female

| 21 |

| 0 |

Do you smoke?

No

Yes

Predict

Insurance should be $ 258.72

7. Then we could also see the predicted value in python, the result is the same to the prediction web

```
# Loading model to compare the results
model = pickle.load(open('model.pkl','rb'))
print(model.predict([[22, 1, 21,0,0]]))
```

```
model ×
"C:\Users\Angela Chen\PycharmProjects\projects
C:\Users\Angela Chen\PycharmProjects\projects\
  warnings.warn(
[258.7163937]
```