

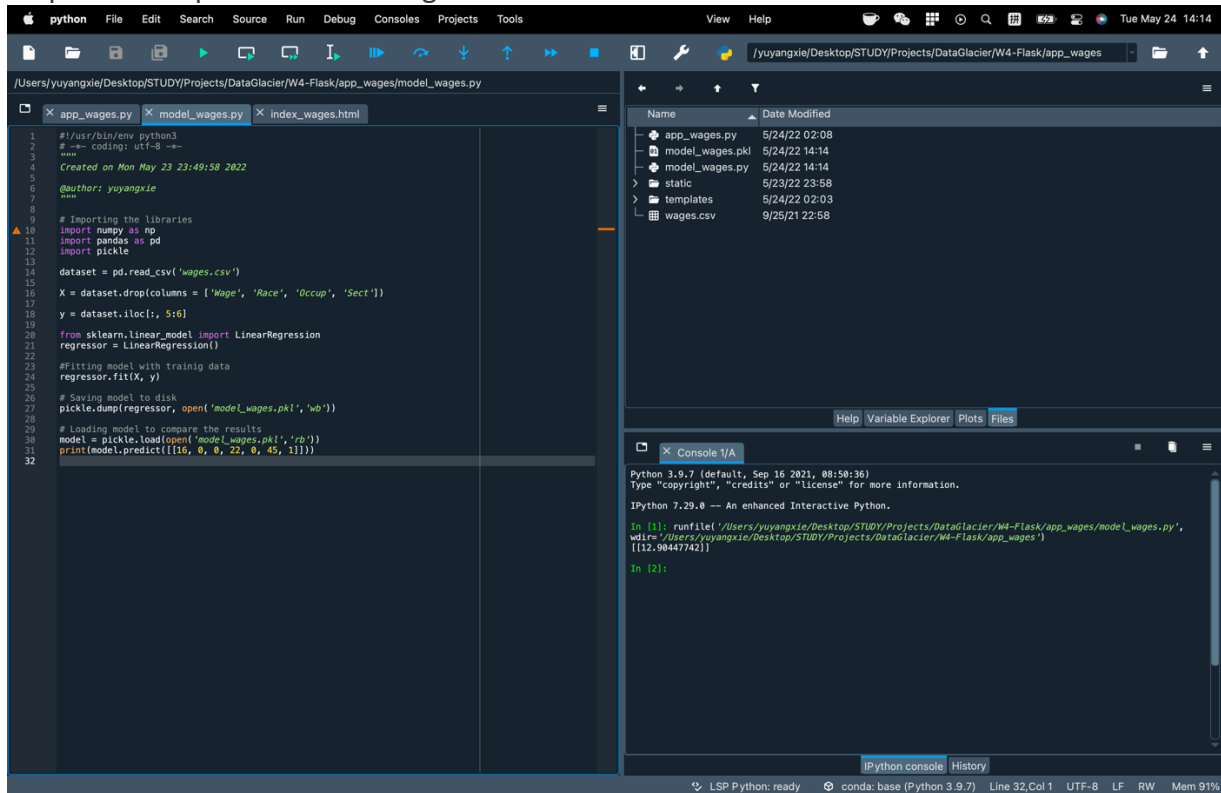
# Week4: Deployment on Flask

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## Step1: Write up the model fitting

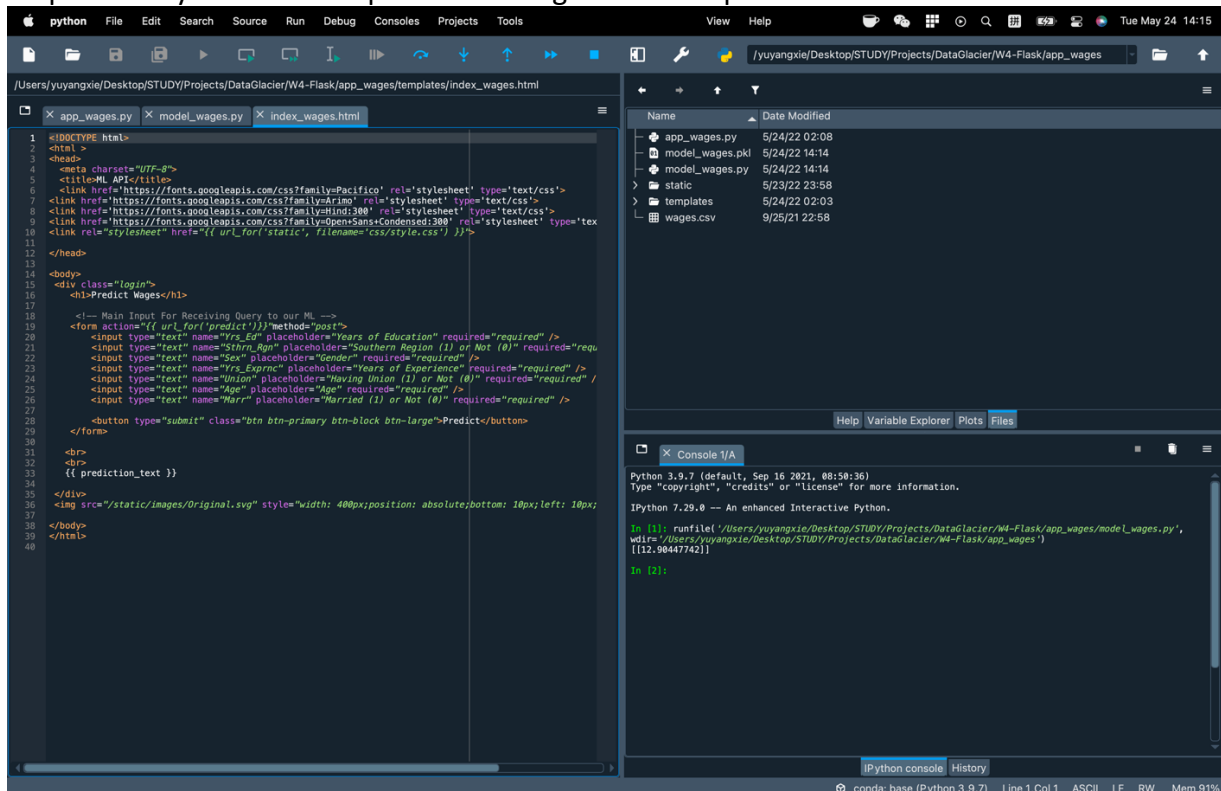


The screenshot shows the VS Code editor with the file `model_wages.py` open. The script performs the following steps:

- Imports `numpy`, `pandas`, and `pickle`.
- Loads the `wages.csv` dataset.
- Drops columns `Wage`, `Race`, `Occup`, and `Sect`.
- Creates a feature vector `X` and target variable `y`.
- Creates a `LinearRegression` model and fits it to the data.
- Saves the model to `model_wages.pkl`.
- Loads the saved model and prints the prediction for a specific input.

The IPython console shows the execution of the script, with the final output being the prediction for the input `[[16, 0, 22, 0, 45, 1]]`.

## Step2: Modify the html template according to model inputs



The screenshot shows the VS Code editor with the file `index_wages.html` open. The template is a web form for predicting wages based on various inputs. The form includes:

- A header section with a title and meta tags.
- A body section with a form containing several input fields:

- `Years of Education` (text input, required)
- `Southern Region (1) or Not (0)` (text input, required)
- `Gender` (text input, required)
- `Years of Experience` (text input, required)
- `Having Union (1) or Not (0)` (text input, required)
- `Age` (text input, required)
- `Married (1) or Not (0)` (text input, required)

A submit button labeled "Predict" is also present. The form is styled with a light blue background and rounded corners.

### Step3: Write up the application based on model fitting and html template

The screenshot shows a code editor with three files: `app_wages.py`, `model_wages.pkl`, and `index_wages.html`. The `app_wages.py` file contains the following code:

```
1 #!/usr/bin/env python3
2 # -*- coding: utf-8 -*-
3 """
4 Created on Mon May 23 23:49:02 2022
5
6 @author: yuyangxie
7 """
8
9 import numpy as np
10 from flask import Flask, request, render_template
11 import pickle
12
13 app = Flask(__name__)
14 model = pickle.load(open('model_wages.pkl', 'rb'))
15
16 @app.route('/')
17 def home():
18     return render_template('index_wages.html')
19
20 @app.route('/predict', methods=['POST'])
21 def predict():
22     """
23     For rendering results on HTML GUI
24     """
25     int_features = [int(x) for x in request.form.values()]
26     final_features = np.array(int_features)
27     prediction = model.predict(final_features)
28     output = np.round(prediction[0], 2)
29
30     return render_template('index_wages.html', prediction_text='Wage should be $ {}'.format(output))
31
32 if __name__ == '__main__':
33     app.run(debug=True)
```

The right sidebar shows the file explorer with the following files and their modification dates:

Name	Date Modified
app_wages.py	5/24/22 02:08
model_wages.pkl	5/24/22 14:14
model_wages.py	5/24/22 14:14
static	5/23/22 23:58
templates	5/24/22 02:03
wages.csv	9/25/21 22:58

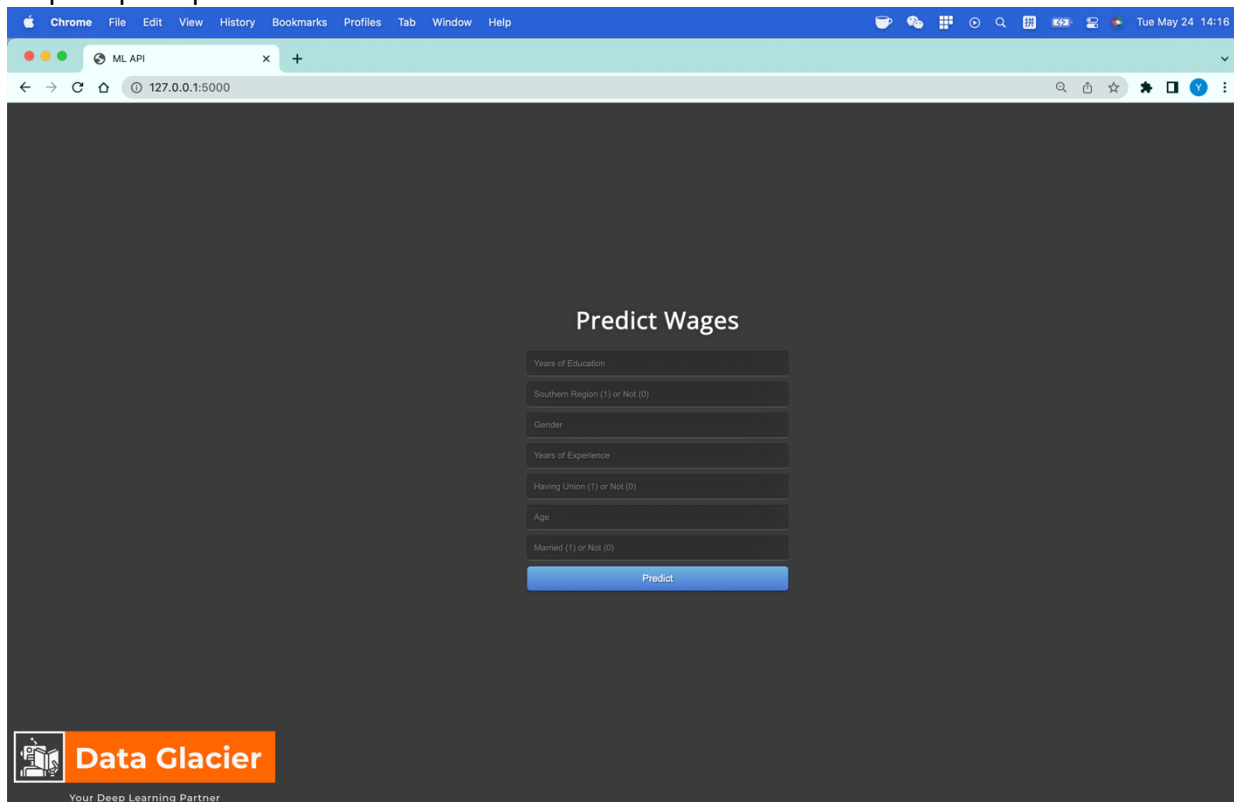
The bottom console shows the output of the application:

```
Python 3.9.7 (default, Sep 16 2021, 00:50:36)
Type "copyright", "credits" or "license()" for more information.

IPython 7.29.0 -- An enhanced Interactive Python.
>>>
In [1]: runfile('/Users/yuyangxie/Desktop/STUDY/Projects/DataGlacier/W4-Flask/app_wages/model_wages.py',
wdir='/Users/yuyangxie/Desktop/STUDY/Projects/DataGlacier/W4-Flask/app_wages')
[[12.90447742]]

In [2]: runfile('/Users/yuyangxie/Desktop/STUDY/Projects/DataGlacier/W4-Flask/app_wages/app_wages.py', wdir=
/Users/yuyangxie/Desktop/STUDY/Projects/DataGlacier/W4-Flask/app_wages')
* Serving Flask app "app_wages" (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 watchdog (fsevents)
* Debugger is active!
* Debugger PIN: 100-664-417
```

### Step4: Open up the local address to review



## Step5: Try the predicting function

Chrome File Edit View History Bookmarks Profiles Tab Window Help

ML API x +

127.0.0.1:5000/predict

### Predict Wages

Years of Education

Southern Region (1) or Not (0)

Gender

Years of Experience


Having Union (1) or Not (0)

Age

Marned (1) or Not (0)

Predict

Wage should be \$ [12.9] k

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