Midterm Project Report
Advanced Computer Programming

Actual Weather Web Scrapping

Base on Location Input

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Chapter 1 Introduction

1.1 Github

1) **Personal Github Account**: niican
2) **Group Github Account**: -
3) **Group Project Repository**: Collage-Dropouts
4) **List of submitted file**s:
   o **Actual weather**.py

1.2 Topic

Build a web scrapper to extract actual weather information base on location input from web of http://weather.com/

1.3 Project Overview

The code is provided some library, such as beautifulsoup4, requests, geopy. in the program we need to input place variable with places that we want to know the actual weather information there, and the code will extract some simple information about actual weather condition

Chapter 2 Implementation

2.1 Function : get_lat_long

2.1.1 Description:

This function retrieves the latitude and longitude coordinates of a given location using the Nominatim geocoding service (geopy library).

2.1.2 Parameters:

location_name (str): The name of the location for which coordinates are to be retrieved.

2.1.3 Returns:

latitude (float): The latitude coordinate of the location.

longitude (float): The longitude coordinate of the location.

2.2 Function : extract_numeric_temperature

2.2.1 Description:

This function extracts the numeric temperature value from a temperature string, then the value data type change into integer, so it can convert to celcius, because the actual data is Fahrenheit.

2.2.2 Parameters:

temperature_string (str): The temperature string to be processed.

2.2.3 Returns:

numeric_temperature (int/float): The numeric value of the temperature.

2.3 Function : convert_fahrenheit_to_celcius

2.3.1 Description:

This function converts a temperature value from Fahrenheit to Celsius.

2.3.2 Parameters:

fahrenheit (float): The temperature value in Fahrenheit.

2.3.3 Returns:

celsius (int): The temperature value converted to Celsius.

2.4 Function : get_weather

2.4.1 Description:

This function fetches the weather information (temperature, current condition, day temperature, and night temperature) for a given latitude and longitude using web scraping. The latitude and longitude data will input into f string function of weather website, and then all data can be extract.

2.4.2 Parameters:

latitude (float): The latitude coordinate of the location.

longitude (float): The longitude coordinate of the location.

2.4.3 Returns:

temperature (int): The current temperature in Celsius.

current_condition (str): The current weather condition.

day_temperature (int): The day temperature forecasted in Celsius.

night_temperature (int): The night temperature forecasted in Celsius.

2.5 Function : main

2.5.1 Description:

This function serves as the entry point of the program, obtaining weather information for a specified location and printing it to the console. In this function, we define what paces that we want to find out the actual weather condition.

2.5.2 Parameters:

None

2.5.3 Returns:

None

Chapter 3 Results

3.1 Result 1

With location "asia university, Taiwan"

```python
def main():
    location_name = "Asia University, Taiwan"
    latitude, longitude = get_lat_long(location_name)
    if latitude is not None and longitude is not None:
```
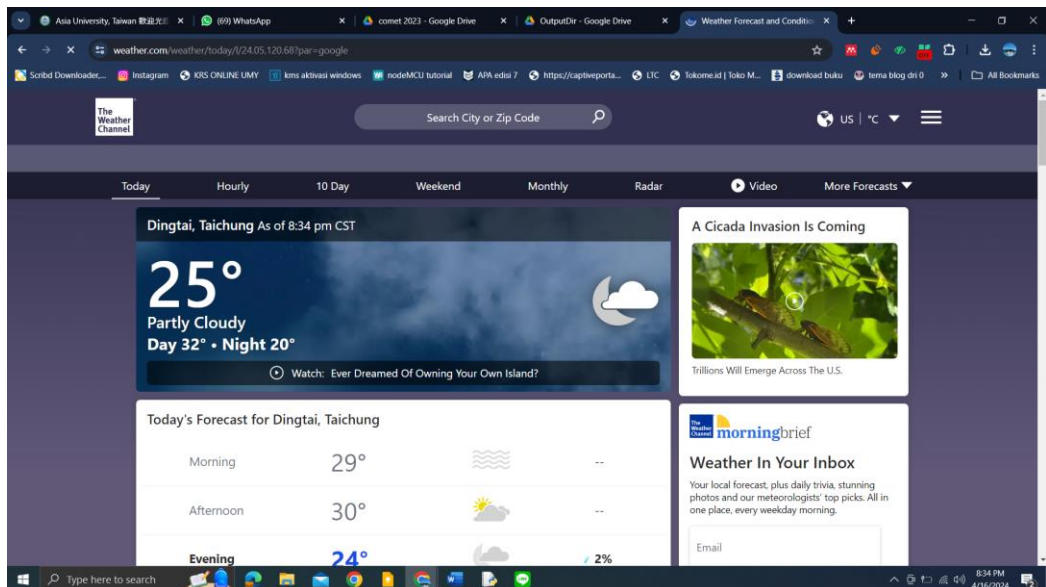

Actual information from web

3.2 Result 2

With location "yogyakarta, indonesia"

```python
def main():
    location_name = "Yogyakarta, Indonesia"
    latitude, longitude = get_lat_long(location_name)
    if latitude is not None and longitude is not None:
##          print(f"Latitude: {latitude}, Longitude: {longitude}")
```

```
IDLE Shell 3.11.4                                              —    □    ×

File  Edit  Shell  Debug  Options  Window  Help
    Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (
    AMD64)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
>>>
    = RESTART: D:\UMY\double degree taiwan\course\8th smster\advance comp prog\weath
    er scrap.py
    Weather condition: 26°C
    Current condition: Partly Cloudy
    Day Temperature: 30°C
    Night Temperature: 23°C
>>>
```
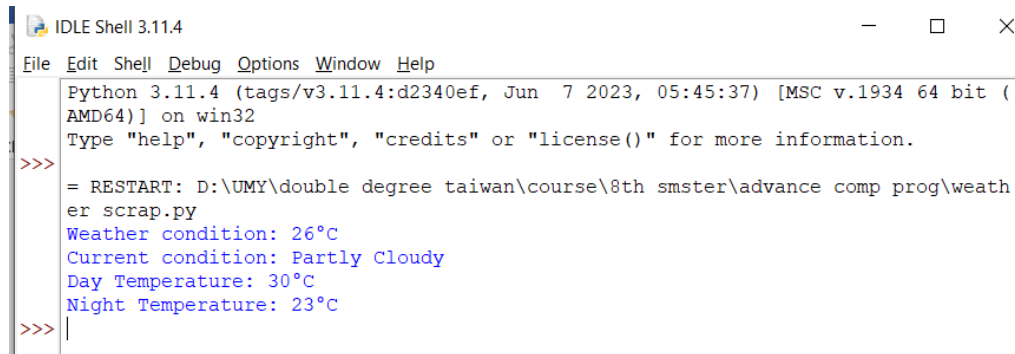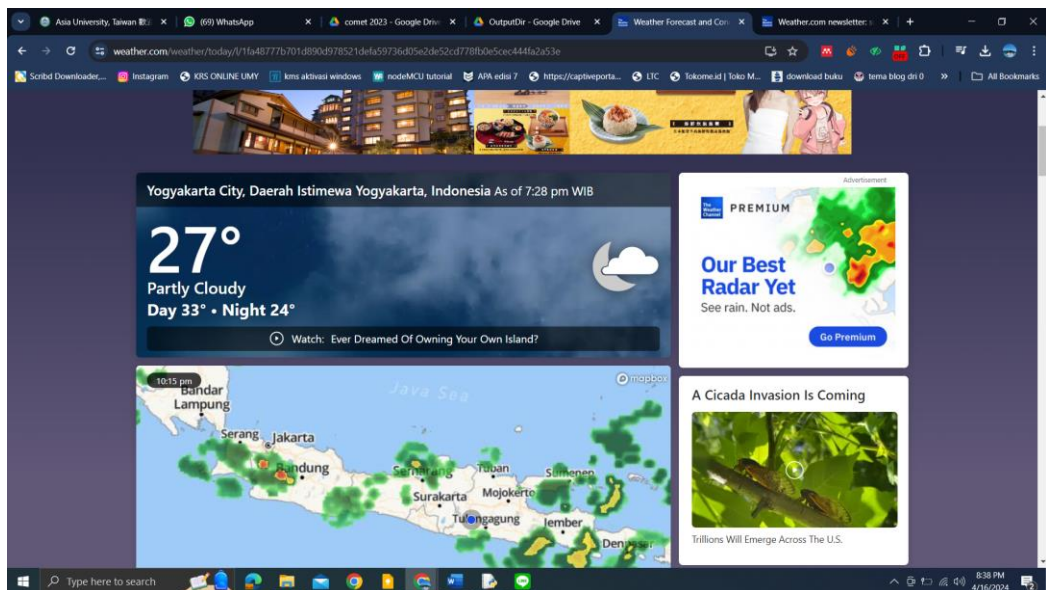
Actual information from web

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Chapter 4 Conclusions

This program uses the request and beautifullsoup4 libraries to scrape the weather.com web. In this project, scrapping is carried out on weather conditions at certain locations, where location variables are written manually in the program. The web URL requires location latitude and sky data to get to information about that location, so the Geopy library is used to extract sky and latitude data for a location and insert it into the weather.com url, and then the program will extract some of the latest weather information from that location. This project can be developed to be better to extract more information such as today's forecast and others, besides that the output display can also be enhanced by creating a GUI.