Midterm Project

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Description: This website displays weather information and forecast of a user-specified city. Not all cities are accessible for their weather information, however most major cities are accessible. The data is extracted by using AJAX and python where AJAX calls on the python files while the python requests JSON formatted data from a web service.

The web service that I am using is from <https://www.metaweather.com/> using its address: <https://www.metaweather.com/api/>

Code:

Start.html

<!DOCTYPE html>  
<html lang="en">  
<head>  
 <meta charset="UTF-8">  
 <title>Weather in Major City</title>  
</head>  
<script>  
  
var myReq = new XMLHttpRequest();  
  
function searchWeather(value, event){  
 var thePage;  
 var theURL;  
 var keyCode = event.keyCode;  
  
 if(keyCode == "13"){  
 thePage = "searchMetaWeather.py";  
 theURL = thePage + "?city=" + value;  
  
 myReq.onreadystatechange = theHTTPResponse2;  
 }  
 else{  
 thePage = "searchCity.py";  
 theURL = thePage + "?city=" + value;  
 myReq.onreadystatechange = theHTTPResponse;  
 }  
  
 myRand = parseInt(Math.random()\*999999999999999);  
  
 theURL = theURL + "&rand=" + myRand;  
  
 myReq.open("GET", theURL, true);  
  
 myReq.send(null);  
}  
  
function theHTTPResponse(){  
 if(myReq.readyState == 4 && myReq.status == 200){  
 document.getElementById("PossibleInputs").innerHTML = myReq.responseText;  
 }  
}  
  
function theHTTPResponse2(){  
 var out = "";  
  
 if(myReq.readyState == 4 && myReq.status == 200){  
  
 if(myReq.responseText.length <= 1000){  
  
 out = "Output Not Available";  
  
 }  
 else{  
 //Output Format  
 var JSONObj = JSON.parse(myReq.responseText);  
  
 var name = JSONObj.title;  
 var state = JSONObj.parent.title;  
 var timezone = JSONObj.timezone;  
 out += "<h2>" + name + ", " + state + " - " + timezone + "</h2>";  
  
 var trim = JSONObj.consolidated\_weather;  
  
 //Today's Weather  
 out += "<h3>Today's weather</h3><br>";  
  
 var today = trim[0].applicable\_date;  
 out += "<strong>Today's Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[0].weather\_state\_name;  
  
 var currentTemp = trim[0].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[0].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[0].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[0].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[0].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 //Next Day  
 out += "<h3> Weather Forecast </h3><br>";  
  
 var today = trim[1].applicable\_date;  
 out += "<strong>Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[1].weather\_state\_name;  
  
 var currentTemp = trim[1].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[1].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[1].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[1].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[1].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 //Next Day + 1  
 var today = trim[2].applicable\_date;  
 out += "<strong>Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[2].weather\_state\_name;  
  
 var currentTemp = trim[2].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[2].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[2].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[2].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[2].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 //Next Day + 2  
 var today = trim[3].applicable\_date;  
 out += "<strong>Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[3].weather\_state\_name;  
  
 var currentTemp = trim[3].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[3].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[3].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[3].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[3].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 //Next Day + 3  
 var today = trim[4].applicable\_date;  
 out += "<strong>Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[4].weather\_state\_name;  
  
 var currentTemp = trim[4].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[4].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[4].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[4].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[4].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 //Next Day + 4  
 var today = trim[5].applicable\_date;  
 out += "<strong>Date: </strong>" + today + "<br>";  
  
 var weatherstate = trim[5].weather\_state\_name;  
  
 var currentTemp = trim[5].the\_temp;//Temp In Celsius  
 currentTemp = currentTemp.toFixed(2);  
 var minTemp = trim[5].min\_temp;  
 minTemp = minTemp.toFixed(2);  
 var maxTemp = trim[5].max\_temp;  
 maxTemp = maxTemp.toFixed(2);  
  
 var windSpeed = trim[5].wind\_speed;//Wind in MPH  
 windSpeed = windSpeed.toFixed(2);  
  
 var humidity = trim[5].humidity;//In Percentage  
  
 out += "<strong>Weather State: </strong>" + weatherstate + "<br>";  
 out += "<strong>Current Temperature: </strong>" + currentTemp + " C<br>";  
 out += "<strong>Minimum Temperature: </strong>" + minTemp + " C<br>";  
 out += "<strong>Maximum Temperature: </strong>" + maxTemp + " C<br>";  
 out += "<strong>Wind Speed: </strong>" + windSpeed + "mph<br>";  
 out += "<strong>Humidity: </strong>" + humidity + "%<br>";  
  
 out += "<br><br>";  
  
 out += "Response Text:<br>"+myReq.responseText + "<br >";  
 }  
 }  
  
 document.getElementById("weatherValue").innerHTML = out;  
}  
  
</script>  
  
<body>  
<h1>Weather in Most Major City</h1><br/>  
  
Enter Name of Major City: <input type="text" id="cityname"  
 onkeyup="searchWeather(this.value, event)"/>  
<br/><br/>  
  
Possible Inputs: <span id="PossibleInputs"></span><br>  
\*Please wait for the possible inputs to load\*<br/>  
\*Enter at least three characters to minimize search time\*<br/>  
  
<br/><br/>  
  
Results: <br/>  
<span id="weatherValue"></span>  
  
</body>  
</html>

searchCity.py

#!/Python27/Python  
  
import cgi  
import requests  
  
print("Content\_type: text/xml\n\n")  
  
f = cgi.FieldStorage()  
  
city = f.getvalue("city")  
  
matches = "<br>"  
  
temp = requests.get("https://www.metaweather.com/api/location/search/?query=" + city)  
jsonResponse = temp.json()  
  
for value in jsonResponse:  
 matches += value[u'title'] + "<br>"  
  
print(matches)

searchMetaWeather.py

#!/Python27/python  
  
import cgi  
import requests  
  
print("Content-type: text/txt\n\n")  
  
#city and ID ordered by index number  
cityList = ["San Francisco", "Los Angeles", "Hong Kong", "Seoul", "Tokyo", "London", "New York"]  
cityID = [2487956, 2442047, 2165352, 1132599, 1118370, 44418, 2459115]  
  
f = cgi.FieldStorage()  
city = f.getvalue('city')  
  
send = " "  
  
if city in cityList:  
 index = cityList.index(city)  
  
 r = requests.get("https://www.metaweather.com/api/location/" + str(cityID[index]))  
  
 send += r.text  
else:  
 temp = requests.get("https://www.metaweather.com/api/location/search/?query=" + city)  
 jsonResponse = temp.json()  
  
 if len(jsonResponse) == 1:  
 ID = jsonResponse[0][u'woeid']  
  
 r = requests.get("https://www.metaweather.com/api/location/" + str(ID))  
  
 send += r.text  
  
print(send)