Homework #2: Create a Weather ReSTful WebService

Due: TUESDAY , FEB 28 2017 @ 11:55pm

This assignment will ask you to develop Restful WebService to host weather information. This homework assignment will require that you add REST API endpoints to your application, to accept the input data as input parameters to either a GET or POST operation, that will then return JSON result in plain-text to the user.

Attached is the daily weather data for cincinnati for last 3 years. Please look into daily.csv. It has 3 columns ,

1. DATE - YYYYMMDD format
2. TMAX - Daily Max Temperature
3. TMIN - Daily Min Temperature

You may use backend database or just work with data in memory or file system.

End Point	Method	Result	
/historical/	GET	list of all dates for which weather information is available. Jason array of each date in YYYYMMDD	
/historical/ <dateYYYYMMDD>	GET	Weather information for a particular date. if no information is available - 404 error	
/historical/	POST	Add weather information for a particular day	
/historical/<date-YYYYMMDD>	DELETE	Delete weather info a particular day	
/forecast/<dateYYYYMMDD>	GET	Weather forecast for next 7 days - the date could be an existing date or future date. You will not be graded on the accuracy of the forecast. At the same i expect the forecast values to be different on each of the seven days.	**BONUS 25 points**

Sample Response:

GET Request	Response – HTTP 200
/historical/	[{"DATE": "20130101"}, {"DATE": "20130102"}, {"DATE": "20130103"}, {"DATE": "20130112"}, {"DATE": "20130113"}, {"DATE": “20130114"}, …. {"DATE": “20170115"}]
/historical/20130101	{"DATE":"20130101","TMAX": 34.0,"TMIN":26.0}
/forecast/20130101	[{"DATE":"20130101","TMAX": 34.0,"TMIN":26.0}, {"DATE":"20130102","TMAX": 29.5,"TMIN":15.0}, {"DATE":"20130103","TMAX": 34.5,"TMIN":12.0}, {"DATE":"20130104","TMAX": 36.5,"TMIN":23.0}, {"DATE":"20130105","TMAX": 41.0,"TMIN":19.0}, {"DATE":"20130106","TMAX": 40.0,"TMIN":28.0}, {"DATE":"20130107","TMAX": 39.5,"TMIN":19.0}]
/historical/99990101	HTTP Error code 404
POST REQUEST	**RESPONSE**
/historical/ with data {"DATE":"20130101","TMAX": 34.0,"TMIN":26.0}	**HTTP 201 code with response** **{“DATE":"20130101"}**

You will also need to add a REST.md “markdown” document to your GitHub, and document the resources in your API, the input parameters + data-types they accept, and the parameters & data-types that will be in the results.

How to use GitHub markdown: https://guides.github.com/features/mastering-markdown/

Your assignment will be graded on the following metrics:

- Does the output conform exactly to the specifications?
- Is the REST.md well-formatted markdown and complete?
- Are the HTTP codes correct ? Example - 200 for OK. 201 for created. 404 for not found and so on..
- Does the REST API accept the inputs as GET or POST parameters?
- Is the result well-formed (does it adhere to JSON or XML standards) and returned as an HTTP 200 “Ok” result?
- Does the REST API yield results consistent with the same data ?

NOTES / HINTS:

Some online resources:

- http://www.drdobbs.com/web-development/restful-web-services-a-tutorial/240169069 (REST tutorial)
- https://en.wikipedia.org/wiki/Representational_state_transfer (REST definition)
- http://www.json.org/ (JSON specification master site)
- http://codular.com/json (Decent walkthrough of making JSON)
- https://www.w3.org/XML/ (XML specification master site)
- http://www.w3schools.com/xml/ (XML tutorial)
- https://jsonplaceholder.typicode.com (Sample REST API interfaces to play with)
- Use flask-restful or restless packages for a simple interface