Programming Assignment #3

REST based Weather tracking system

Due date: April 22, 2013 by noon
URL: http://www.cs.colostate.edu/~cs480

1 Introduction
REST (Representational state transfer) is a style of architecture for distributing data. REST style architectures consist of clients and servers. The resources provided by the servers are specified via URLs. In general, clients access the service via HTTP. In this assignment, you will access one or more remote RESTful web services.

2 Objective
In this assignment, you will build a command line tool to check current weather for a given geographical location.

3 Description of Task
3.1 The weather command
Users can specify the location as a landmark such as DEN (Denver airport), or Colorado State University.

$weather “DEN”

3.2 Access the remote weather service
Based on the user’s request, your software should access the remote weather service. Yahoo! Weather RSS Feed [1] is a REST service that returns data formatted as RSS [4]. The base URL of the Weather RSS feed is,

http://weather.yahooapis.com/forecast/rss

This service is public and you do not need any application key or any other authentication mechanism.

There are two input query parameters: w and u.
• w for WOEID
• u for degree units (Fahrenheit or Celsius)

Yahoo! uses WOEID (the Where on Earth ID) to specify the location. The WOEID is a 32-bit unique identifier for a geospatial area [2]

You can calculate WOEID based on the tables provided by Yahoo!. You can also use their GeoPlanet Service [3] to do this. To do this you will need to get an API key from the GeoPlanet Service. Please make sure that your input follows the format of the GeoPlanet Service. For example, your spaces between words should be replaced with “%”. “Fort Collins” should be rewritten as “Fort%Collins”.

Yahoo!’s GeoPlanet service

http://where.yahooapis.com/v1/places.q('DEN')?appid=[your-API-ID]

The service will return an XML document with WOEID. The result will be as depicted below.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<places xmlns="http://where.yahooapis.com/v1/schema.rng"
 xmlns:yahoo="http://www.yahooapis.com/v1/base.rng" yahoo:start="0"
 yahoo:count="1" yahoo:total="1">
 <place yahoo:uri="http://where.yahooapis.com/v1/place/12523052"
 xml:lang="en-us">
  <woeid>12523052</woeid>
  <placeTypeName code="14">Airport</placeTypeName>
  <name>Denver International Airport</name>
  <country type="Country" code="US" woeid="23424977">United States</country>
  <admin1 type="State" code="US-CO" woeid="2347564">Colorado</admin1>
  <admin2 type="County" code="" woeid="12587743">Denver</admin2>
  <admin3></admin3>
  <locality1 type="Town" woeid="">
  Denver International Airport
 </locality1>
  <locality2 type="Suburb" woeid="56574477">
   Denver International Airport
 </locality2>
  <postal type="Zip Code" woeid="12792881">80022</postal>
  <centroid>
   <latitude>39.838799</latitude>
   <longitude>-104.671997</longitude>
  </centroid>
  <boundingBox>
   <southWest>
    <latitude>39.829708</latitude>
    <longitude>-104.683838</longitude>
   </southWest>
  </boundingBox>
 </place>
</places>
```
Now, you can complete your request to the weather service.

http://weather.yahooapis.com/forecastrss?w=12523052&u=f

The output value will be an XML document based on the RSS format.

Your software should print out the following:
- Current condition and temperature
- Two-day weather forecast (condition and temperature range)

For example,

**Current Condition:**
Cloudy. 39°F

**Forecast:**
Tue - Partly Cloudy. High: 51 Low: 32
Wed - Sunny. High: 63 Low: 37

### 4 Evaluation

This assignment will account for 10% of your final grade. The grading will be done on a 100 point scale. You are required to work alone on this assignment.

### 5 Late Policy

Please check the late policy available from the course web page.
6 Useful Links
[1] Yahoo's Weather RSS Feed
http://developer.yahoo.com/weather/


[3] Yahoo’s GeoPlanet service
http://developer.yahoo.com/geo/geoplanet/

http://www.rssboard.org/rss-specification