CSC 470 – Special Topics in Computer Science: Cloud Computing

Small Project #5 – AWS Simple Notification Service (SNS)

Objective

Develop a small Java application that utilizes the SNS features to raise your awareness and comprehension of these services and their documented API.

Due Date

This assignment is due by 9:00am, Friday, April 24th, 2015.

Specifics

Create a small Java application, which demonstrates the use of the SNS API. Your application should be coded against the AWS SDK for Java API and all required implementation activities should be executed programmatically by your application (the client).

Your solution can be a command line Java application, or a GUI-based Java application; the choice is yours. In either case, the interface that the user (me) uses should allow for me to confirm the execution of the action (PUT object, GET object) step-by-step via the source code, the output, and via the AWS console. That is, your application should not run without pausing allowing me to verify the most recent action. You will need to build in programmatic pauses that are controlled by the user (e.g. "Press return to continue.") so that I may verify each action.

This project will be graded by the amount of demonstrable, functioning features that your implementation incorporates as follows. Bolded items below are actions and should be executed as such. Each item for a grade must be implemented and clearly executing successfully for that grade to be awarded. That is, you cannot receive a "B" grade if you don't implement and successfully implement all three points (Put Object – Copy, Get Service, and Put Object). You cannot receive an "A" unless all of the "B", "C", and "D" items are satisfied.

The table below contains bolded actions. These actions should correspond directly to RESTful[1] operations on SNS. However, you should use the AWS SDK for Java to form proper requests of the service (allowing for the API to do the work for you to make the REST call to the SNS service). Thus, you'll want to understand the REST operation and refer to the API documentation to determine how make a similar call to the service via the API. Note that the sample code in the SDK for Java download will be a helpful resource.

[1] See http://en.wikipedia.org/wiki/Representational_state_transfer for more information on REST.

Grade / # Points	Implementation Required *(higher grades must include required implementation from lower grades)*
A (4)	• **Publish** – Publish a simple test message to the 'CSC470Test - Alpha' topic created below. • Confirm each of the subscriptions you initiated below and accept all of them. (This is likely an off-line action that is not executed in the program.) • **Unsubscribe** – Remove the subscription of the cell phone entered earlier.
B (3)	• **ListSubscriptions** – List each subscription for your account, and display the following details of each subscription: *SubscriptionARN*, *TopicARN*, *Protocol*, *Owner*, *and Endpoint*. • **Subscribe** – Add two subscriptions to the 'CSC470Test-Alpha' topic as follows: o An email subscription (JSON) to my address at a user that the email enters (prompt the user) o An SMS notification to any SMS-capable numbers you own
C (2)	• **SetTopicAttributes** – Use this API call to change the 'CSC470Test-Alpha' topic's *DisplayName* attribute to "CSC470 Testing". Then fetch the topic's attributes and print as shown below. • **GetTopicAttributes** – Obtain and print the following details of the 'CSC470Test-Alpha' topic's attributes: *TopicARN*, *Owner, Policy* string, *DisplayName*, *SubscriptionsPending*, *SubscriptionsDeleted* and *SubscriptionsConfirmed*. Print each attribute name and it's value separately, with descriptive labels. This should be done <u>both before and after</u> the SetTopicsAttributes call (above).
D (1)	• **CreateTopic** – Create new SNS topics named 'CSC470Test-Alpha' and 'CSC470Test-Beta'. • **ListTopics** – list the current SNS topics for your account (you should see the two topics above). • **DeleteTopic** – delete the CSC470Test –Beta topic and provide a list of the current SNS Topics again.
F (0)	Fails to execute, fails to compile, no working functionality

Cleanup

As this program completes and terminates, please delete all topics and subscriptions created by this program. Thus it will clean up your account after itself.

Console Access

Change the IAM group policy for my user account (which you created in Project 1) so that I can use the AWS console to confirm all of the above actions.

These actions will be verified by source code and user display/review from the application.

Resources

- AWS SDK for Java - http://goo.gl/de5Hby
- AWS SDK for Java API Reference - http://goo.gl/4WZO1
- SNS Developer Guide - http://goo.gl/vRftYh
- SNS API Reference - http://goo.gl/i5IYvd

Delivery

- Your delivery of this assignment should be in the form of a Java jar file that contains both your source code and .class files. Include in your deliverable a valid working Maven pom file that addresses the project dependencies, handles possible compilation and execution.
- Upload only your jar file as a deliverable to the corresponding assignment in Canvas.