CS 524 Lab Assignment 1

Due: March 16, 2021

(Please read sections 4.1 and 4.2 of Chapter 2, while working on this.)

This assignment is divided into two parts for a total of **100** points:

Part 1:

Before proceeding with part 1, please review the link:
https://aws.amazon.com/getting-started/hands-on/send-messages-distributed-applications/
In the first part, you are going to learn about Amazon Simple Queue Service (SQS), which is an asynchronous messaging service that allows application components to communicate in the cloud.

You will be creating a standard SQS queue named <Your_Name>. Make sure to name the queue as your first name. Once the queue is created, you will be sending a simple message to the queue. The message body can have any one "fun" fact about you. Once you have successfully created and sent the message, you will view your message by polling the messages in the queue (in this case, its just one message). After you view the message, you will be deleting that message. [Screenshots of all of the above steps should be attached]. After deleting the message, make sure you delete the queue that you had created.

Part 2:

This section involves setting up a **free** Amazon EC2 *instance* (i.e., a virtual machine) and understanding some of its key networking properties. Although this is seemingly simple and straight-forward, there is **much to read and learn** here, so make sure you start working at once. The next lab assignment will build on what you will have achieved in this one.

The first part of the assignment is understanding the respective SLA, which Homework #2 had prepared you for. The second part is purely technical (and it will involve an independent learning as a follow-up to Lecture 4): After having created an EC2 instance, you will execute several systems commands, which will give you information on the networking set-up. In order to understand the results, you will need to learn the output resulted from invoking the commands.

Before your start, please read carefully the posting from the Course Assistant on how to create an AWS account so that you get the credit. If in doubt, please follow-up with the Course Assistant during her office hours.

Please make sure you have activated your Stevens Linux account. To request this use this link: https://sit.teamdynamix.com/TDClient/1865/Portal/Requests/ServiceCatalog?CategoryID=2880 [Note: You may actually be able to use your own PC; however, you will most likely need to install additional software (e.g., SSH), and the effect of some commands may be different.]

Now, you need to review the following documents:

http://aws.amazon.com/ec2/
http://docs.amazonwebservices.com/AWSEC2/2009-11-30/GettingStartedGuide/

Then visit http://aws.amazon.com/ec2/ and click "Sign Up Now" button to setup an account. **Again, make sure that you understand what you need to do to keep this experiment free of charge.**

At this point, please proceed to creating an EC2 instance with this *Amazon Machine Image (AMI):* **Basic 64-bit Amazon Linux AMI**. Once it is running, log into it and

execute the following five commands:

1. *uname –a*
2. *whoami*
3. *df –h*
4. *ifconfig –a*
5. *netstat.*

Now you need to understand what these commands do with the parameters chosen (by reading the respective part of the system manual—obtainable by executing *man <command name>.* To get the meaning of the output, you will use your knowledge of IP networking:

1. You have learned about both the class-based IP addressing scheme and the Classless Inter-Domain Routing (CIDR) [for the detail see RFC4632 (http://tools.ietf.org/html/rfc4632)];
2. To understand how the IP addresses are mapped into Layer 2 addresses, please read RFC 826 http://tools.ietf.org/html/rfc826; and
3. To understand the parameters related to the dynamic host configuration, please read http://tools.ietf.org/html/rfc2131**.**

You must submit a report documenting 1) all the steps that you have executed in setting up your account and 2) the results of the command execution along with the explanation of the parameters obtained in the process.

After you finish your assignment, make sure you shut down the instance you have created.