CMPE282
Lab 1 Assignment: Using RESTful Services

Due: October 6, 2014

This lab assignment covers developing REST services and deploy in AWS.
This is an individual assignment.
Do not publish AWS credentials, security id and access key into any public place like github.
Be very careful with your AWS credentials.

Prerequisites

- You can create your project using any technology to implement RESTful web services.
- You must have carefully read the Environment Setup document. You should be able to run the "Hello World" application described in Environment Setup document.
- You must know at least Java, basics of JavaScript, collection API and JDBC.
- Follow the principles of lecture 1, "Programming for the Cloud".

The Assignment

You will be developing one client and server during this lab.

On the due date, turn in the following (via Canvas):

- A code listing of each of your clients/servers (Only include source files, otherwise, -3 deductions)
- Screen captures of each client/server during execution running on AWS

The following screenshots should be provided:

1. Web application
    a. Authentication
    b. Add Products
    c. Create Catalog
    d. Purchase products
    e. View your order
2. AWS RDS: Database tables
3. AWS Dynamo: Catalog details that get stored
4. Elastic Beanstalk when deploying and after deployment of the project. (deploy in more than one virtual machine, capture screenshot to submit)
5. Resources of AWS being used (use cloudwatch to monitor, capture screenshot to submit)
6. Chef: successfully executed script.

Grading

Late assignments will be accepted, but will be subject to a penalty of -5 points per day late:

Submissions received at or before the class on the due date can receive up to 20 pts maximum

Server - "Amazon Store" to demonstrate RESTful Services (20 pts)

Instructions for the Lab implementation
Application to be developed:

You need to develop is the "Prototype of Amazon Online Store". This on-line store must be deployed through AWS. This server should perform the following tasks:

a) Basic functionality would include user to Sign Up, Sign In, Sign Out. Sign Up should have first name, last name, Email and password. In order to use the system, a user must sign in first.
b) Should create different product catalogs (computer) and add new products to each catalog. This should at-least include the product name, product description, product price and quantity.
   It will be similar to Amazon store.
   E.g. Catalog: Computer
   Product:"Laptop", "2.2 GHz Core 2 Duo, 2GB RAM…", "$600", "4 pieces".
c) Shopping Cart should be maintained which will reflect temporary items. Users should be able to add, remove items from the cart until checkout.
d) As a checkout process, one should perform simple credit card validations on payment. (check on the number of 16 digits)
e) Users account should provide information about the products purchased and you should take care of quantities of products in different catalogs after the checkout.
f) Should maintain time last logged in.
g) The details of your application, i.e. Database connection should be to AWS RDS. It should store all the tables on AWS RDS.
h) The catalog for your application should be stored on AWS DynamoDB.
i) Add this to the AWS using Elastic Beanstalk
j) Once you complete the deployment to AWS, you need to implement the project deployment through Automation. Use Chef for this.

Test Client –

The client should provide the automatic facility to test all the functions of "Amazon Store" service.

NOTE: Input Validation is very important.
RESTful Services are inherently stateless in nature. To express stateful behavior through RESTful services any persistence providing technologies should be used.

*AWS-RDS with MySql database would be an optimum choice for maintaining the data.

**DynamoDB for Catalog storing, Elastic Beanstalk for deployment of project to AWS and using Chef to automate the entire process of deployment.

Submission

- **On-line submission**: shall include all source zipped with your last names (ex. Lab1-Smith.zip {should not include any binary files}) and your report with screenshots (smith_lab1_report.doc {submit separate file from zip}). Submissions shall be made via Canvas. Send Backup submission to sjsucmpesubmission@gmail.com in case .