CSE 551- Advance web design and applications
Home Assignment 2
Total points 100
Deadline March 04, 2016

Instructions: Start working on your assignment as soon as possible. Don't start home assignment just few days before deadline. As this is group assignment, <u>don't forget to submit peer evaluations</u>, otherwise you may get zero points for this assignment. All students are supposed to work on every aspect (all questions) of home assignment. For question 2, you have to show Extra credit up to 10 points can be given if extra ordinary work is shown by team.

Objective: To understand concepts of AJAX, Service Oriented Architecture (SOA), microservices and their implementation using Web Services.

Question 0 [zero point]
Study following three links individually and then explain to your teammates.
1. http://stackoverflow.com/questions/209905/representational-state-transfer-rest-and-simple-object-access-protocol-soap

2. http://www.eioba.com/a/1htn/how-i-explained-rest-to-my-wife
3. http://blog.smartbear.com/apis/understanding-soap-and-rest-basics/

Question 1 [10 points]

Refer the tutorial on following URL: http://www.tutorialspoint.com/restful/index.htm
Follow the tutorial to setup the environment. Use the code of this tutorial to execute both client and web service. Show the screen shots of client and server to show that you successfully configured and executed this tutorial. After completing this task, you should be able to use JAX-RS API to create REST web services in Java.

Question 2 [50 points]

Indoor location systems are getting more and more popular and early deployments are on the horizon. While systems are becoming available that can meet the requirements of many enterprise and security applications, still lot of work is required to develop systems for first responders . Given the inherent challenges of the active shooters situations, firefighting environment, and other life safety nature of the application, extensive mission critical applications need to be deployed to assist first responders in near future. Navigation and Maps API along with indoor localization technologies will play crucial role to make such applications successful. In this question, your task

- Is to propose a mashup by exploring, studying and analyzing various APIs (e.g Google Maps, and Navigation API/ web services and Mapbox web services) that can are useful to implement apps for responders to navigate on different floors of building. The good starting point to explore various REST API is programmableweb.com. No implementation/coding is required but answer should contain detailed solution/approach. [40 points].
- Following the principles of SOA and Micro services, model and design your mashup. Only flow diagram and sequence diagrams are required (No implementation/programming is needed) [10 points].

Question 3 [30 points]

- Use Postman tool to analyze one Twitter REST APIs of and summarize all resources of these APIs in tabular form. The table should mention URI of each resource along with Request type (method) and description [10 points].
- Write a simple AJAX based client to bring pictures of different cities of Michigan from Instagram. You have to take the name of city as input, pass the city name to Google APIs to get coordinate of that city, and then obtain the pictures of those coordinates from Instagram. Display all the pictures in webpage [20 points].

Question 4 [10 points]

- Implement a very basic search with Google Maps REST API by using following tutorial http://www.programmableweb.com/news/how-to-implement-basic-search-google-maps-api/how-to/2016/02/12. Apart from whatever is done in this tutorial, there must be implementation of AJAX calls on client side. For help, see the code example that we discussed in AJAX lecture.