# **CSCI8380: Adv. Topics in ISs**

**Fall 2017**

## **Project 2: Building an Adv. IS using Web Services and APIs**

Due: Oct 3 (11:59 pm)

In this project, you will need to use HTML, CSS, JavaScript for front-end and PHP for back-end application development. Your PHP and JavaScript code needs to consume some web services (REST), namely YouTube WS, Google Maps Geocoding WS and Google Maps JavaScript WS to implement a video search applications as explained below:

A user will be able to type a search term (a single keyword or phrase such as a person’s first and last names), a street address including a city and an optional zip code, and radius in km. Your application will need find "keyword" videos in a geographic area centered in longitude, and latitude with given radius. For example:

>>> Find "cat" videos at "1600 Amphitheatre Parkway, Mountain View, CA", radius 25 km.

The steps in the application are illustrated below:

1. Google Maps Geocoding WS: input: location (street address); output: longitude, latitude

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2. YouTube WS: input: keyword, longitude, latitude, radius; output: title, video id, longitude, latitude

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3. Google Maps JavaScript WS: input: title, video id, longitude, latitude; output: a map with video markers

You can choose either json or xml to pass data around. Limit your search to top 10 videos if there are more than 10 videos in the search result. The markers can be default Google Maps markers. If you use video snapshots as markers you will get 15 bonus points. When a user hovers his mouse pointer over a marker its title will be displayed. When a user clicks on a marker video will be played using YouTube application.

Further information on three web services can be found at their web pages.

**Google Maps WS:**

Geocoding API Request

https://developers.google.com/maps/documentation/geocoding/intro

Geocoding is the process of converting addresses (like "1600 Amphitheatre Parkway, Mountain View, CA") into geographic coordinates (like latitude 37.423021 and longitude -122.083739), which you can use to place markers on a map, or position the map.

Geocoding API's output can be in json or xml.

In this example, the Google Maps Geocoding API requests a json response for a query on "1600 Amphitheatre Parkway, Mountain View, CA":

https://maps.googleapis.com/maps/api/geocode/json?address=1600+Amphitheatre+Parkway,+Mountain+View,+CA&key=YOUR\_API\_KEY

**Google Maps JavaScript API Request:**

You can load the Google Maps JavaScript API into your web page, and write your own JavaScript that uses the API to add a map with a marker on it.

https://developers.google.com/maps/documentation/javascript/adding-a-google-map

**YouTube WS:**

Search by location and keyword

https://developers.google.com/youtube/v3/code\_samples/php

You can use API's search.list method with the type, q, location and locationRadius parameters to retrieve search results matching the provided keyword within the radius centered at a particular location. Using the video IDs from the search result, you call the API's videos.list method to retrieve location details of each video. Video IDs can be used to get full URLs for each video.

**How to Submit:**

Submit your ".zip" file using ELC. Only team leaders need to make a submission. Also submit a document including several snapshots of user interface. **Every student needs to submit a peer-evaluation form within 24 hours of the project submission deadline**.

Do not place your solution on a public web site. Submit your own work and follow the course misconduct policy.

**How your submissions will be graded?**

The instructor will build at least 5 random queries including various keywords and locations and test these queries in your application. Then he will compare your results with the expected results. He will also check your code structure to make sure your submission meets the criteria explained in this document. The instructor can request a demo from team leaders in case he faces difficulty in running your applications in his local environment.