## CPS630-W23, Lab 5 – Web Applications **Due: Mar6, 2023, 11:59am**

(The TA will evaluate your work by asking questions about the followings in the Lab sessions in the week of: Mar6)

### Objectives

- Part1: Using Geolocation commands to display positions on the Web-page or on the Google map.
- Part2: Embedding Google Map in HTML code and generating API-Key.

### Instructions

**Part1-**In this part you will work with the HTML Geolocation API to get the geographical position of an object on the earth. The commands are embedded in the html code. Try the programs in folder "Lec5-2-examples-wgeoloc":

- Find location of an object: "lec5-2-example0-"
- Find location of an object and check the errors: "lec5-2-example1-"
- Find location of an object continuously: "lec5-2-example2-"

**Part2-**In this part you will work with Google Map API to display an object position on the google map in your web application. But first you need to create your own "Map-API-Key". This key should be inserted in front of the attribute "key= ". To create the API-Key go through the required instructions in the reference below then run the following examples. [1 Mark]

- Display location on a map with a Marker: "lec5-2-example3-locInmap-marker"
- Display location on a map with a Marker and information: "lec4-2-example4-locInmap-marker-info"
- Display location on a map with Markers and their information: "lec4-2-example5-locInmap-markers-info"

**Note -** Setting a "Billing Account" is optional.
**Note -** Feel free to change the layout of the User-Interfaces in the test files according to your design.
**Next Steps:**
Geocoding API: Converting addresses to geographical coordinates like latitude and longitude and vise versa, for example: Mountain View, CA, 94043 ← → 37.4, -122.1
Geocoding is available as part of client-side Google Maps JavaScripts API.

### References:

-Finding location: https://www.w3schools.com/js/js_api_geolocation.asp
-Introduction to Google-Map-API: https://developers.google.com/msaps/
-Tutorials: https://developers.google.com/maps/documentation/javascript/tutorials
**-Steps to create API-Key**: https://developers.google.com/maps/documentation/javascript/adding-a-google-map#key
-Troubleshooting: https://developers.google.com/maps/documentation/javascript/error-messages?utm_source=maps_js&utm_medium=degraded&utm_campaign=billing#api-key-and-billing-errors

### Deliverables & Marking Schema

The TA will evaluate Lab-5 based on the followings: [Total 2 Marks] [Weight 1%]

- Teams are required to go through the instructions above, discuss their solution via team work, and submit the solution through D2L. Only ONE submission is required per team by the due: Mar6, 2023, 11:59am
- Teams are also required to indicate their work result to the TA during the lab time in the week of Mar6. Leaving the lab without discussing the results with the TA, means no mark for that lab.

Attendance for each member [1 Mark], Answer questions and run your work (only for attended members): [1 Mark]