

Bonus Assignment #1

General Instructions:

1. **Refactor Assignment #4** in order to add the features listed below.
2. **Due Date is 4/22/19 by 11:59pm.**

Requirements:

Refactor Assignment #4 in order to **add** the feature that will allow the user to create **Animated HeatMap** (see the appendix for resources) and a Factory to create different types of charts as follows:

- 1) Your application homepage shall display the following image and underneath it show **TWO BUTTONS** in the center labeled **Places** and **Divy HeatMap**.



- 2) When the user clicks the **Divy HeatMap** button, the **ANIMATED HeatMap** will be displayed for the real-time available Divvy dock stations for the entire City of Chicago Divvy dock stations for the past 1 Hour (default value for **Time-Range**). The default view (**Time-Range**) is 1 hour, and the user shall be provided with **Time-Range** drop down list for selection of time for 1 Hour, 24 Hours, or 7 days.
- 3) When the user clicks the **Places** button, the user will be provided with the ability to search for places and plot near by Divvy on AGM maps for a selected place.
- 4) Below the map of the found places, you display a **Line Chart** (default view) to plot the found places reviews. The user shall be provided with a drop list to select either **Line Chart** or **Bar Chart** to view the reviews.

- 5) Next to every divvy station there will be **THREE** buttons:
- i. A **Stacked-Bar Chart** to plot the Divvy available docks and bikes for the selected restaurant on a specified location
 - ii. A **Real-time Chart** to plot the Divvy available docks with default view (Time-Selected) of 1 hour , and the user shall be provided with **Time-Range** drop down list of (1 Hours, 24 Hours, 7 days). For 1 Hour, the Time (x-axis shall display the past hour in 2 minutes increment). For 24 Hours, the Time (x-axis shall display the past 24 hours in 1 hour increment). For 7 days, the Time (x-axis shall display the past 7 days in 12 hours increment, that is midnight 12am and noon 12pm).
 - iii. A **SMA Chart** to plot the Line Chart for the SMA (Simple Moving Average) of Divvy available docks for 1 hour (Green line), 24hours (Blue line) , and 7 days (Red Line). The default view (**Time-Range**) of 1 hour , and the user shall be provided with **Time-Range** drop down list of (1 Hour, 24 Hours, 7 days). For 1 Hour, the Time (x-axis shall display the past hour in 2 minutes increment). For 24 Hours, the Time (x-axis shall display the past 24 hours in 1 hour increment). For 7 days, the Time (x-axis shall display the past 7 days in 12 hours increment, that is midnight 12am and noon 12pm).
 - iv. All Lines , x and y axis, and Charts must have clear label and legends

Bonus Assignment Deliverables:

You are required to submit a SINGLE WinZip file that has the following deliverables are:

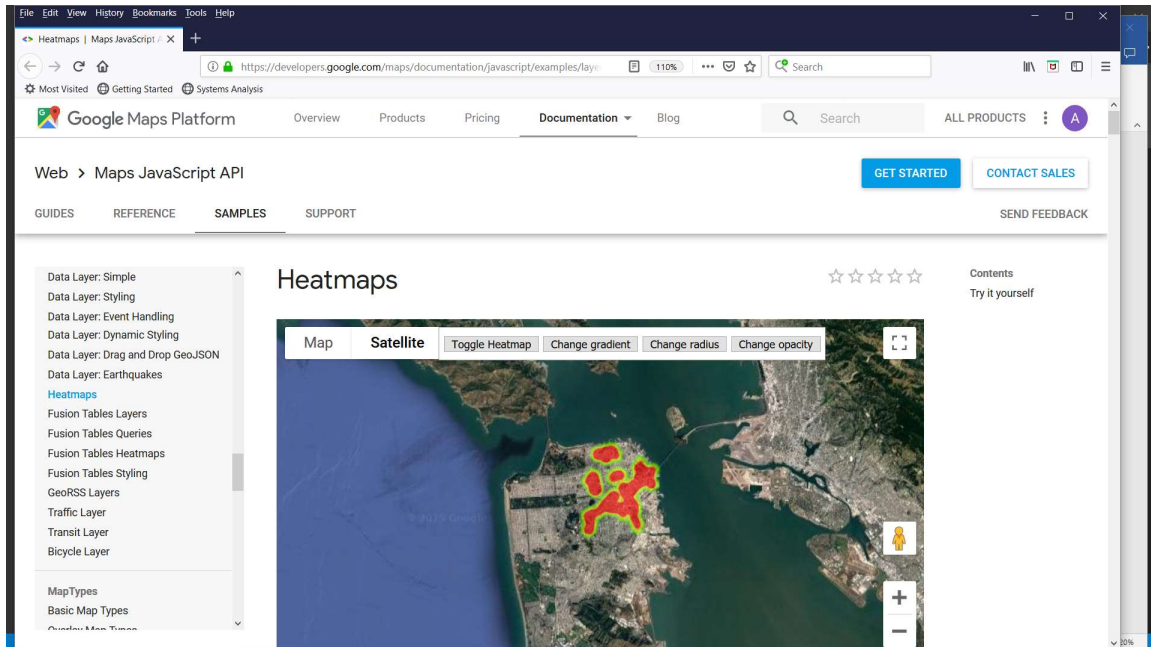
1. Documentation for the Angular Components that you created to draw the different charts
2. Source Code
3. Output report that has ALL captured screen-shots of your bonus assignment run saved in OUTPUT.pdf
4. Video recording of 10 minutes as a demo for the run of your bonus assignment using <https://screencast-o-matic.com/>

Post your bonus assignment as a SINGLE WIN-ZIP on Blackboard.

Dr. Atef Bader

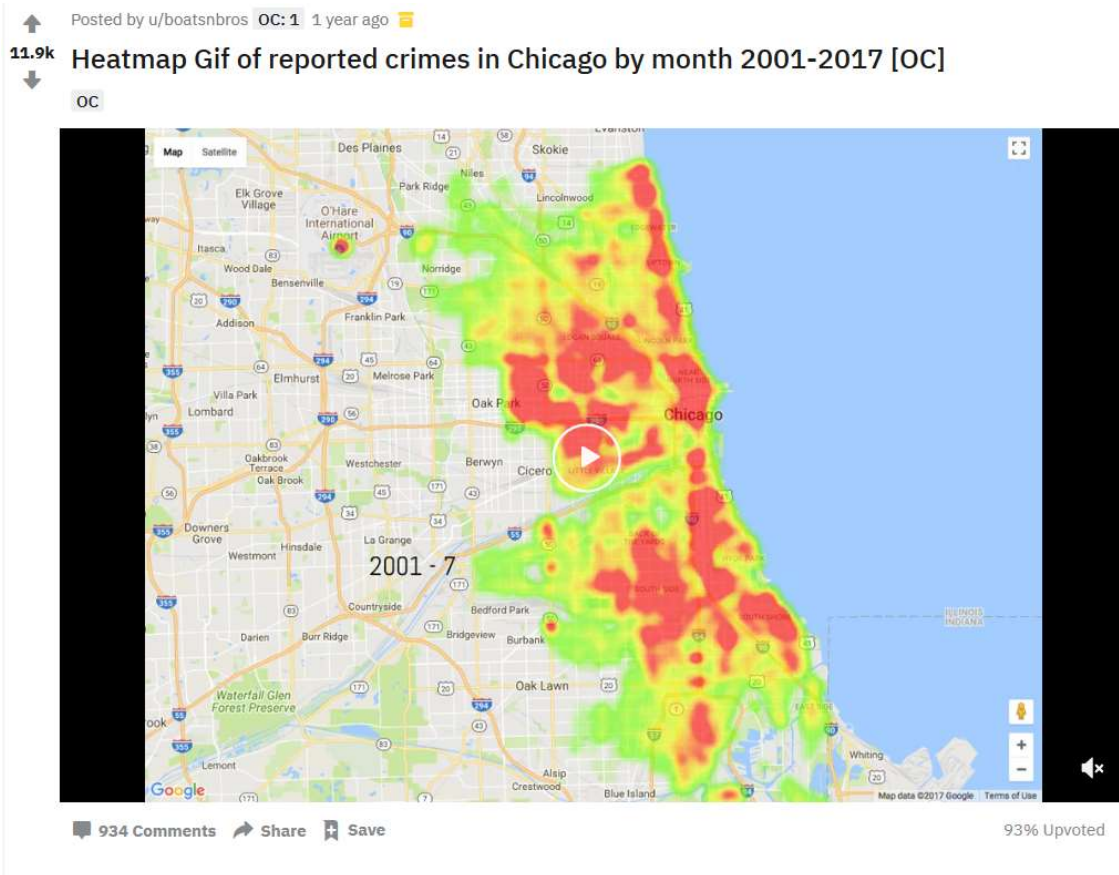
Resources & Websites:

<https://developers.google.com/maps/documentation/javascript/examples/layer-heatmap>



Watch this video for a visual of an animated heatmap:

https://www.reddit.com/r/dataisbeautiful/comments/71e3pp/heatmap_gif_of_reported_crimes_in_chicago_by/



<https://stackoverflow.com/questions/48919237/how-to-use-google-maps-heatmap-feature-using-angular-agm/52978988#52978988>

The screenshot shows a web browser displaying a Stack Overflow question. The browser's address bar shows the URL: <https://stackoverflow.com/questions/48919237/how-to-use-google-maps-heatmap-feature-using-angular-agm/52978988#52978988>. The Stack Overflow logo is in the top left. The left sidebar contains navigation links: Home, PUBLIC, Stack Overflow, Tags, Users, Jobs, and Teams. The main content area features the question title "how to use google maps heatmap feature using angular agm". The question text reads: "I am using angular component @agm/core at <https://github.com/SebastianM/angular-google-maps> for my latest angular 5 project to show google maps. It works great, and now I want to add google maps heatmap layer from visualization library. I can't figure out how to do it. please help". Below the text are tags for "angular" and "google-maps-api-3". A star icon and the text "share improve this question" are also present. On the right, a box indicates the question was asked on Feb 22 '18 at 3:36 by user Andri J, who has 11 votes and 1 answer. A comment below the question states: "I found out there are a question already posted by someone else in the github issue forum. It seems that heatmap layer is not supported yet by @agm/core. I decide to explore pure google maps api js route. github.com/SebastianM/angular-google-maps/issues/1289 - Andri J Feb 23 '18 at 2:27". Below the comment is a link to "add a comment". At the bottom, it says "2 Answers" with tabs for "active", "oldest", and "votes". The first answer begins with "The following steps worked for me (to note that I haven't found other examples for this after long search)".