

HEATMAP MODULE

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HEATMAP MODULE

Introduction:

The following is documentation and detailed guide usage for the java script based heatmap module. It includes functionalities which are listed down in the functionalities section. Step by step guide is also provided in the sample run through section for helping users run their first program.

What is Heatmap?

A heat map (or heatmap) is a graphical representation of data where the individual values contained in a matrix are represented as colors. "Heat map" is a newer term but shading matrices have existed for over a century.

Included in Bundle:

The heatmap bundle includes a python script that will auto generate random and real time data that is used as input to the heatmap module for signature representation.

Pipeline and How it works:

The software included works out of the box and no special programming modification is required. A real time representation from real sensors and other sensory data can be made to be represented with slight modification of the internal js code. There are two stages that are part of the data signature representation.

1. The first is the python script - generate.py to generate real time random data to be used by heatmap js module for data representation. This data list is stored in a file called list.csv .
2. The second part of the pipeline is the heatmap module itself, retrieving data from the list.csv file and representing it on a web interface.

Functionalities:

1. Since it is js and web based, the whole module is platform independent. It can run on any device and operating system.
2. The range and number of the entries in the dataset can be easily varied and thus different intensities of data can be easily plotted.
3. There are various color-schemes that can be used for the data plot itself.

Pre-requisites:

An installation of python 2.7 environment must be present on the device of usage. On Ubuntu and other linux systems, this environment is present by default. For windows machines, python 2.7 can be obtained from the following site:

<https://www.python.org/>

After installation of python environment, set path to python installation in the environment variable "Path" of the windows operating system. Guide on how to run a sample program is mentioned in the Sample Run section. The python numpy library must also be installed as part of this program.

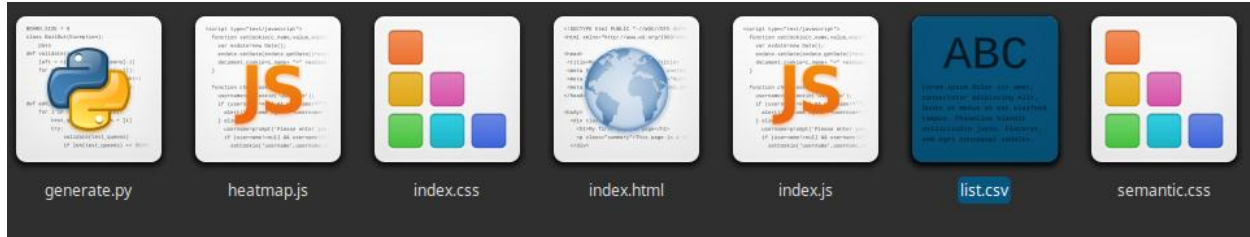
Sample Run:

The following are the various steps involved in running the program.

1. `python2 generate.py ##generates and populates list.csv##`



list.csv file is generated and populated with data:



list.csv file contains the following data:

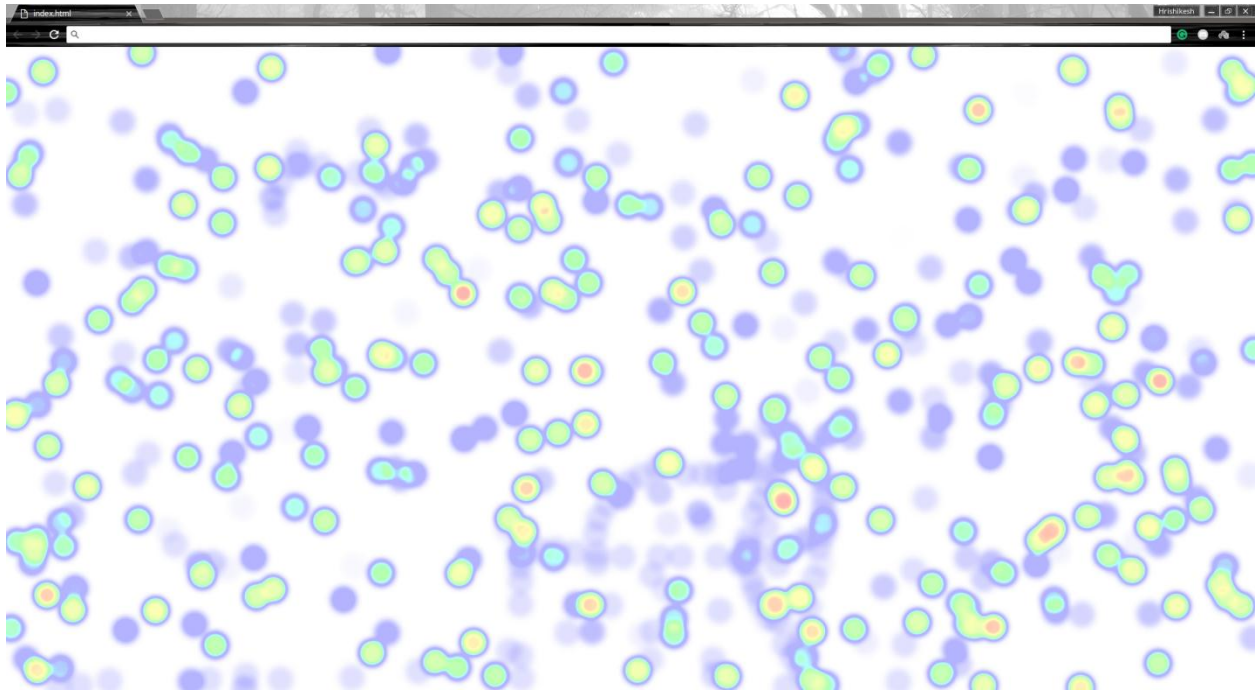
A	B
838	675
758	423
712	532
905	336
844	482
649	13
193	663
540	744
395	279
94	472
360	230
102	869
107	861
379	197
406	968
368	849
295	205
967	768
523	465
869	151
476	566
261	200
453	324
257	895
365	121

- open index.html with any js supported web browser. Data generated from step 1 is immediately represented and the corresponding heat map signature is generated. Upon refresh, real time signature of data is observed.

Sample demo video of the run through is also included within the bundle for further reference.

Final Output:

The final output looks as follows:



Licensing:

```
<Heatmap Module program to provide real time representation of nodes and node
clustering intensities based on color signature patterns.>
```

```
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```

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the Free Software Foundation, either version 3 of the License, or
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```

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