# Readme for analysis part

For realizing all functions in this part, we should excute rttShortest.py, rttCalculateToShow.py and rttDisplayMaskedArray.py in order. Among these tree python scripts, rttShortest.py and rttCalculateToShow.py used python3.4, however rttDisplayMaskedArray.py used python2.7.

## rttShortest.py

This module is to calculate the shortest path and save relative data into csv files. To begin to excute this module, we should copy the csv file of original data under the data folder. Then change the dataTD by the name of our original file in the main function of rttShortest.py, we can excute it and a folder with the name of this dataID will be created which is for saving all ralative data files. Once this module excute successfully, some new csv files will be created: “RTT_RipeAtlasLengthShortestPath.csv” is to stock shortest path length, “RTT_RipeAtlasShortestTime.csv” is to stock shortest path delay. Both of them respect the following form:

| **Sondes** | **0** | **1** | **2** | **3** | **...** |
|---|---|---|---|---|---|
| 0 | 0 | 47 | 20 | 30 | ... |
| 1 | 47 | 0 | 7 | 18 | ... |
| 2 | 20 | 7 | 0 | 23 | ... |
| 3 | 30 | 18 | 23 | 0 | ... |
|  |  |  |  |  |  |

| | | | | | |
|---|---|---|---|---|---|
| ------- | ---- | ---- | ---- | ---- | ---- |
| 0 | 0 | 47 | 20 | 30 | … |
| 1 | 47 | 0 | 7 | 18 | … |
| 2 | 20 | 7 | 0 | 23 | … |
| 3 | 30 | 18 | 23 | 0 | … |
| ------- | ---- | ---- | ---- | ---- | ---- |

“ShortestRoute” illustrates the all shortest paths calculated for every time mersuremennt which is in the form as:

| **14:55:43** | **15/09/2016** |
|---|---|
| (Link) | (Shortest Path if exists) |
| 3-13 | [‘3’, ‘9’, ‘13’] |
| 3-7 | [‘3’, ‘9’, ‘19’, ‘15’] |
| 3-15 | [‘3’, ‘9’, ‘19’, ‘15’] |
| 3-12 | [‘3’, ‘9’, ‘13’, ‘12’] |
| ------- | -------- |
| 14:55:43 | 15/09/2016 |
| (Link) | (Shortest Path if exists) |
| 3-13 | [‘3’, ‘9’, ‘13’] |
| 3-7 | [‘3’, ‘9’, ‘19’, ‘15’] |
| 3-15 | [‘3’, ‘9’, ‘19’, ‘15’] |
| | |

| | |
|---|---|
| 3-12 | [‘3’, ‘9’, ‘13’, ‘12’] |
| ------- | -------- |

# rttCalculateToShow.py

After having all files created by rttShortest.py, “RTT_RipeAtlasLengthShortestPath.csv” and “RTT_RipeAtlasShortestTime.csv”. We can excute rttCalculateToShow.py to get data for display, that will be stocked into json files. When the execution of rttCalculateToShow.py finishes, a new folder “jsonData” appaers with all json files stocked there which will be used by rttDisplayMaskedArray.py to show graphs. One parameter used for this module is also the dataID which is the name of original csv data.

# rttDisplayMaskedArray.py

Finally, execute rttDisplayMaskedArray.py to show graphs of the analysis with dataID given.

# rttDisplayPlugins.py

This module has all functions implemented in rttDisplayMaskedArray.py and those in rttDisplayForVisu.py for our website application (in the application folder). It is for generating html files for all graphs that will be easier to insert into the code. Each static graphs should be generated by this modules and any changes for static graphs should be implemented inside the functions. All relavent html for graphs are stocked in figureHtml folder.