# SuperHub Documentation

***Release 0.1***

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ONE

# SUPERHUBPROCESSING

**Description** SuperHub data processing functions

Generates different plots from the data

**Authors** bejar

**Version** 1.0

SuperHubProcessing.**accumulatedEvents**(*application*, *distrib=True*, *scale=100*)
Plots the accumulated geographical events in the selected area to the specified scale

**Param** application: name of the data file

**Param** distrib: whether the PDF or the absolute numbers are plotted

**Param** scale: scale of the discretization

SuperHubProcessing.**accumulatedEventsHeavyHitters**(*application*, *mxhh*, *mnhh*, *distrib=True*, *scale=100*)
Plots accumulated geografical events for heavy hitters

**Param** application:

**Param** mxhh:

**Param** mnhh:

**Param** distrib:

**Param** scale:

SuperHubProcessing.**dailyHistogram**(*application*, *mxhh*, *mnhh*)
Plot of events accumulated by week day

**Param** application:

**Param** mxhh:

**Param** mnhh:

SuperHubProcessing.**dataHistograms**(*application*, *lhh=None*)
Histograms for different characteristics of the data

**Param** application:

**Param** lhh:

SuperHubProcessing.**diffItems**(*seq*)
Number of different geo point in a sequence

**Param** seq:

**Returns**

SuperHubProcessing.**eventHistograms**(*application*, *mxhh*, *mnhh*)

Histograms of daily event length and user persistence over time

**Param** application:

**Param** mxhh:

**Param** mnhh:

SuperHubProcessing.**hourlyHistogram**(*application*, *mxhh*, *mnhh*)

**Param** application:

**Param** mxhh:

**Param** mnhh:

SuperHubProcessing.**itemkeysort**(*v*)

auxiliary function

**Param** v:

**Returns**

SuperHubProcessing.**transactionRoutes**(*dataclean*, *application*, *mxhh*, *mnhh*, *scale=100*, *supp=30*, *timeres=4.0*)

Diagrama de las rutas obtenidas a partir de conjuntos frecuentes

**Param** dataclean:

**Param** application:

**Param** mxhh:

**Param** mnhh:

**Param** scale:

**Param** supp:

**Param** timeres:

SuperHubProcessing.**transactionRoutesMany**(*application*, *lhh=None*, *lscale=None*, *supp=30*, *ltimeres=None*)

Calcula el diagrama de las rutas frecuentes para una lista de parametros

**Param** application:

**Param** lhh:

**Param** lscale:

**Param** supp:

**Param** ltimeres:

SuperHubProcessing.**userEventsHistogram**(*application*, *mxhh*, *mnhh*, *scale=100*)

Histogram of the number of places a user has been

**Param** scale:

**Param** application:

**Param** mxhh:

**Param** mnhh:

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TWO

# SUPERHUBDATA

**Description** SuperHub data functions

Exports data from database to csv file

Loads data from csv file

Performs different processings to the data matrix

**Authors** bejar

**Version** 1.0

`SuperHubData.`**`cleanDataArea`**(*data*)
Deletes all the events out of the interest region

**Param** data:

**Returns**

`SuperHubData.`**`computeHeavyHitters`**(*data*, *mxhh*, *mnhh*)
Computes the list of the number of events and return a list with the users between the positions mxhh and mnhh in the descendent order

**Param** data:

**Param** mxhh:

**Param** mnhh:

**Returns** list with the list of users

`SuperHubData.`**`dailyTable`**(*data*)
Computes the accumulated events by day for the data table

**Param** data:

**Returns**

`SuperHubData.`**`getApplicationData`**(*application*)
Get the data events from the database and saves it in a csv file

**Param** application

**Param** cpath

**Param** square

`SuperHubData.`**`getApplicationDataOne`**(*application*)

**Param** application:

SuperHubData.**getLApplicationData**(*lapplication*)

**Parameters lapplication** –

SuperHubData.**hourlyTable**(*data*)

Computes the accumulated events by hour for the data table

**Param** data:

**Returns**

SuperHubData.**readData**(*application*)

Loads the data from the csv file

**Param** application:

**Returns**

SuperHubData.**selectDataUsers**(*data*, *users*)

Deletes all the events that are not in the user list

**Param** data:

**Param** users:

**Returns**

SuperHubData.**transferApplicationData**(*application*)

**Param** application:

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THREE

# SUPERHUBPLOT

**Description** Different plots of the data

**Authors** bejar

**Version** 1.0

`SuperHubPlot.`**`contingency`**(*data*, *scale*, *distrib=True*)
Generates an scale x scale accumulated plot of the events

**Param** data:

**Param** scale:

**Param** distrib:

`SuperHubPlot.`**`plotHisto`**(*data*, *bins*)
Plots a histogram

**Param** data:

**Param** bins:

`SuperHubPlot.`**`saveHisto`**(*data*, *bins*, *fname*)
Saves a histogram

**Param** data:

**Param** bins:

**Param** fname:

`SuperHubPlot.`**`savePlot`**(*axis*, *data*, *fname*)
Saves a plot of the data using the values of axis

**Param** data:

**Param** num:

**Param** fname:

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# SUPERHUBTRANSACTIONS

**Description** Functions that process events as transactions

**Authors** bejar

**Version** 1.0

SuperHubTransactions.**colapseUserDailyTransactions**(*trans*)
Colapses the transactions of a user on a set with all the different items

@rtype : object :param: trans: Dictionary od user/time transactions :return: Dictionary of daily transactions

SuperHubTransactions.**dailyDiscretizedTransactions**(*application*, *mxhh*, *mnhh*, *scale=100*)
Extracts the daily event transactions of the users with most events Discretizing the positions to a NxN grid

**Param** application:

**Param** mxhh:

**Param** mnhh:

**Param** scale:

**Returns**

SuperHubTransactions.**dailyTransactions**(*application*, *mxhh*, *mnhh*, *cpath*)
Extracts the daily event transactions of the users with most events

**Param** application:

**Param** mxhh:

**Param** mnhh:

**Returns**

SuperHubTransactions.**saveDailyTransactions**(*nfile*, *application*, *mxhh*, *mnhh*, *scale=100*)
Saves the daily transactions in a file

**Param** nfile:

**Param** application:

**Param** mxhh:

**Param** mnhh:

**Param** scale:

SuperHubTransactions.**serializeDailyTransactions**(*trans*)
Transforms the transactions from diccionaties to lists

**Param** trans:

**Returns**

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- *modindex*
- *search*

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