C:\Users\whitn\Anaconda2\envs\ml4qs2\python.exe C:/Users/whitn/OneDrive/Documenten/Groupwork\_TommyErik/ML4QS/ML4QS-master/PythonCode/crowdsignals\_ch5.py

C:/Users/whitn/OneDrive/Documenten/Groupwork\_TommyErik/ML4QS/ML4QS-master/PythonCode/crowdsignals\_ch5.py:34: FutureWarning: to\_datetime is deprecated. Use pd.to\_datetime(...)

dataset.index = dataset.index.to\_datetime()

===== kmeans clustering =====

k =  2

silhouette =  0.65168519506

k =  3

silhouette =  0.653560243188

k =  4

silhouette =  0.674377078673

**k =  5**

**silhouette =  0.684820235913**

k =  6

silhouette =  0.669328478732

k =  7

silhouette =  0.652570970206

k =  8

silhouette =  0.655500240017

k =  9

silhouette =  0.65571365678

\multirow{2}{\*}{ gyr\_phone\_x } & mean   & -0.01 & 0.80 & -0.91 & 1.17 & -1.09 \\

& std   & 0.15 &  0.43 & 0.39  & 0.42 & 0.43 \\

\multirow{2}{\*}{ gyr\_phone\_y } & mean   & 0.04 & -0.37 & -0.14 & 0.31 & 0.16 \\

& std   & 0.22 &  0.59 & 0.51  & 0.56 & 0.58 \\

\multirow{2}{\*}{ gyr\_phone\_z } & mean   & 0.01 & -0.50 & -0.83 & 1.02 & 0.80 \\

& std   & 0.12 &  0.47 & 0.41  & 0.47 & 0.33 \\

labelOnTable  & percentage &  100.00 \% & 0.00 \%  & 0.00 \% & 0.00 \% &  0.00 \% \\

labelSitting  & percentage &  98.80 \% & 0.00 \%  & 0.80 \% & 0.40 \%  & 0.00 \% \\

labelWashingHands  & percentage & 91.23 \%  & 1.75 \% & 5.26 \% & 1.75 \%  & 0.00 \% \\

labelWalking  & percentage &  28.57 \% & 21.31 \%  & 18.50 \% & 15.46 \%  & 16.16 \% \\

labelStanding  & percentage &  96.21 \% & 1.42 \%  & 0.47 \% & 0.47 \%  & 1.42 \% \\

labelDriving  & percentage &  98.06 \% & 0.56 \%  & 0.28 \% & 0.00 \%  & 1.11 \% \\

labelEating  & percentage  & 97.46 \% & 1.02 \%  & 0.51 \% & 0.51 \% &  0.51 \% \\

labelRunning  & percentage &  7.34 \% & 11.93 \%  & 26.61 \% & 44.95 \%  & 9.17 \% \\

===== k medoids clustering =====

------------------This is iteration number: 0

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.609971144588

k = 4

silhouette = 0.668383734459

k = 5

silhouette = 0.618461325026

k = 6

silhouette = 0.636936521963

k = 7

silhouette = 0.630774551638

k = 8

silhouette = 0.630854975372

k = 9

silhouette = 0.610351630551

------------------This is iteration number: 1

k = 2

silhouette = 0.668955903316

k = 3

silhouette = 0.643084822285

k = 4

silhouette = 0.597526702008

k = 5

silhouette = 0.668168701266

k = 6

silhouette = 0.639485770791

k = 7

silhouette = 0.637038305839

k = 8

silhouette = 0.600632559726

k = 9

silhouette = 0.608765838149

------------------This is iteration number: 2

k = 2

silhouette = 0.659154812829

k = 3

silhouette = 0.643084822285

k = 4

silhouette = 0.639251646977

k = 5

silhouette = 0.667763551417

k = 6

silhouette = 0.636936521963

k = 7

silhouette = 0.643407911374

k = 8

silhouette = 0.553261614432

k = 9

silhouette = 0.6134302233

------------------This is iteration number: 3

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.652384410216

k = 4

silhouette = 0.646860479527

k = 5

silhouette = 0.667018934186

k = 6

silhouette = 0.645562547563

k = 7

silhouette = 0.633538086917

k = 8

silhouette = 0.608127054781

k = 9

silhouette = 0.597234883514

------------------This is iteration number: 4

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.643084822285

k = 4

silhouette = 0.671527290996

k = 5

silhouette = 0.659593941128

k = 6

silhouette = 0.636936521963

k = 7

silhouette = 0.630414152506

k = 8

silhouette = 0.627656106049

k = 9

silhouette = 0.613625999449

------------------This is iteration number: 5

k = 2

silhouette = 0.668955903316

k = 3

silhouette = 0.648441986639

k = 4

silhouette = 0.670369786516

k = 5

silhouette = 0.658127868546

k = 6

silhouette = 0.636936521963

k = 7

silhouette = 0.625291731752

k = 8

silhouette = 0.630010411713

k = 9

silhouette = 0.618940018386

------------------This is iteration number: 6

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.646308199985

k = 4

silhouette = 0.622851848638

k = 5

silhouette = 0.623809954359

k = 6

silhouette = 0.639485770791

k = 7

silhouette = 0.654423030479

k = 8

silhouette = 0.623593961569

k = 9

silhouette = 0.619325591656

------------------This is iteration number: 7

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.63052888142

k = 4

silhouette = 0.642800313596

k = 5

silhouette = 0.653103810821

k = 6

silhouette = 0.639485770791

k = 7

silhouette = 0.643407911374

k = 8

silhouette = 0.623152452401

k = 9

silhouette = 0.583904040076

------------------This is iteration number: 8

k = 2

silhouette = 0.673655677075

k = 3

silhouette = 0.623677634413

k = 4

silhouette = 0.633471389532

k = 5

silhouette = 0.659593941128

k = 6

silhouette = 0.640498512525

k = 7

silhouette = 0.655056383597

k = 8

silhouette = 0.624442392685

k = 9

silhouette = 0.619484019699

------------------This is iteration number: 9

k = 2

silhouette = 0.615962931166

k = 3

silhouette = 0.644904495735

k = 4

silhouette = 0.648860227201

k = 5

silhouette = 0.659593941128

k = 6

silhouette = 0.636936521963

k = 7

silhouette = 0.641056204142

k = 8

silhouette = 0.566439740293

k = 9

silhouette = 0.550386346543

Printing the silhouette values just in case :

[0.66549636130768597, 0.63854712198504449, 0.64419034194502689, 0.65352359690044437, 0.63892009822771723, 0.63944082696178384, 0.60881712690212886, 0.60354485913239697]

The highest average silhouette score is 0.665496361308

which you get from k = 2

\multirow{2}{\*}{ gyr\_phone\_x } & mean & -0.06 & 1.13 \\

& std & 0.42 & 0.50 \\

\multirow{2}{\*}{ gyr\_phone\_y } & mean & 0.01 & 0.32 \\

& std & 0.32 & 0.56 \\

\multirow{2}{\*}{ gyr\_phone\_z } & mean & -0.04 & 0.99 \\

& std & 0.34 & 0.50 \\

labelOnTable & percentage & 100.00 \% & 0.00 \% \\

labelSitting & percentage & 99.60 \% & 0.40 \% \\

labelWashingHands & percentage & 96.49 \% & 3.51 \% \\

labelWalking & percentage & 84.54 \% & 15.46 \% \\

labelStanding & percentage & 98.58 \% & 1.42 \% \\

labelDriving & percentage & 99.72 \% & 0.28 \% \\

labelEating & percentage & 99.49 \% & 0.51 \% \\

labelRunning & percentage & 55.05 \% & 44.95 \% \\

===== agglomaritive clustering =====

k =  2

silhouette =  0.667683224415

k =  3

silhouette =  0.662339825509

k =  4

silhouette =  0.674432809777

**k =  5**

**silhouette =  0.685587362756**

k =  6

silhouette =  0.603810879769

k =  7

silhouette =  0.600221441229

k =  8

silhouette =  0.600255975204

k =  9

silhouette =  0.60035490653

Process finished with exit code 0