C:\Users\whitn\Anaconda2\envs\ml4qs2\python.exe C:/Users/whitn/OneDrive/Documenten/Groupwork\_TommyErik/ML4QS/ML4QS-master/PythonCode/crowdsignals\_ch7\_classification\_question3practical.py

C:/Users/whitn/OneDrive/Documenten/Groupwork\_TommyErik/ML4QS/ML4QS-master/PythonCode/crowdsignals\_ch7\_classification\_question3practical.py:46: FutureWarning: to\_datetime is deprecated. Use pd.to\_datetime(...)

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

Training set length is: 455

Test set length is: 196

#basic features: 9

#PCA features: 7

#time features: 320

#frequency features: 432

#cluster features: 1

Running for non deterministic classifiers, this is iteration:

0

C:\Users\whitn\Anaconda2\envs\ml4qs2\lib\site-packages\sklearn\neural\_network\multilayer\_perceptron.py:563: ConvergenceWarning: Stochastic Optimizer: Maximum iterations reached and the optimization hasn't converged yet.

% (), ConvergenceWarning)

Running for non deterministic classifiers, this is iteration:

1

Running for non deterministic classifiers, this is iteration:

2

Running for non deterministic classifiers, this is iteration:

3

Running for non deterministic classifiers, this is iteration:

4

Just finished KNN

Just finished DT

Just finished NB

initial set & 0.9881 \emph{( 0.9780 - 0.9983 )} & 0.9724 \emph{( 0.9491 - 0.9958 )} & 0.9851 \emph{( 0.9737 - 0.9964 )} & 0.9888 \emph{( 0.9737 - 1.0038 )} & 0.9824 \emph{( 0.9701 - 0.9947 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 0.9824 \emph{( 0.9701 - 0.9947 )} & 0.9643 \emph{( 0.9378 - 0.9908 )} & 0.9846 \emph{( 0.9731 - 0.9962 )} & 0.9796 \emph{( 0.9594 - 0.9998 )} \\\hline

Running for non deterministic classifiers, this is iteration:

0

Running for non deterministic classifiers, this is iteration:

1

Running for non deterministic classifiers, this is iteration:

2

Running for non deterministic classifiers, this is iteration:

3

Running for non deterministic classifiers, this is iteration:

4

Just finished KNN

Just finished DT

Just finished NB

Chapter 3 & 0.9837 \emph{( 0.9719 - 0.9956 )} & 0.9724 \emph{( 0.9491 - 0.9958 )} & 0.9864 \emph{( 0.9755 - 0.9972 )} & 0.9908 \emph{( 0.9772 - 1.0044 )} & 0.9824 \emph{( 0.9701 - 0.9947 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 0.9802 \emph{( 0.9672 - 0.9933 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 0.9868 \emph{( 0.9761 - 0.9975 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} \\\hline

Running for non deterministic classifiers, this is iteration:

0

Running for non deterministic classifiers, this is iteration:

1

Running for non deterministic classifiers, this is iteration:

2

Running for non deterministic classifiers, this is iteration:

3

Running for non deterministic classifiers, this is iteration:

4

Just finished KNN

Just finished DT

Just finished NB

Chapter 4 & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9827 \emph{( 0.9640 - 1.0013 )} & 0.9965 \emph{( 0.9909 - 1.0020 )} & 0.9929 \emph{( 0.9808 - 1.0049 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9890 \emph{( 0.9792 - 0.9988 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 0.9824 \emph{( 0.9701 - 0.9947 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} [\\\hline](file:///\\\hline)

KNN

Running for non deterministic classifiers, this is iteration:

0

Running for non deterministic classifiers, this is iteration:

1

Just finished DT

Just finished NB

Chapter 5 & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9827 \emph{( 0.9640 - 1.0013 )} & 0.9960 \emph{( 0.9902 - 1.0019 )} & 0.9939 \emph{( 0.9827 - 1.0050 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 1.0000 \emph{( 1.0000 - 1.0000 )} & 0.9978 \emph{( 0.9934 - 1.0022 )} & 0.9847 \emph{( 0.9672 - 1.0022 )} & 0.9824 \emph{( 0.9701 - 0.9947 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} [\\\hline](file:///\\\hline)

KNN

Selected features & 0.9908 \emph{( 0.9818 - 0.9997 )} & 0.9908 \emph{( 0.9772 - 1.0044 )} & 0.9943 \emph{( 0.9872 - 1.0014 )} & 0.9918 \emph{( 0.9790 - 1.0047 )} & 0.9780 \emph{( 0.9643 - 0.9918 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 0.9868 \emph{( 0.9761 - 0.9975 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 0.9934 \emph{( 0.9858 - 1.0010 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} & 0.9736 \emph{( 0.9586 - 0.9887 )} & 0.9898 \emph{( 0.9754 - 1.0042 )} \\\hline

{'criterion': 'entropy', 'min\_samples\_leaf': 2}

Feature importance decision tree:

pca\_2\_temp\_std\_ws\_30\_freq\_0.0\_Hz\_ws\_10 & 0.900085259008

acc\_phone\_z\_temp\_mean\_ws\_30 & 0.0532089955202

pca\_4\_pse & 0.0230726552167

gyr\_phone\_x\_freq\_0.4\_Hz\_ws\_10 & 0.0183059377778

pca\_4\_freq\_0.5\_Hz\_ws\_10 & 0.0053271524768

acc\_phone\_y\_temp\_std\_ws\_30\_freq\_0.5\_Hz\_ws\_10 & 0.0

acc\_phone\_x\_temp\_mean\_ws\_30 & 0.0

acc\_phone\_z\_temp\_std\_ws\_30 & 0.0

pca\_7\_temp\_std\_ws\_30\_freq\_0.3\_Hz\_ws\_10 & 0.0

pca\_4\_temp\_std\_ws\_30 & 0.0

{'n\_estimators': 10, 'criterion': 'gini', 'min\_samples\_leaf': 2}

Feature importance random forest:

pca\_4\_temp\_std\_ws\_30 & 0.490815870746

acc\_phone\_z\_temp\_std\_ws\_30 & 0.166225665975

pca\_2\_temp\_std\_ws\_30\_freq\_0.0\_Hz\_ws\_10 & 0.129053132182

acc\_phone\_x\_temp\_mean\_ws\_30 & 0.10195805141

pca\_4\_pse & 0.0886774656163

acc\_phone\_z\_temp\_mean\_ws\_30 & 0.00747647722008

pca\_4\_freq\_0.5\_Hz\_ws\_10 & 0.00558895934934

pca\_7\_temp\_std\_ws\_30\_freq\_0.3\_Hz\_ws\_10 & 0.00510244750148

acc\_phone\_y\_temp\_std\_ws\_30\_freq\_0.5\_Hz\_ws\_10 & 0.00437000283746

gyr\_phone\_x\_freq\_0.4\_Hz\_ws\_10 & 0.000731927162831

Process finished with exit code 0