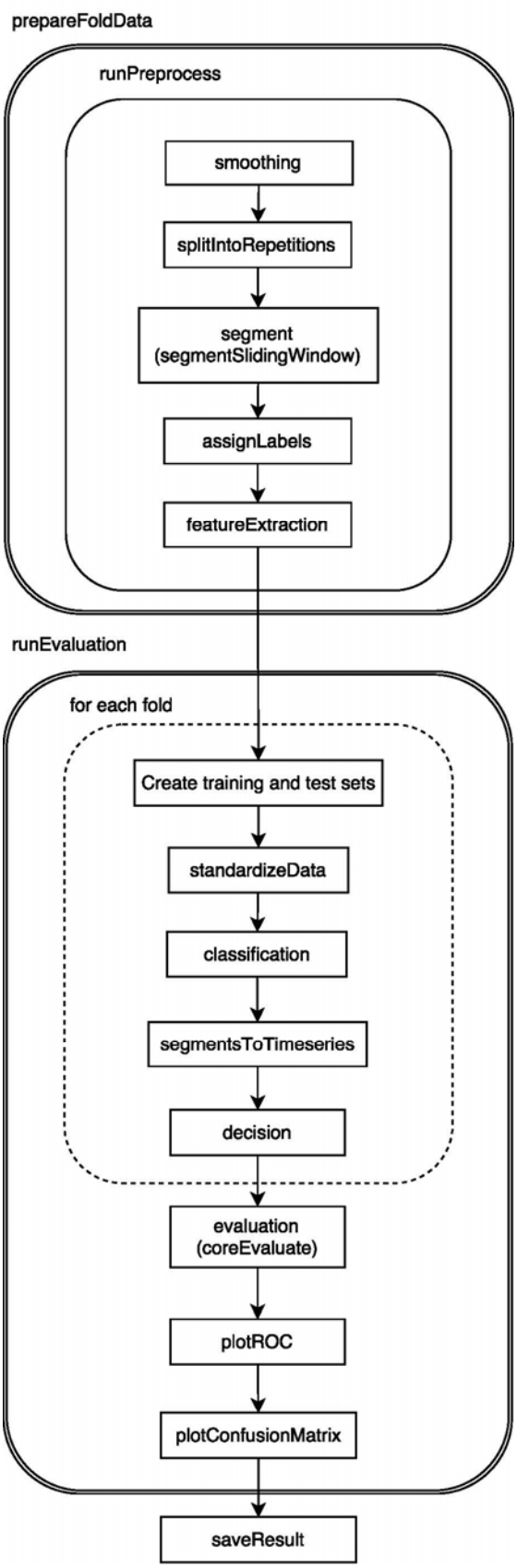
Assignment 4: mHealth

Goal: To get familiar with the PASDAC chain, and implement a Gaussian smoothing filter for the time-series data sets in the PASDAC folders (Data and Data2R).

1. Gaussian Smoothing: Please get familiar with PASDAC and implement a Gaussian smoothing method in 'smoothing.py' file in PASDAC. You need to implement a Gaussian filter by yourself, which means you should not utilize a fully developed library function like ndimage.gaussian_filter1d().
   Either generating a Gaussian kernel by using a library or on your own is allowed. Zero padding at the beginning and end should be used in this assignment (padding means adding a window of zeros to the beginning or end so the signal after filtering is the same length as original signal). AFTER SMOOTHING THE SIGNAL LENGTH SHOULD NOT CHANGE.

2. Understanding PASDAC: Explain each function (including functions in parentheses) in the flowchart depicted below (page 2 of this document) as follows:
   1. The goal of this function.
   2. Explain the input variables of each function.
   3. Explain the output variables of each function.

3. Please submit your 'smoothing.py' file and your answer to question 2 before Feb, 7th 4:59 pm to Canvas. Thanks.


prepareFoldData
runPreprocess
smoothing
splitIntoRepetitions
segment
(segmentSlidingWindow)
assignLabels
featureExtraction
runEvaluation
for each fold
Create training and test sets
standardizeData
classification
segmentsToTimeseries
decision
evaluation
(coreEvaluate)
plotROC
plotConfusionMatrix
saveResult