

ECG Project

ECG Project: step-1 (30 points)

- The task is to find the R-peaks, so that we can divide a long ECG signal into individual heart beats.
- A by-product: we can use the R-peaks to calculate heart rate
- Submit ECG_project_step1_your_name.ipynb to Blackboard

ECG Project: step-2 (70 points)

- This step has two parts.
 - part-1 : 40 points
 - part-2 : 30 points
- The ECG signals have been divided into individual beats.
- The data files have been provided to you.
 - read ECG_load_data.ipynb about data loading
- Submit two files to Blackboard
 - ECG_project_step2_part1_your_name.ipynb
 - ECG_project_step2_part2_your_name.ipynb

ECG Project: step-2, Part-1 (40 points)

- Use ECG_load_data.ipynb to load data, and then you will get
the training set: X_train, Y_train
the test set: X_test, Y_test
- Build four classifiers to classifier the ECG signals into 5 classes, using the default parameter values for each classifier.
 - KNeighborsClassifier
 - LogisticRegression
 - DecisionTreeClassifier
 - RandomForestClassifier
- Report the training accuracy and the test accuracy in a Table (pandas dataframe)

	KNeighborsClassifier	LogisticRegression	DecisionTreeClassifier	RandomForestClassifier
training accuracy				
test accuracy				

ECG Project: step-2, Part-2 (30 points)

- Use ECG_load_data.ipynb to load data, and then you will get the training set: `X_train, Y_train`
the test set: `X_test, Y_test`
- Build three classifiers to classifier the ECG signals into 5 classes, and find the optimal value of the *parameter* for each classifier.
 - `KNeighborsClassifier(n_neighbors)`
 - `DecisionTreeClassifier(max_depth)`
 - `RandomForestClassifier(max_depth)`
- Report the training accuracy and the test accuracy in a Table (pandas dataframe)

	KNeighborsClassifier	LogisticRegression	DecisionTreeClassifier	RandomForestClassifier
training accuracy				
test accuracy				

Note: you will get zero score if the test set is used for parameter optimization (I have explained this many times in class)