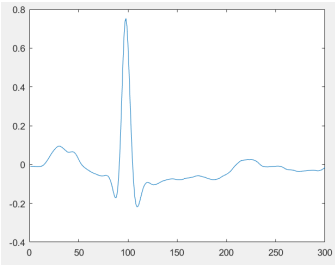
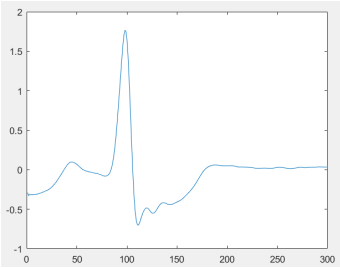
4. ECG (Normal & PVC)

Description:

The ECG heart beat classification is considered from the main tools for the heart diseases diagnosis. Hence, the automation of this process is a critical issue since the 24-hour monitoring process of the ECG signals is very difficult and exhaustive. ECG is a recording of the electrical activity of the heart over time, reflecting the underlying cardio-physiology of the subject. Visual inspection of each heart beat within an ECG trace reveals three prominent excursions from baseline. These excursions are termed waves – and are labeled P, QRS and T waves, which occur in this temporal order. Cardiac arrhythmias (diseases) which are the result of any abnormal activity in the heart can be indicated by any change occurs in the main ECG waves (P, QRS and T waves). One of these diseases is the PVC, which in turn has a specific signal shape as in the following figure:



Normal Beat



PVC Beat

Input:

ECG Signal

Output:

Label whether the person has no disease (Normal), or has PVC disease.

Steps:

1) Preprocessing: Band Pass Filter(Butterworth 0.5 to 40) + normalization
2) Feature Extraction: Wavelet (Daubechies mother wavelets)
3) Classification: KNN

Dataset:

MIT_BIH database (sampling rate 360 HZ)

5. ECG (Normal & LBBB)

Description: