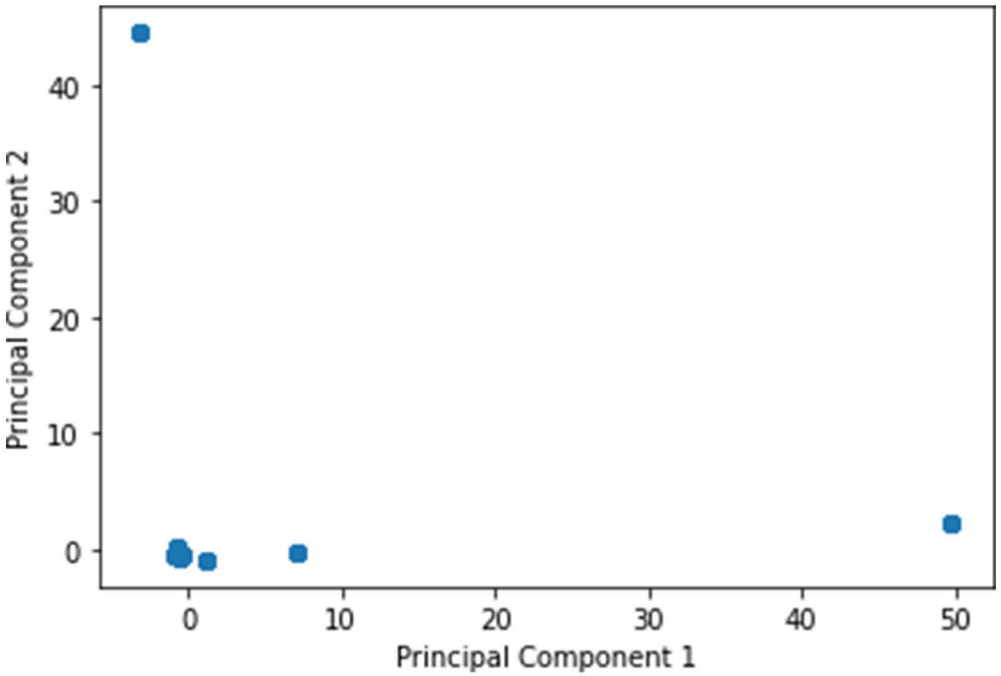
LABEL EXTRACTION

The main idea is to extract the annotation from each record's subject, and then classify them in a similar way according to the paper:

OBSERVATIONS

We used PCA to apply feature reduction on the aforementioned features, and these were the remaining Principal components



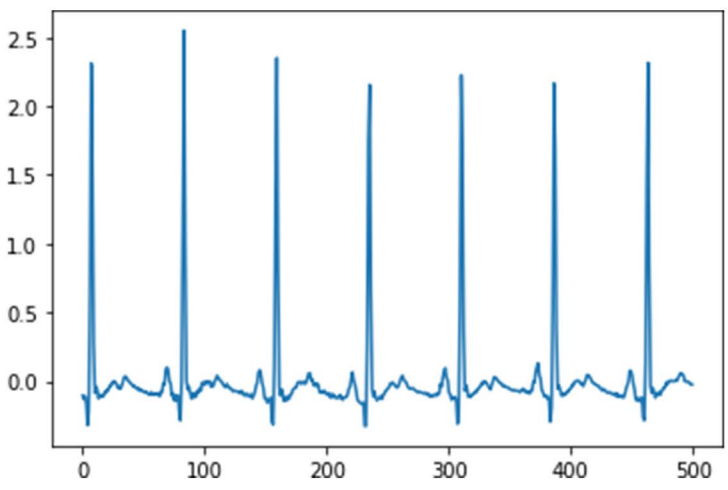
FEATURE EXTRACTION

Notebook link:
https://github.com/mahmoud1yaser/Clinical-Decesion-Support-System-Course/blob/main/Task3_feature/feature_extraction.ipynb
According to this paper:
https://www.mdpi.com/2076-3417/12/9/4218
Except that we are working only with the ECG data streams

Table 1. RR intervals features and R-wave Amplitudes feature.

Derived from RR	Derived from RAMP	Feature	Description
×		*RRmean*	Mean of RR intervals
×		*RMSSD*	Root mean square of differences between adjacent RR intervals
×		*SDNN*	Standard deviation of RR intervals
×		*NN50*	Number of adjacent RR intervals exceeding 50 milliseconds
×		*pNN50*	Ratio of NN50 to the number of RR intervals
×		*HR*	Mean of heart rates
×	×	VLF^1, VLF^2	Very low frequency (0~0.04 Hz) component of the corresponding signal
×	×	LF^1, LF^2	Low frequency (0.04~0.15 Hz) component of the corresponding signal
×	×	HF^1, HF^2	High frequency (0.15~0.4 Hz) component of the corresponding signal
×	×	LF/HF^1, LF/HF^2	Ratio of LF to HF
×	×	$LFnorm^1$, $LFnorm^2$	Normalized low frequency components
×	×	$HFnorm^1$, $HFnorm^2$	Normalized high frequency components

$^{1, 2}$ represent the frequency domain features of the RR interval and RAMP, respectively.



Example of extracted signal from dataset

CAIRO UNIVERSITY
FACULTY OF ENGINEERING

CDSS TASK 3

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