LIST OF FEATURES

DEMOGRAPHY

- **Age**
- **Weight**
- **Height**
- **BMI**: Body mass index

CARDIAC

- **MeanNN**: The mean of the RR intervals.
- **SDNN**: The standard deviation of the RR intervals.
- **SDANN1, SDANN2, SDANN5**: The standard deviation of average RR intervals extracted from n-minute segments of time series data (n being 1, 2, and 5).
- **SDNNI1, SDNNI2, SDNNI5**: The mean of the standard deviations of RR intervals extracted from n-minute segments of time series data (n being 1, 2, and 5).
- **RMSSD**: The square root of the mean of the squared successive differences between adjacent RR intervals.
- **SDSD**: The standard deviation of the successive differences between RR intervals.
- **CVNN**: The standard deviation of the RR intervals (SDNN) divided by the mean of the RR intervals (MeanNN).
- **CVSD**: The root mean square of successive differences (RMSSD) divided by the mean of the RR intervals (MeanNN).
- **MedianNN**: The median of the RR intervals.
- **MadNN**: The median absolute deviation of the RR intervals.
- **MCVNN**: The median absolute deviation of the RR intervals (MadNN) divided by the median of the RR intervals (MedianNN).
- **IQRNN**: The interquartile range (IQR) of the RR intervals.
- **SDRMSSD**: SDNN / RMSSD, a time-domain equivalent for the low Frequency-to-High Frequency (LF/HF) Ratio.
- **Prc20NN**: The 20th percentile of the RR intervals.
- **Prc80NN**: The 80th percentile of the RR intervals.
- **pNN50**: The proportion of RR intervals greater than 50ms, out of the total number of RR intervals.
- **pNN20**: The proportion of RR intervals greater than 20ms, out of the total number of RR intervals.
- **MinNN**: The minimum of the RR intervals.
- **MaxNN**: The maximum of the RR intervals.
- **HTI**: The HRV triangular index, measuring the total number of RR intervals divided by the height of the RR intervals histogram.
- **TINN**: The baseline width of the RR intervals distribution obtained by triangular interpolation.
- **VLF**: The spectral power of very low frequencies (0.0033 to 0.04 Hz).
- **LF**: The spectral power of low frequencies (0.04 to 0.15 Hz).
- **HF**: The spectral power of high frequencies (0.15 to 0.4 Hz).

- **VHF**: The spectral power of very high frequencies (0.4 to 0.5 Hz).
- **TP**: The total spectral power.
- **LFHF**: The ratio obtained by dividing the low frequency power by the high frequency power.
- **LFn**: The normalized low frequency, obtained by dividing the low frequency power by the total power.
- **HFn**: The normalized high frequency, obtained by dividing the low frequency power by the total power.
- **LnHF**: The log transformed HF.
- **SD1**: Standard deviation perpendicular to the line of identity.
- **SD2**: Standard deviation along the identity line. Index of long-term HRV changes.
- **SD1SD2**: ratio of *SD1* to *SD2*.
- **S**: Area of ellipse described by *SD1* and *SD2* (pi * SD1 * SD2).
- **CSI**: The Cardiac Sympathetic Index calculated by dividing the longitudinal variability of the Poincaré plot (4*SD2) by its transverse variability (4*SD1).
- **CVI**: The Cardiac Vagal Index equal to the logarithm of the product of longitudinal (4*SD2) and transverse variability (4*SD1).
- **CSI_Modified**: The modified CSI obtained by dividing the square of the longitudinal variability by its transverse variability.
- **GI**: Guzik's Index.
- **SI**: Slope Index.
- **AI**: Area Index.
- **PI**: Porta's Index.
- **SD1d** and **SD1a**: short-term variance of contributions of decelerations (prolongations of RR intervals) and accelerations (shortenings of RR intervals), respectively.
- **C1d** and **C1a**: the contributions of heart rate decelerations and accelerations to short-term HRV, respectively.
- **SD2d** and **SD2a**: long-term variance of contributions of decelerations (prolongations of RR intervals) and accelerations (shortenings of RR intervals), respectively.
- **C2d** and **C2a**: the contributions of heart rate decelerations and accelerations to long-term HRV, respectively.
- **SDNNd** and **SDNNa**: total variance of contributions of decelerations (prolongations of RR intervals) and accelerations (shortenings of RR intervals), respectively.
- **Cd** and **Ca**: the total contributions of heart rate decelerations and accelerations to HRV.
- **PIP**: Percentage of inflection points of the RR intervals series.
- **IALS**: Inverse of the average length of the acceleration/deceleration segments.
- **PSS**: Percentage of short segments.
- **PAS**: Percentage of NN intervals in alternation segments.
- **DFA_alpha1**: The monofractal detrended fluctuation analysis of the HR signal, corresponding to short-term correlations.
- **DFA_alpha2**: The monofractal detrended fluctuation analysis of the HR signal, corresponding to long-term correlations.
- **MFDFA_alpha1_Width**, **MFDFA_alpha1_Peak**, **MFDFA_alpha1_Mean**, **MFDFA_alpha1_Max**, **MFDFA_alpha1_Delta**, **MFDFA_alpha1_Asymmetry**, **MFDFA_alpha1_Fluctuation**, **MFDFA_alpha1_Increment, MFDFA_alpha2_Width**, **MFDFA_alpha2_Peak**, **MFDFA_alpha2_Mean**, **MFDFA_alpha2_Max**, **MFDFA_alpha2_Delta**, **MFDFA_alpha2_Asymmetry**, **MFDFA_alpha2_Fluctuation**, **MFDFA_alpha2_Increment**: Indices related to the Multifractal Detrended Fluctuation Analysis.
- **ApEn**: Approximate entropy.

- **SampEn**: Sample entropy.
- **ShanEn**: Shannon entropy.
- **FuzzyEn**: Fuzzy entropy.
- **MSEn**: Multiscale entropy.
- **CMSEn**: Composite Multiscale entropy.
- **RCMSEn**: Refined Composite Multiscale entropy.
- **CD**: Correlation Dimension.
- **HFD**: Higuchi's Fractal Dimension.
- **KFD**: Katz's Fractal Dimension.
- **LZC**: Lempel-Ziv Complexity.
- **SymDynMaxMin_0V**: Percentage of words in the Max–min method that fall into the 0V family, representing sequences where all three consecutive symbols are equal. This method uses six levels of uniform quantization.
- **SymDynMaxMin_1V**: Percentage of words in the Max–min method that fall into the 1V family, which includes sequences with only one variation among three consecutive symbols.
- **SymDynMaxMin_2LV**: Percentage of words in the Max–min method that fall into the 2LV family, representing sequences with two variations in the same direction, forming an increasing or decreasing sequence.
- **SymDynMaxMin_2UV**: Percentage of words in the Max–min method that fall into the 2UV family, where symbols vary two times in opposite directions, forming a peak or a valley.
- **SymDynSigma_0V**: Percentage of words in the σ method that fall into the 0V family. The σ method uses three levels defined by the signal average and its variations shifted up and down by a set factor.
- **SymDynSigma_1V**: Percentage of words in the σ method that fall into the 1V family.
- **SymDynSigma_2LV**: Percentage of words in the σ method that fall into the 2LV family.
- **SymDynSigma_2UV**: Percentage of words in the σ method that fall into the 2UV family.
- **SymDynEqualPorba4_0V**: Percentage of words using the Equal-probability method with four quantization levels (q=4) that fall into the 0V family.
- **SymDynEqualPorba4_1V**: Percentage of words using the Equal-probability method with four quantization levels that fall into the 1V family.
- **SymDynEqualPorba4_2LV**: Percentage of words using the Equal-probability method with four quantization levels that fall into the 2LV family.
- **SymDynEqualPorba4_2UV**: Percentage of words using the Equal-probability method with four quantization levels that fall into the 2UV family.
- **SymDynEqualPorba6_0V**: Percentage of words using the Equal-probability method with six quantization levels (q=6) that fall into the 0V family.
- **SymDynEqualPorba6_1V**: Percentage of words using the Equal-probability method with six quantization levels that fall into the 1V family.
- **SymDynEqualPorba6_2LV**: Percentage of words using the Equal-probability method with six quantization levels that fall into the 2LV family.
- **SymDynEqualPorba6_2UV**: Percentage of words using the Equal-probability method with six quantization levels that fall into the 2UV family.

RESPIRATORY

- **RespRate**: respiratory rate.
- **Std_inst_resp_rate**: Standard deviation of instantaneous respiratory rate.

- **Min_inst_resp_rate**: minimal value of instantaneous respiratory rate.
- **Max_inst_resp_rate**: maximal value of instantaneous respiratory rate.
- **Mean_insp_time**: mean inspiration time.
- **Min_insp_time**: minimal inspiration time.
- **Max_insp_time**: maximal inspiration time.
- **Std_insp_time**: standard deviation of inspiration time.
- **Mean_exp_time**:mean expiration time.
- **Min_exp_time**: minimal expiration time.
- **Max_exp_time**: maximal expiration time.
- **Std_exp_time**: standard deviation of expiration time.
- **TV_std**: standard deviation of tidal volume normalized by median tidal volume.
- **TV_q25**: 25^{th} quantile of tidal volume normalized by median tidal volume.
- **TV_q75**: 75^{th} quantile of tidal volume normalized by median tidal volume.
- **TV_skew**: skewness of tidal volume normalized by median tidal volume.
- **TV_kurtosis**: kurtosis of tidal volume normalized by median tidal volume.
- **IE_ratio_mean**: mean inspiration/expiration ratio.

CAUSAL/INFORMATION

- **GC_RR_Resp**: Granger causality from tachogram to respiratory signal.
- **GC_Resp_RR**: Granger causality from respiratory signal to tachogram.
- **STE_RR_Resp**: Symbolic transfer entropy from tachogram to respiratory signal.
- **STE_Resp_RR**: Symbolic transfer entropy from respiratory signal to tachogram.
- **Resp_RR_SVR**: Granger causality from respiratory signal to tachogram calculated using Support Vector Regression (SVR).
- **Resp_RR_BayesianRidge**: Granger causality from respiratory signal to tachogram calculated using Bayesian Ridge Regression.
- **RR_Resp_NN**: Granger causality from tachogram to respiratory signal calculated using Neural Network (NN).
- **Resp_RR_NN**: Granger causality from respiratory signal to tachogram calculated using Neural Network (NN).
- **KGC_Resp_RR**: Granger causality from respiratory signal to tachogram calculated using Kernel Granger Causality (KGC).
- **KGC_RR_Resp**: Granger causality from Tachogram to respiratory signal calculated using Kernel Granger Causality (KGC).
- **RR_Resp_GradientBoostingRegressor**: Granger causality from tachogram to respiratory signal calculated using Gradient Boosting Regressor.
- **Resp_RR_GradientBoostingRegressor**: Granger causality from respiratory signal to tachogram calculated using Gradient Boosting Regressor.
- **RR_Resp_TheilSenRegressor**: Granger causality from tachogram to respiratory signal calculated using Theil-Sen Regressor.
- **Resp_RR_TheilSenRegressor**: Granger causality from respiratory signal to tachogram calculated using Theil-Sen Regressor.
- **RR_Resp_ARDRegression**: Granger causality from tachogram to respiratory signal calculated using Automatic Relevance Determination (ARD) Regression.

- **Resp_RR_ARDRegression**: Granger causality from respiratory signal to tachogram calculated using Automatic Relevance Determination (ARD) Regression.
- **lsNGC_RR_Resp**: Large scale-nonlinear Granger causality from tachogram to respiratory signal.
- **lsNGC_Resp_RR**: Large scale-nonlinear Granger causality from respiratory signal to tachogram.
- **Corr_coef**: Highest values of the Pearson correlation coefficient between respiratory and cardiac signals for lag between -1 and 1 second.
- **Corr_lag**: Value of the lag for which the highest Pearson correlation coefficient was obtained.
- **MI**: Mutual information.
- **AI**: Active information.
- **Block_En**: Block entropy.
- **Cond_En**: Conditional entropy.
- **En_rate**: Entropy rate.
- **Trans_En**: Transfer entropy
- **Perm_En**: Permutation entropy.