

ProActive EWS

A module to detect well being of a
patient

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Introduction

This project involves development of a software model to monitor the deterioration of one or more critical parameters defined by the clinician for a patient. The parameters are Heart Rate, Respiratory Rate, Spo2, Temperature, Systolic BP. The software module shall take as inputs the continuous samples of Heart Rate, Respiratory Rate, Spo2, Temperature, Systolic BP signal data and output an EWS Score which directly affects the well being of patients. At an abstract level, the clinician may specify to monitor the deterioration (% change) of a single or multi-variate parameter over a period of time. The module also watches for specific clinical condition such as "Sleep Apnea Watch".

Project Links -

<https://github.com/manaswitha2000/ProActive-EWS>

This link contains all the jupyter notebooks used long with the graphs

Data Generate - Generates dummy data.

EWS generate - EWS score calculation along with the ews score plots.

Heart Rate - this file contains the plots of actual heart rate.

Pulse Rate - this file contains the plots of actual pulse rate and ML models which predict the pulse rate for the next week.

Respiratory Rate - this file contains the plots of actual respiratory rate.

Temperature - this file contains the plots of calculated temperature.

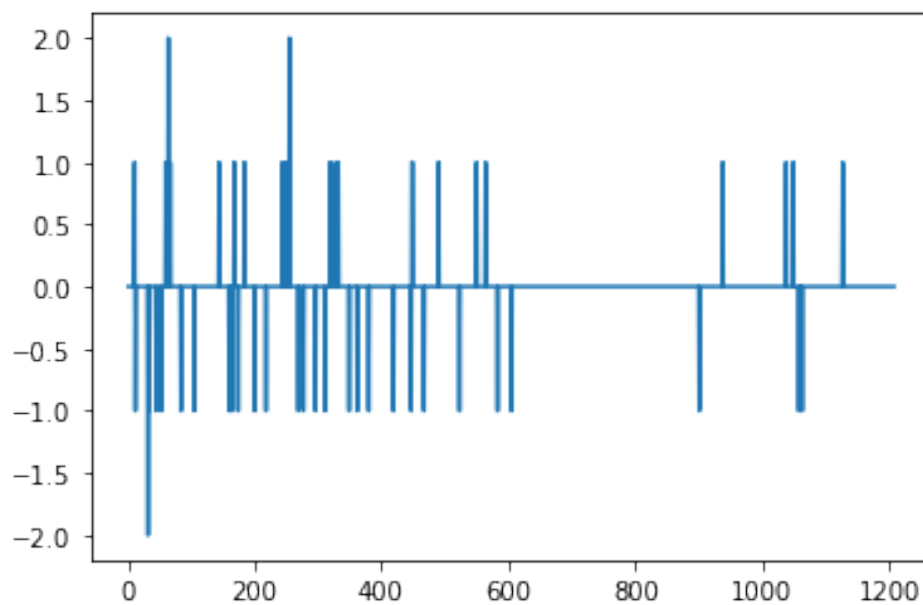
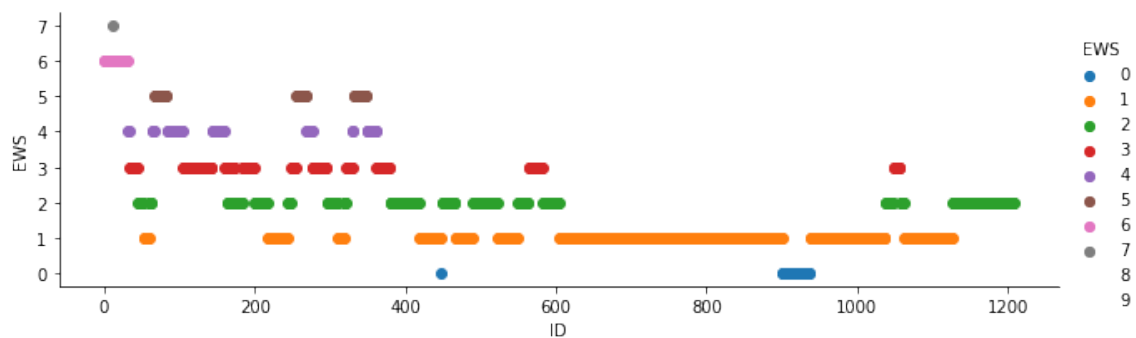
Sleep apnea - This notebook watches sleep apnea.

Vital Signs Monitor Software Model. Pdf - Our study and reference materials are included in this file.

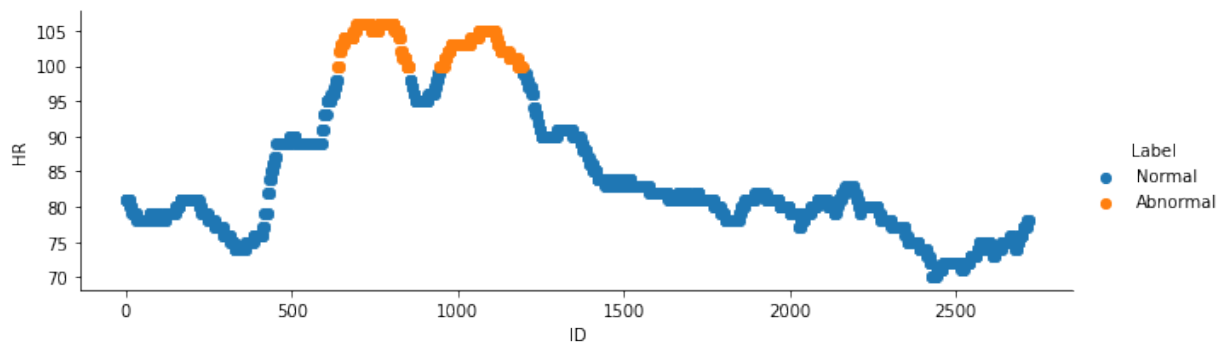
All the csv files contain data in csv format

Graphs - EWS

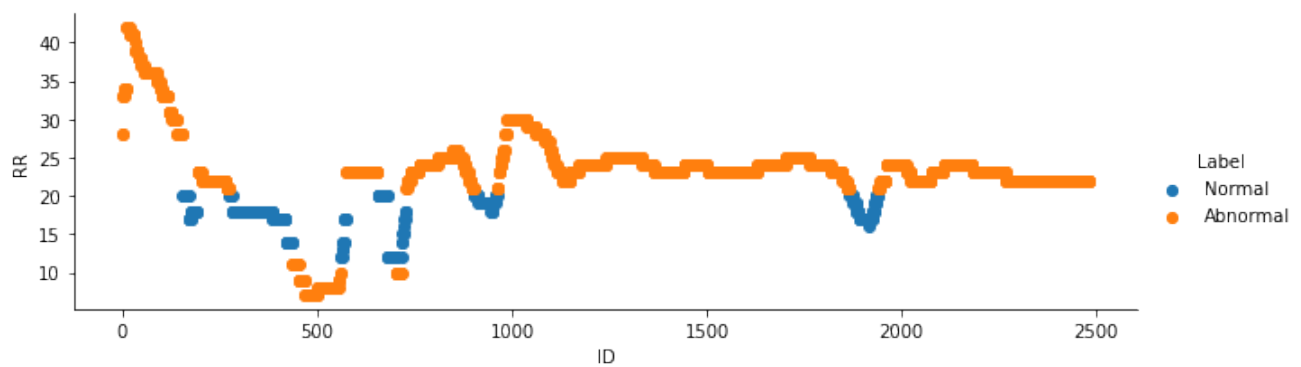
Score	3	2	1	0	1	2	3
Respiratory rate (breaths/min)	>35	31–35	21–30	9–20			<7
SpO2 (%)	<85	85–89	90–92	>92			
Temperature (C)		>38.9	38–38.9	36–37.9	35–35.9	34–34.9	<34
Systolic BP (mmHg)		>199		100–199	80–99	70–79	<70
Heart rate (bpm)	>129	110–129	100–109	50–99	40–49	30–39	<30
AVPU				Alert	Verbal	Pain	Unresponsive



Heart / Pulse rate plot



Respiratory rate plot



Spo2 plot

