ER Triage Tool

A machine learning based triage application for triaging ER patients

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Background

Problem

- ER Overcrowding is a major HealthCare concern and leads to lower quality of care

Solution

- Develop a machine learning model that uses patients vital signs and chief complaints to recommend a triage score

Impact

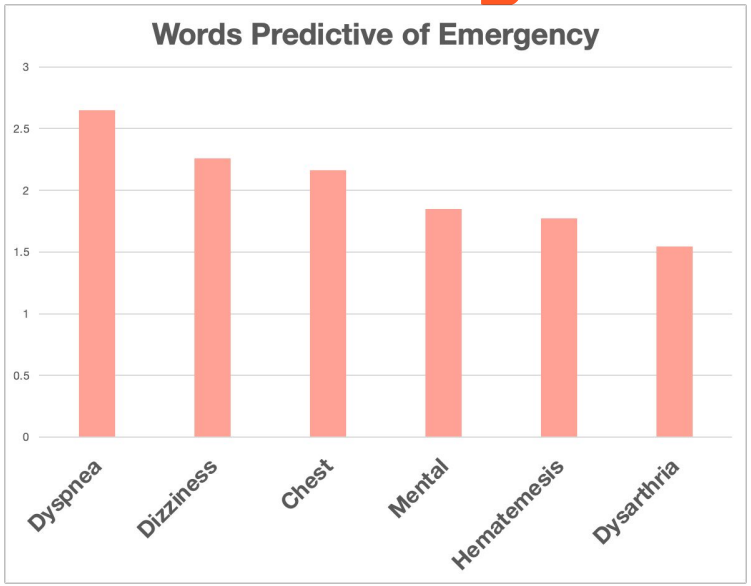
- Reduction of triage time + Human Error Reduction +Improved Quality of Care

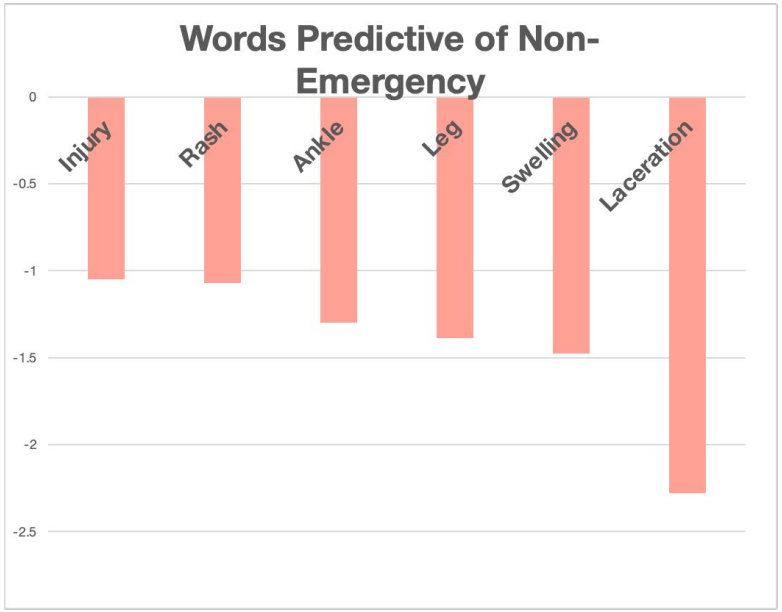
Overview of DataSet+Preprocessing

	Group	Sex	Age	Patients number per hour	Arrival mode	Injury	Chief_complain	Mental	Pain	NRS_pain	...	BT	Saturation	KTAS_RN	Diagnosis in ED	Disposition	KTAS_expert
0	Regional ED	Male	71	3	Private car	injury	right ocular pain	Alert	pain	2.0	...	36.6	100.0	2	Corneal abrasion	Discharge	4
1	Local ED	Female	56	12	Private car	injury	right forearm burn	Alert	pain	2.0	...	36.5	NaN	4	Burn of hand, firts degree dorsum	Discharge	5
2	Regional ED	Female	68	8	119 use	injury	arm pain, Lt	Alert	pain	2.0	...	36.6	98.0	4	Fracture of surgical neck of humerus, closed	Ward admission	5

- Dataset consists of numeric, categorical and text columns
- Null data filled and one hot encoding applied to categorical columns
- Text based columns converted to numeric using NLP and numeric columns scaled

EDA Findings





- Older patients are more likely to be emergency cases
- Non emergency patients report a higher Pain level
- Critical patients less likely to present with an injury.

Model comparison

Decision Tree

Test score: 75%

Recall Score: 27%

Logistic Regression

Test score: 70%

Recall Score: 55%

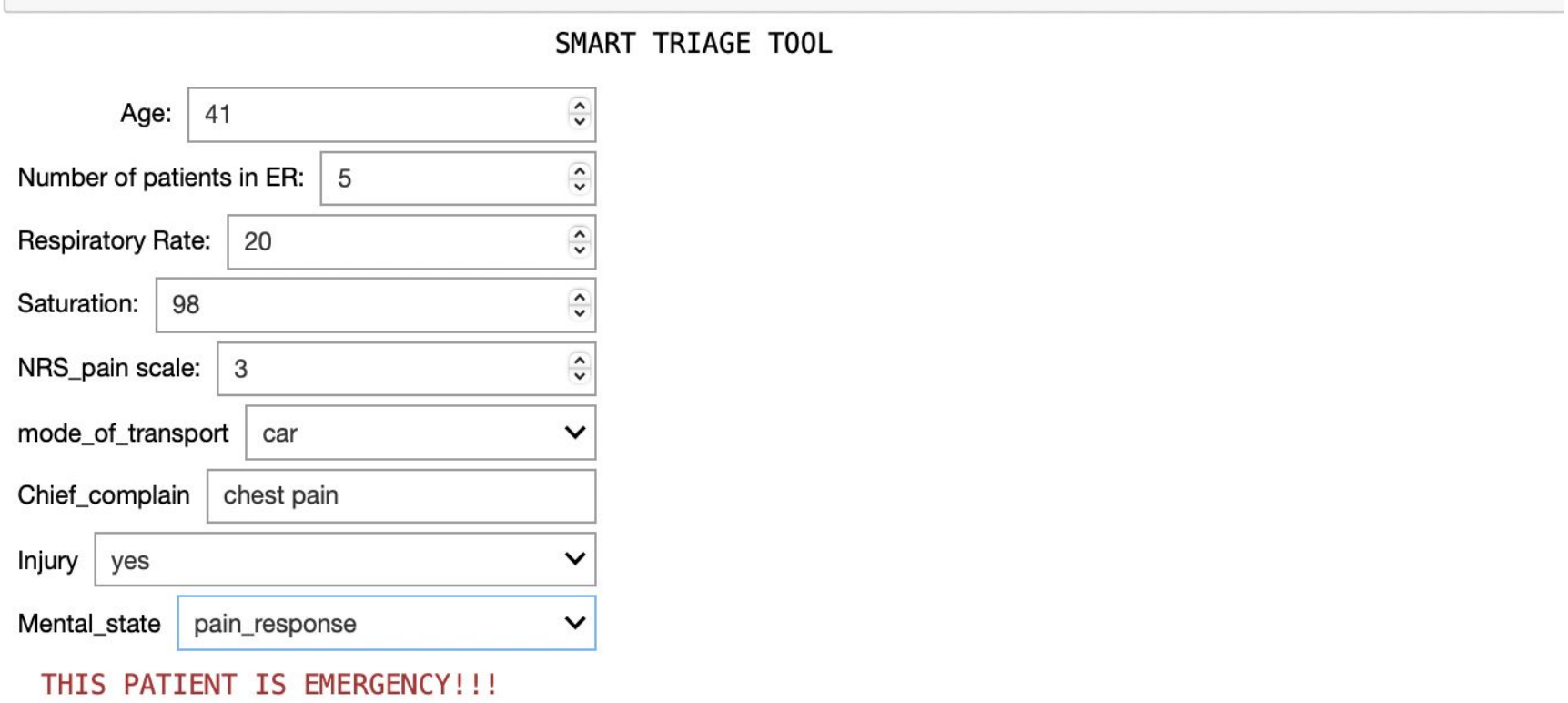
Gradient Boosting

Test score: 80%

Recall Score: 89%

	precision	recall	f1-score	support
0	0.82	0.68	0.74	108
1	0.79	0.89	0.84	146
accuracy			0.80	254
macro avg	0.80	0.78	0.79	254
weighted avg	0.80	0.80	0.80	254

Product Demo



Thankyou!