Machine Learning Algorithm Analysis for the Diagnosis of Breast Cancer

- 1 in 8 women are diagnosed with breast cancer
- Machine learning can implement general functions by learning from data
- ML has enormous potential in medicine

Ideas

Which machine learning algorithms produce the greatest accuracy for the diagnosis of breast cancer?

Methodology

1. Read literature
2. Find dataset
3. Preprocess data
4. Create classifiers
5. Optimize classifiers
6. Analyze results

Findings

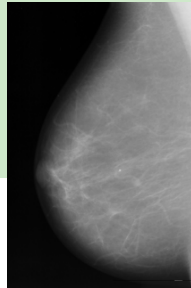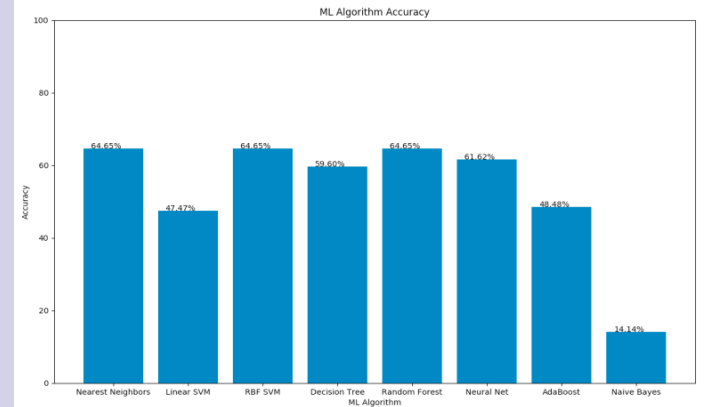Normal   Well-Defined Mass
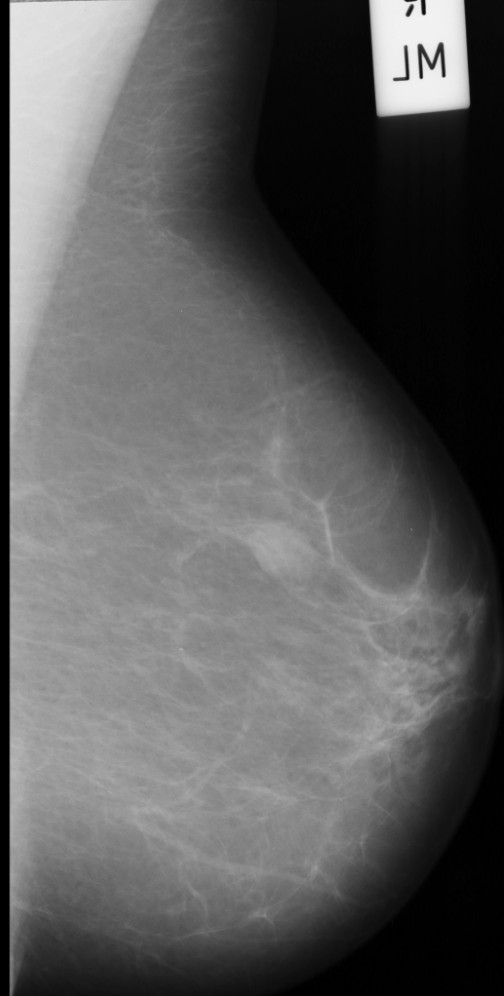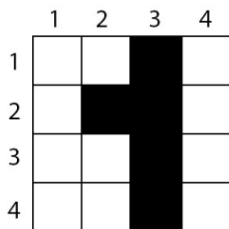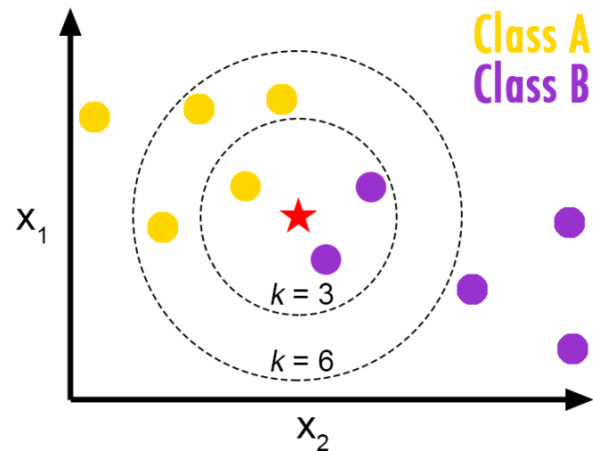
Methodology

2D matrix

	1	2	3	4
1			■	
2		■	■	
3		■	■	
4			■	

1D matrix

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		■			■	■				■				■	

row 1 | row 2 | row 3 | row 4
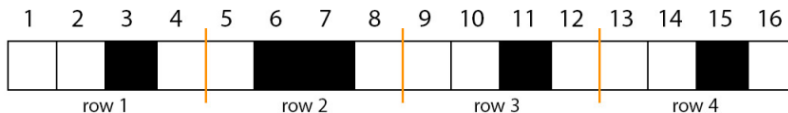
1D matrix (numerical version)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0	255	0	0	255	255	0	0	0	255	0	0	0	255	0

row 1 | row 2 | row 3 | row 4

scikit learn

Class A
Class B

$k = 3$

$k = 6$

x_1

x_2

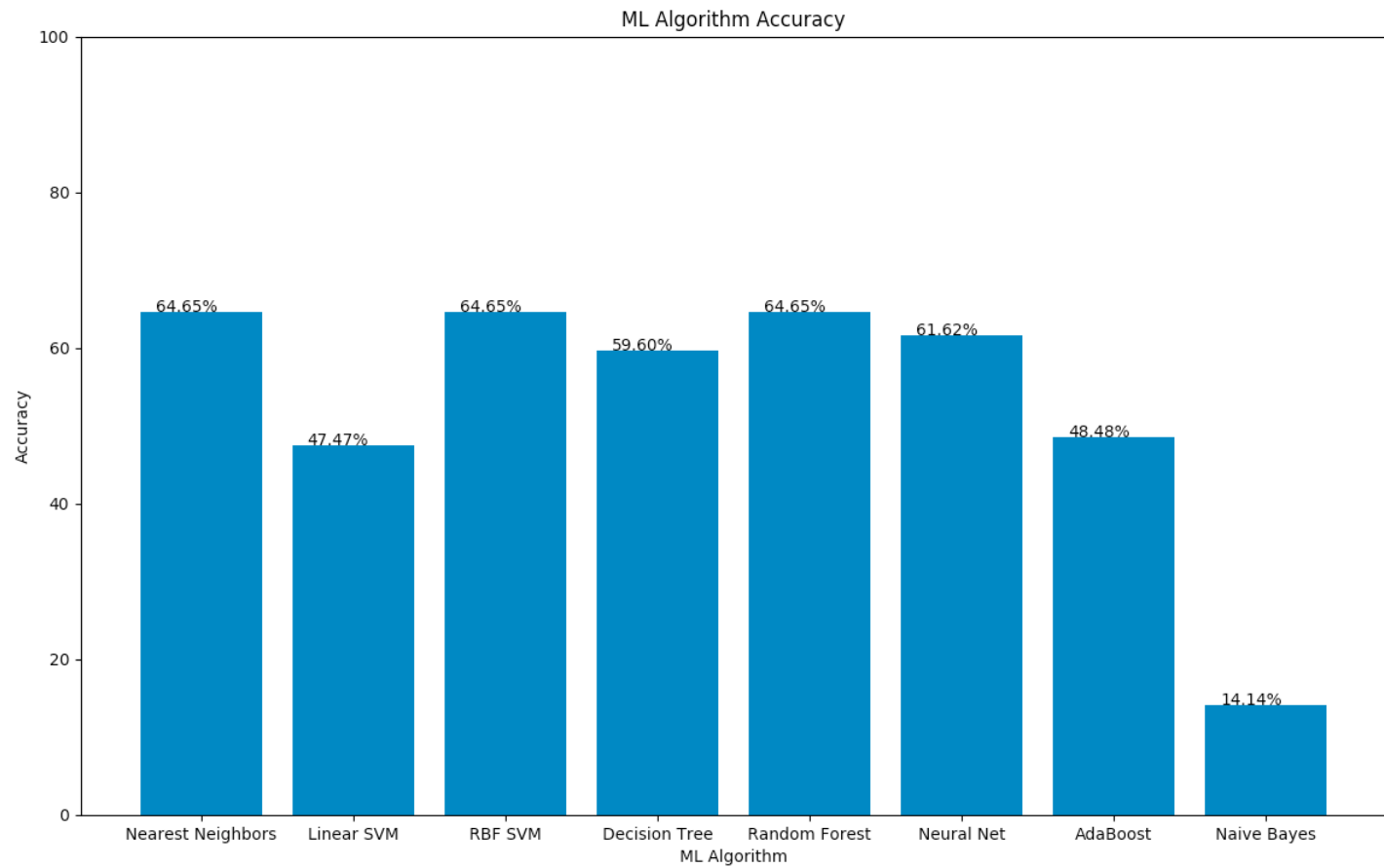ML Algorithm Accuracy

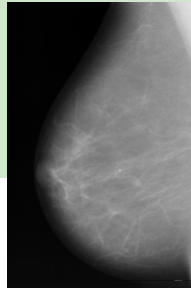# Machine Learning Algorithm Analysis for the Diagnosis of Breast Cancer

- 1 in 8 women are diagnosed with breast cancer
- Machine learning can implement general functions by learning from data
- ML has enormous potential in medicine

Ideas

Which machine learning algorithms produce the greatest accuracy for the diagnosis of breast cancer?

Methodology

1. Read literature
2. Find dataset
3. Preprocess data
4. Create classifiers
5. Optimize classifiers
6. Analyze results

Findings