

Logistic Regression

Programming Assignment

Logistic regression: boolean operators

- Training logistic regression models for Boolean operators
- Requirements
 - AND, OR, XOR
 - You need to build a dataset for each operator
 - may not working for an operator
 - Use numpy arrays
 - Initialization with lists: x , y
 - Random initialization: w , b
 - Use numpy operator
 - Inner product
 - Addition

Logistic regression: boolean operators

- Due: 2022/3/27 PM 11:59
- Submission to HY-ON
- Submit following files
 - A short report (pdf or docx)
 - Source code for model & training
 - For each operator
 - loss plot
 - varying learning rate (at least 3 learning rate)
 - Predicted results
 - Source code

NumPy usages

```
In [26]: import numpy as np
```

Import numpy

```
In [31]: v1 = np.array([1.0,2.0])  
v2 = np.array([1.0,1.0])
```

Initialization with lists

```
In [32]: np.inner(v1,v2)
```

Inner product

```
Out [32]: 3.0
```

```
In [34]: v1+v2
```

Addition

```
Out [34]: array([2., 3.])
```

```
In [35]: 3*v1
```

Scalar multiplication

```
Out [35]: array([3., 6.])
```

```
In [33]: np.random.normal(size = 2)
```

Random initialization with $N(0,1)$

```
Out [33]: array([ 0.25214782, -0.96463649])
```