

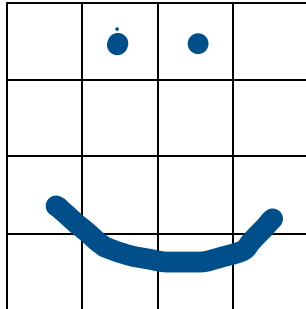


# Digital Mirror

## Am I friend or foe?

How does a Computer See

Sketch a **Happy** face



Write a **Happy** face as 0 and 1s

0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0

Comparing the same face using maths

**Happy**

0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0



**Happy**

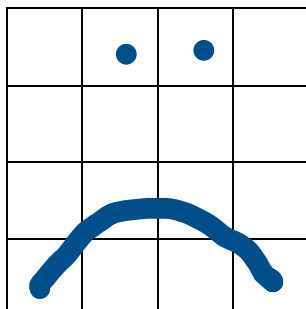
0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0



0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0

So what does  $Happy \times Happy =$

Sketch a sad face



Write a sad face as numbers

0	1	1	0
0	0	0	0
0	1	1	0
1	0	0	1

## Comparing the same face using maths

Diagram illustrating the multiplication of two 4x4 matrices, both labeled "Sad".

Matrix 1 (Sad):

0	1	1	0
0	0	0	0
0	1	1	0
1	0	0	1

Matrix 2 (Sad):

0	1	1	0
0	0	0	0
0	1	1	0
1	0	0	1

Result Matrix:

0	1	1	0
0	0	0	0
0	1	1	0
1	0	0	1

$$Sad \times Sad = 6$$

## Comparing the same face using maths

**Happy**

0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0

**Sad**

0	1	1	0
0	0	0	0
0	1	1	0
1	0	0	1

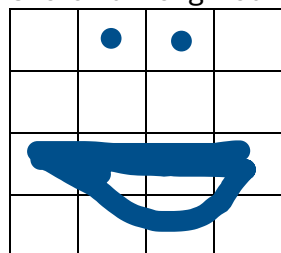
**Result**

0	1	1	0
0	0	0	0
0	0	0	0
0	0	0	0

$$Happy \times Sad = 2$$

## Happy, sad and Delighted

### Sketch a Delighted face



Write a Delighted face as numbers

0	1	1	0
0	0	0	0
1	1	1	1
0	1	1	0

## Comparison of All the Faces

Happy	6	6	2
Delighted	6	8	4
Sad	2	4	6