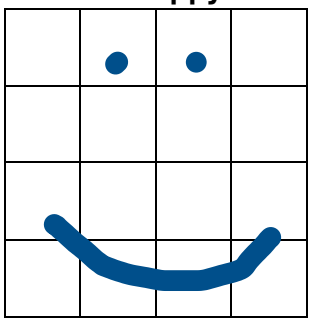
Digital Mirror

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

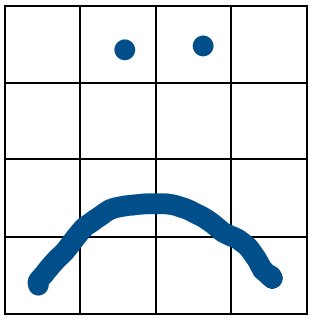
0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0

So what does Happy x Happy = Happy

Add all the numbers together.

Happy x Happy = 6

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

Sad

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

Sad

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

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

Sad x 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

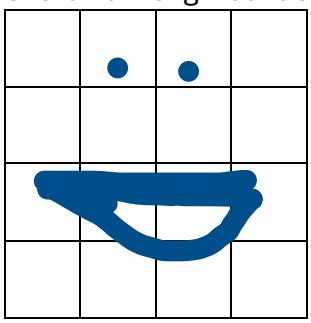
0	1	1	0
0	0	0	0
0	0	0	0
0	0	0	0

Happy x Sad = 2

What faces are most alike?

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

Comparing the more faces using maths

Delighted

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

Sad

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

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

Delighted x Sad = 4

Comparing the same face using maths

Delighted

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

Happy

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

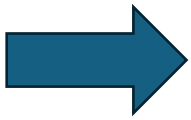
0	1	1	0
0	0	0	0
1	0	0	1
0	1	1	0

Delighted x Happy = 6

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

Going from 2D to 1D

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



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