

# Topics for Today

➤ Data Structure

➤ Tuple

➤ Set

➤ Dictionary

} 30 min

➤ Strings

⇒ list to String

➤ String to list

➤ Comprehensions

Questions

➤ L.C.M

➤ Pattern Printing

## List

➤ Ordered, indexable

➤ Mutable

➤ Heterogeneous

➤ Dynamic

## Tuple

➤ Same as list but immutable Hence Static

➤ Tuples are slightly faster than list

# Set

⇒ mutable

3.6 ⇒ Ordered ⇒ Insertion Ordered

⇒ Unique Collection of Elements  
↳ Hash

$a=1$

Hash ⇒ Same

$b=1$

Can we create a nested Set?

NO

$\{1, 2, 3, 4\}$  ✓

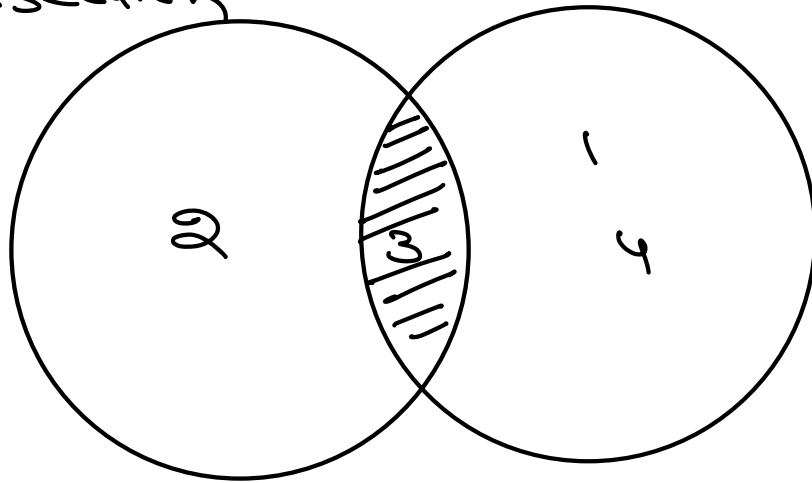
$\{1, 2, \{3, 4\}\}$  X



set ⇒ mutable

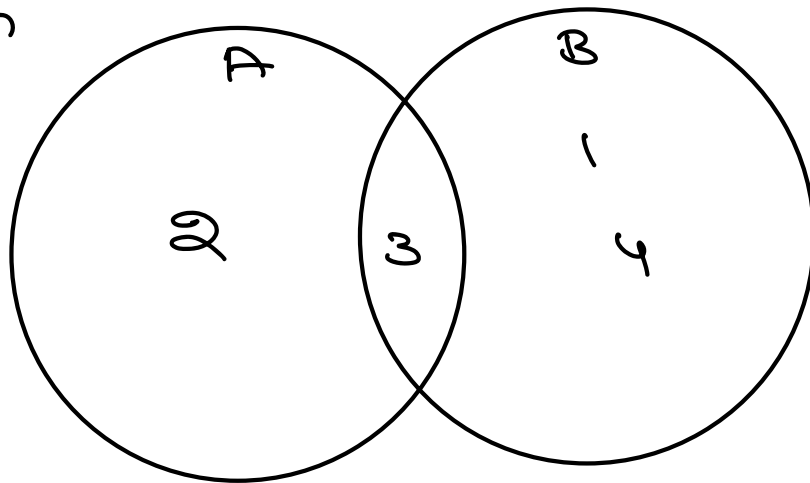
# Set Operations

Intersection



$$\{2, 3\} \cap \{1, 4, 3\} = \{3\}$$
$$A \cap B = B \cap A \quad \checkmark$$

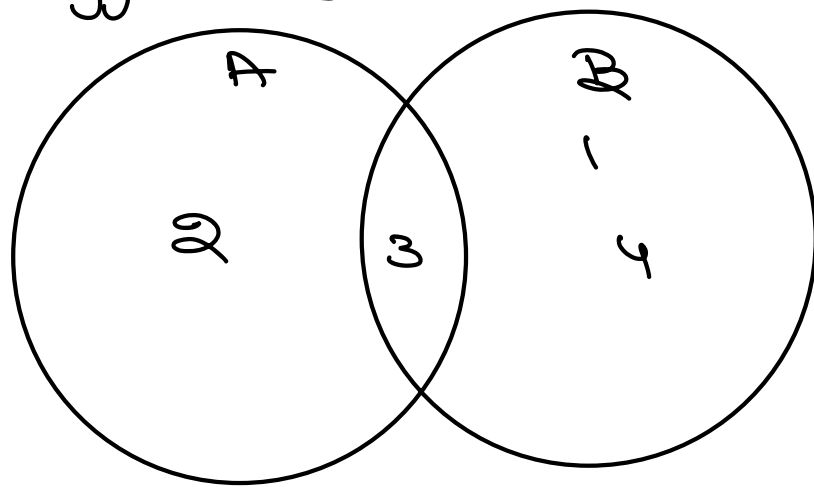
Union



$$\{2, 3\} \cup \{1, 4, 3\} = \{1, 2, 3, 4\}$$

$$A \cup B = B \cup A \quad \checkmark$$

⇒ Difference



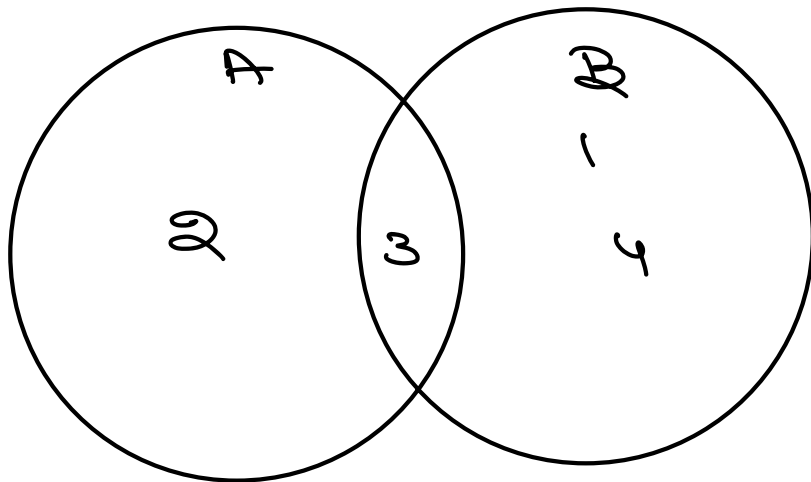
$\{2, 3\}$

$\{1, 4, 3\}$

$$A - B \Rightarrow \{2\}$$

$$B - A \Rightarrow \{1, 4\}$$

Symmetric Difference



$$A \Delta B \Rightarrow \{2, 1, 4\}$$

# Dictionary

↳ K, V pair

↳ mutable

↳ Insertion Ordered on key

↳ Unique and immutable key

Can we create a Nested Dict?

$\{a: 1\}$

key as dict

$\{\{a: 1\}: 'Sachin'\}$  X

$\{'a': \{1: 'Sachin'\}\}$  ✓

Value as dictionary

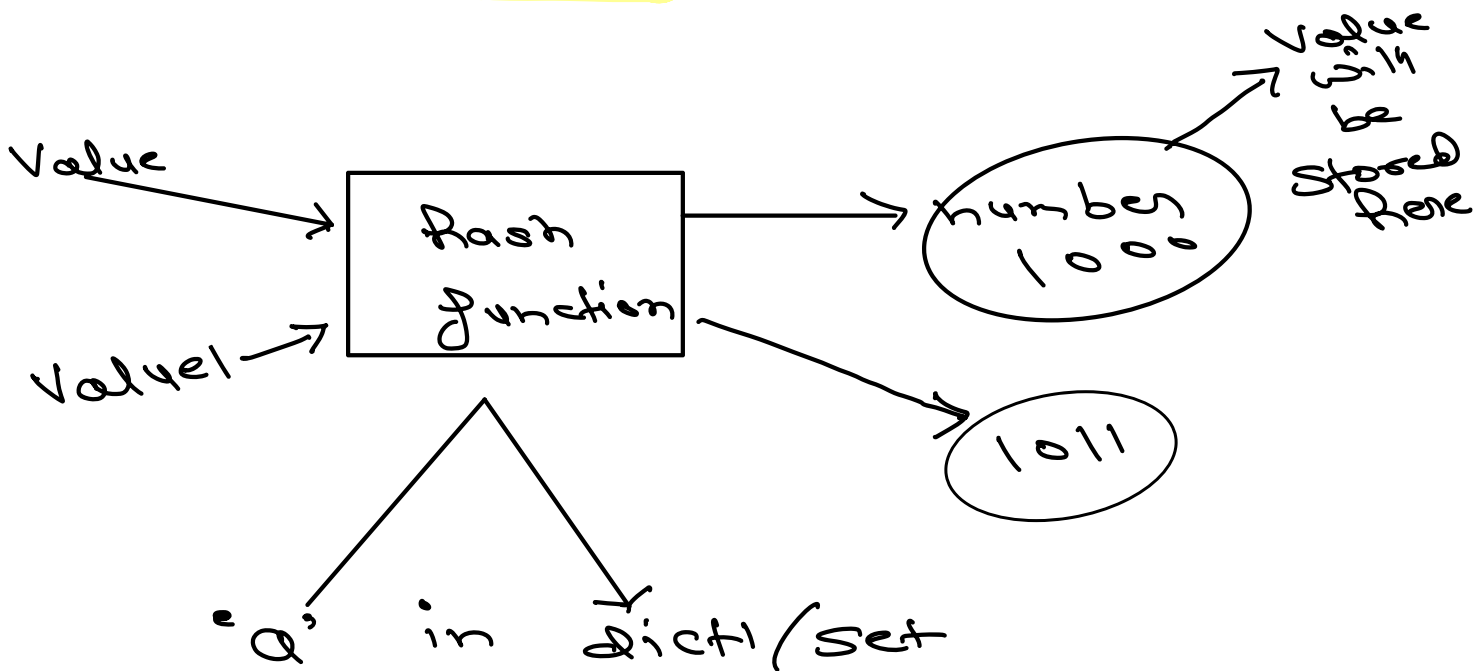
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## Truth Table

a	b	or	and	xor
0	0	0	0	0
1	0	1	0	1
0	1	1	0	1
1	1	1	1	0

↓  
bit manipulation

## Hash



⇒ Mutables are not Hashable



⇒ Compiler

⇒ Constant folding  
⇓

Expressions are evaluated at  
compile-time instead of Runtime.

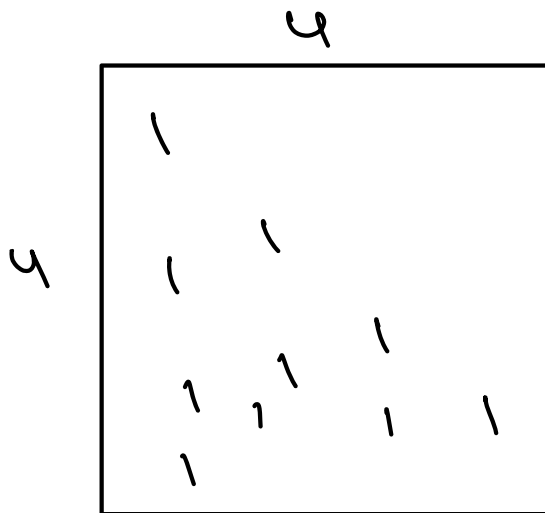
$$b = a + b$$

$$b \Rightarrow 'ab'$$

$$b \Rightarrow (1, 2) + (3, ) \Rightarrow b \Rightarrow (1, 2, 3)$$

↓

100 will be executed



$$\Rightarrow \Sigma(10)$$

$$n \Rightarrow 5 \Rightarrow 5 + 4 + 3 + 2 + 1 \Rightarrow (1, 15)$$

[ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 ]

↓      ↘      ↘      ↘

