HASHING DATA STRUCTURE

- **Key Pair in HASHING DATA STRUCTURE**

- **Given an array Arr of N positive integers and another number X**

- **Example 1:**

```
Input:
N = 6, X = 16
Arr[] = {1, 4, 45, 6, 10, 8}
Output: Yes
Explanation: Arr[3] + Arr[4] = 6 + 10 = 16
```

Hello world

HASHING DATA STRUCTURE

- **Key Pair in HASHING DATA STRUCTURE**

- **Given an array Arr of N positive integers and another number X**

- **Example 2:**

```
Input:
N = 5, X = 10
Arr[] = {1, 2, 4, 3, 6}
Output: Yes
Explanation: Arr[2] + Arr[4] = 4 + 6 = 10
```

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HASHING DATA STRUCTURE

- **Logics**

- **Sum = a + b**

- **Example 1:**

```
Input:
N = 6, X = 16
Arr[] = {1, 4, 45, 6, 10, 8}
Output: Yes
Explanation: Arr[3] + Arr[4] = 6 + 10 = 16
```

unordered_set

{ 1, 4, 45, 6, 10, 8 }

Sum = 16

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HASHING DATA STRUCTURE

- Logics
- Sum = a + b
- Arr[ ] = { 1, 4, 45, 6, 10, 8 }

First You Tell ?

Is There is any pair

10 , 6

Sum = 16

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HASHING DATA STRUCTURE

- Logics — Iterate all elements from unordered_set
- Sum = a + b
- Arr[ ] = { 1, 4, 45, 6, 10, 8 }

unordered_set

{ 1, 4, 45, 6, 10, 8 }

Sum = 16

First = 1	Sum = 16	Second = 15
First = 4	Sum = 16	Second = 12
First = 45	Sum = 16	Second = -29
First = 6	Sum = 16	Second = 10 ✓

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HASHING DATA STRUCTURE

- Logics
- Sum = a + b
- Arr[ ] = { 1, 4, 45, 10, 5 }

First You Tell ?

Is There is any pair

Sum = 8

Not Any pair

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HASHING DATA STRUCTURE

- Logics — Iterate all elements from unordered_set
- Sum = a + b
- Arr[ ] = { 1, 4, 45, 10, 5 }

First = 1 Sum = 8 Second = 7

First = 4 Sum = 8 Second = 4

unordered_set

{ 1, 4, 45, 5, 10 }

Sum = 8

Hello world

HASHING DATA STRUCTURE

- Logics

Iterate all elements from unordered_map

- Sum = a + b

- Arr[ ] = { 1, 4, 45, 10, 5 }

Sum = 8

1 -> 1

4 -> 1

45 -> 1

10 -> 1

5 -> 1

First = 1	Sum = 8	Second = 7
First = 4	Sum = 8	Second = 4
First = 45	Sum = 8	Second = -37
First = 10	Sum = 8	Second = -2
First = 5	Sum = 8	Second = 3

Hence, there is not any pair whose sum is 8

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