

Sheet 3

1 - Linear search

- Binary Search

- Hash table

2 -

1 - we define an array with N size

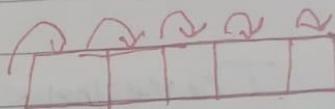
2 - Make for loop by N length

3 - Make If condition if current item equal the target

4 - if equal the target Print i and $[i]$

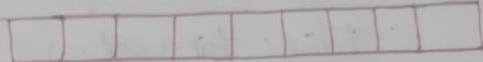
5 - if Not equal increment i by 1

6 - if reach to $N-1$ and still Not found Print Not Found -



mid
↓

3.



1 - determine the target we will search for it

2 - find the mid of array $(\text{Max} + \text{Min}) / 2$

3 - if mid equal target print its index

4 - if larger than mid

and repeat $\rightarrow \text{New mid} = (\text{Max} + (\text{mid} + 1)) / 2$

5 - if smaller than mid

$\text{New mid} = [(\text{mid} - 1) + \text{min}] / 2$

and repeat steps

Khusn

4

11	14	22	55	67	89
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The target is 14

1 - Find the mid = $(\text{Max} + \text{Min}) / 2$

So the mid is 22

2 - Compare 22 by 14

22 is larger. So get new mid

$$\begin{aligned}\text{mid} &= (\text{mid} - 1) + \text{min} / 2 \\ &= (3 - 1) + 0 / 2 = [2] \rightarrow 14\end{aligned}$$

→ Compare 14 is equal 14

Print it index

- Hash table is a data structure has
a key and value \langle key, + value \rangle
used for search and adding $O(1)$

- Linear - Quadratic, double hashing -
Chaining

- $(1, 20), (2, 70), (22, 80), (4, 25), (12, 44)$
 $(14, 44), (14, 32), (17, 11), (13, 78), (33, 98)$