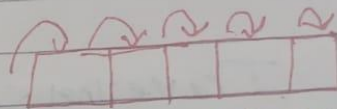


Sheet 3

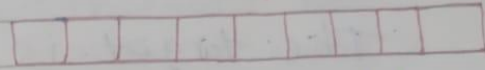
- 1 - Linear search
- Binary search
- Hash table

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

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
→ New mid = $(\text{Max} + (\text{mid} + 1)) / 2$
and repeat
- 5 - if smaller than mid
New mid = $[(\text{mid} - 1) + \text{min}] / 2$
and repeat steps

4.

11	14	22	55	67	89
----	----	----	----	----	----

The target is 14

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

So the mid is 22

2 - Compare 22 by 14

22 is larger. So get NewMid

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

$$= (22 - 1 + 11) / 2 = [2] \rightarrow 14$$

→ Compare 14 is equal 14

Print its index

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

- Linear - Quadratic, double hashing -
Chaining

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