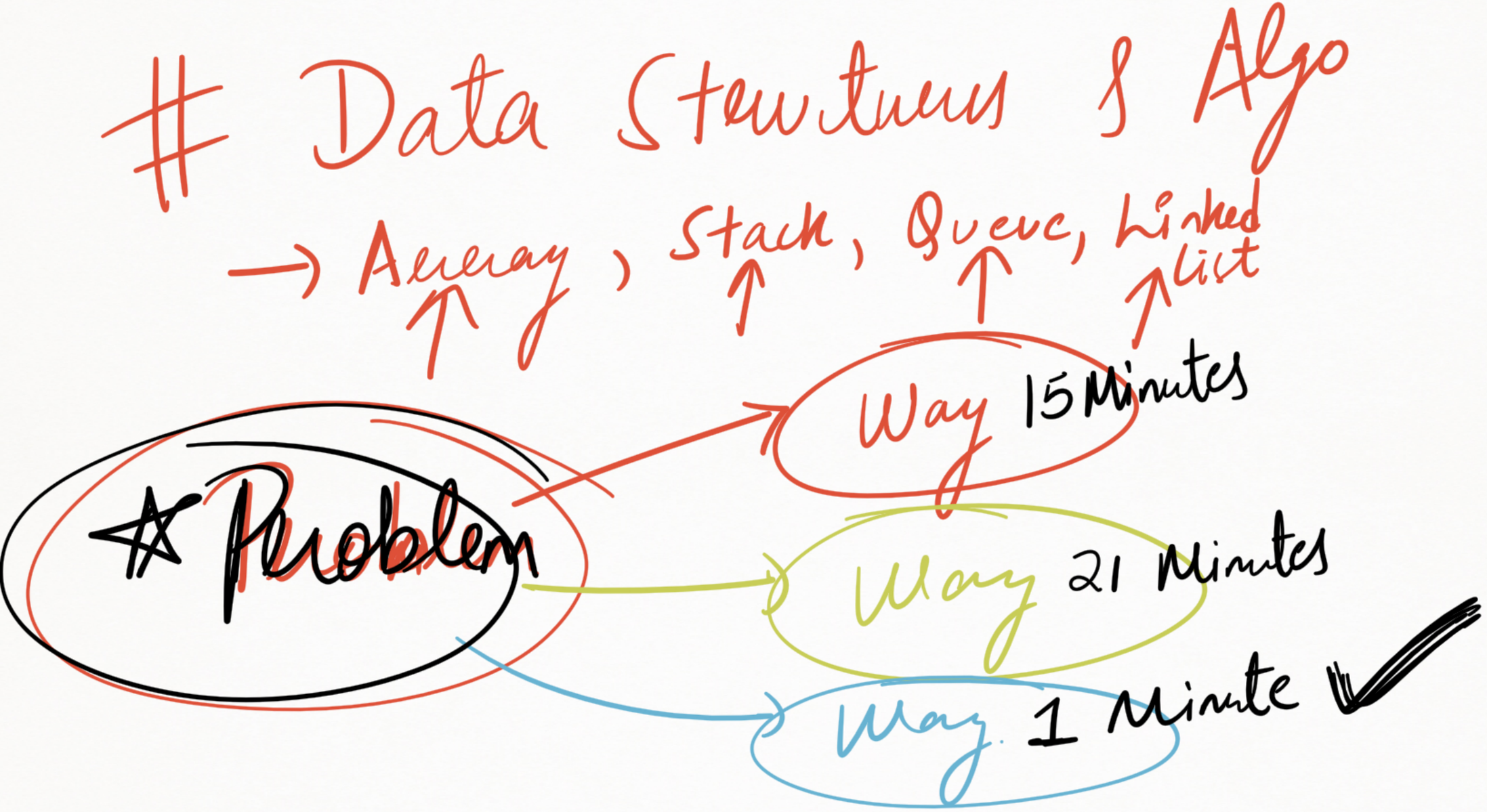

Data Structures & Algo
→ Array, Stack, Queue, Linked List
Problem
Way 15 Minutes
Way 21 Minutes
Way 1 Minute

Mohit's PC

Windows

i7

16 GB Ram

256 GB SSD

Code.py

Mohan's PC

Macbook Pro

M1 chip

8 GB Ram

256 GB

SSD

Code.py

Time complexity is used to compare various algorithms, and choose the best one.

★ Concept We have build our own unit of time here,

★ T.C is programming language independent.

$x = 3$ ✓

$x = x+1$ ✓

print ("hello") ✓

} 1 Unit

---

for $i = 0 \rightarrow i < 10$

{

$x = 3$

}

} 10 Unit

$n = 10$

```
for i = 1 to i = 10
{
    print(i)
    print(i+2)
}
```

2*N

20

for i = 0 to i = 10
    for j = 0 to j = 10
        print("hello")

N^2

100

Types of Time Complexity Functions

$1 < \log n < \sqrt{n} < n < n\log n < n^2$

$< n^3 < 2^n < 3^n < \ldots\ldots < n^n$

10 2^{10} 1024 — exponential Time

Big O $\Rightarrow$ Upper bound

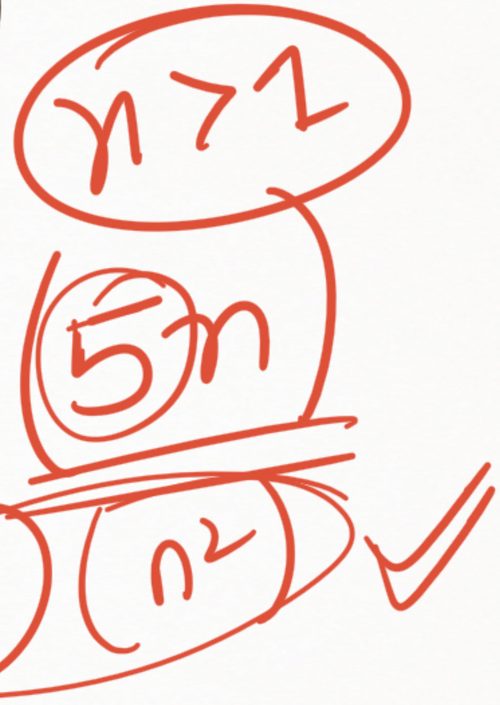
$f(n) = O(g(n))$

iff $f(n) \leq C * g(n)$

$f(n) = 2n+3$

$2n+3 \leq O(5n)$

$O(n^2)$ ✓



Omega $\Rightarrow$ lower bound

$f(n) = \Omega(g(n))$

$2n+3$

$2n+3 \geq \Omega(n)$

$n \geq 1$

Theta

$f(n) = \Theta(g(n))$

$\Omega g(n) \leq f(n) \leq O g(n)$

$1n \leq 2n+3 \leq 5n$

$\Theta(n)$

Best, Worst & Average Case

element = 7 Vs element = 4

test case 1

Best

Average

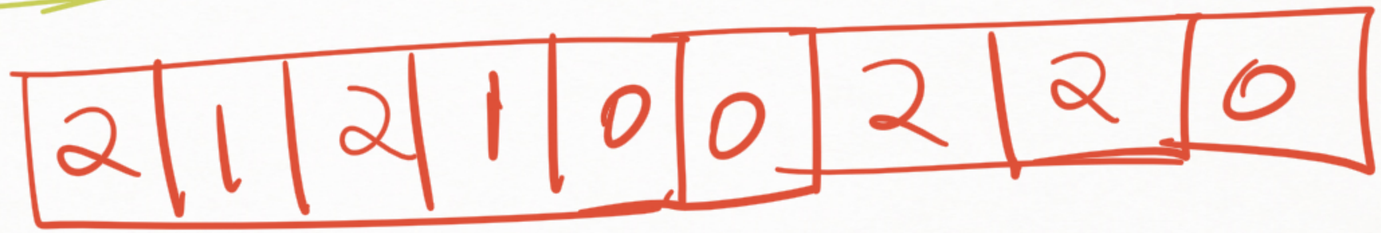
test case 2

Worst

0s, 1s, 2s in Ascending Order

* Swapping Algo
* Bat Cuds

* Worst Case



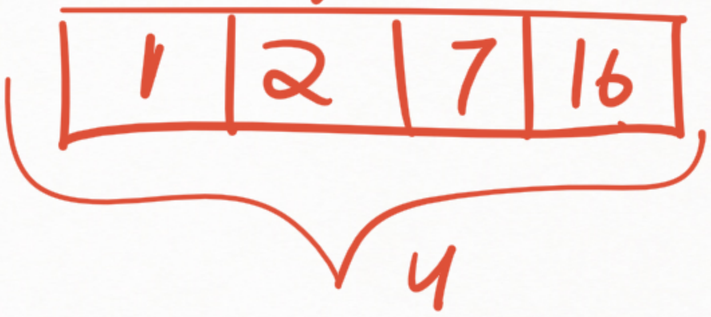
✱ Space Complexity

⇒ 1 Unit of Space ⇒ Primitives

int
bool
float
} 1

String = "apple"

5



Hackerrank, leetcode gfg

Coding Problems

→ TLE ⇒ Time limit exceeded

1 Sec ⇒ ~~2 Sec~~

How to avoid TLE

→ By improving your algorithm to take less time.