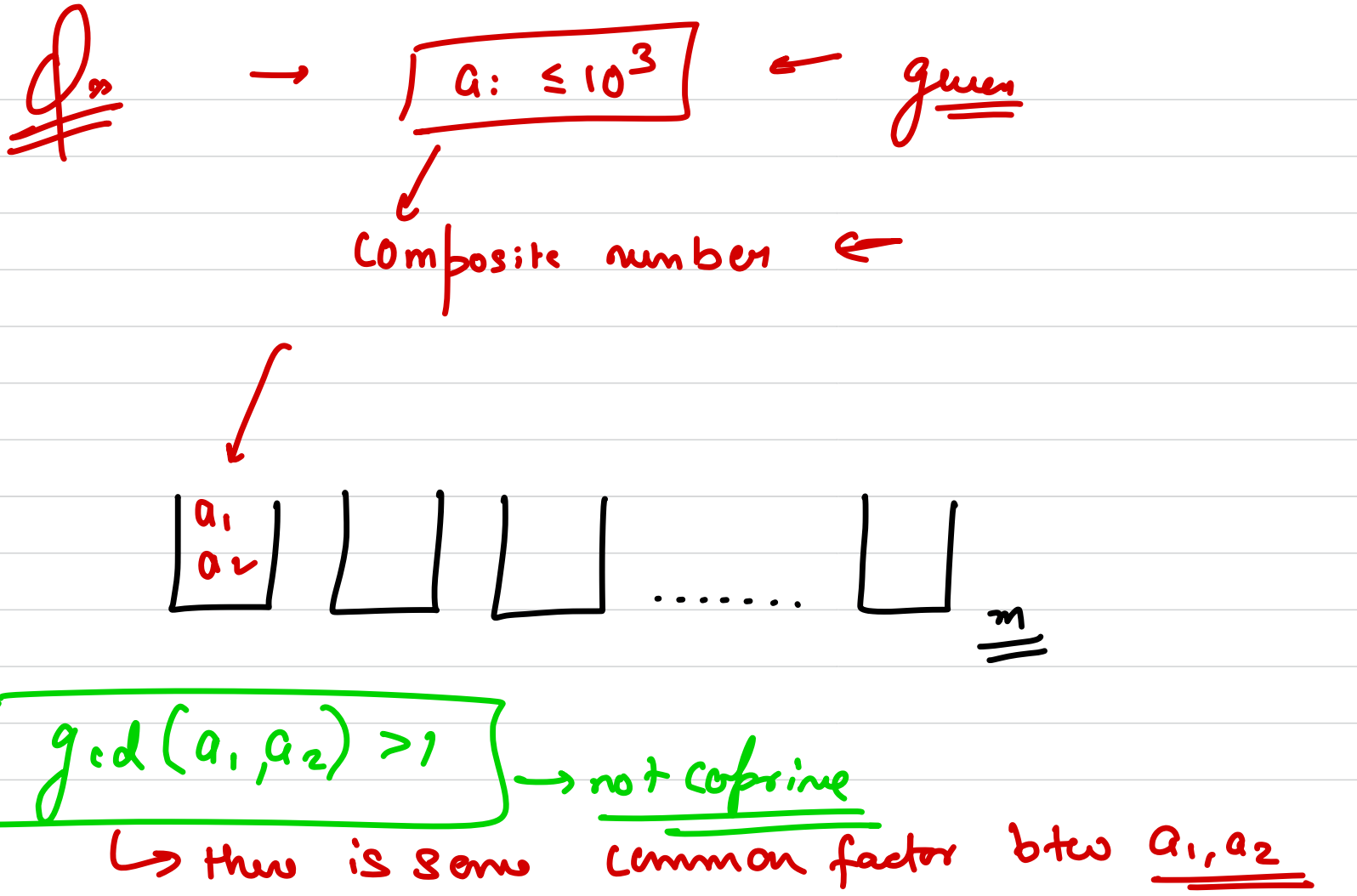

$a_i : \leq 10^3$
given
composite number
a_1
a_2
m
$gcd(a_1, a_2) > 1$
not coprime
there is some common factor btw a_1, a_2

any number x can be represented as product of power of primes.

$$x = p_1^{a_1} p_2^{a_2} p_3^{a_3} \cdots$$

$p_1, p_2, \ldots, p_k \rightarrow$ primes

a_i → in which bucket a_i should go

Factors

$m \times n = a_i$ → composite

m → prime/comp

n → prime

Any one of the no. btw m & n should be

$\leq \sqrt{a_i}$

$m \leq \sqrt{a_i}$

$\sqrt{10^3}$

$\hookrightarrow \approx 31$

$m \leq 31$

$n \leq 31$

$a_i \leq 1000$

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31

11

you've 11 primes ≤ 31

11 prime → 11 buckets

Q⇒ You're given arrival & departure time of all planes that land on an airport. Find the min no. of landing strips that need so that no plane waits.

9:00, 9:40, 9:50
9:10 12:00, 11:50

→ 9:00 9:40
9:10 12:00

↳ 2

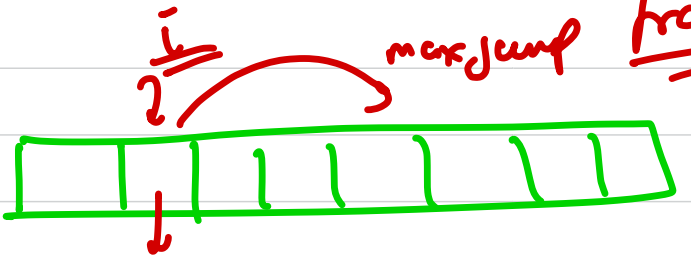
→ 900, 940, 950, 1100, 1500, 1800
910, 1200, 1130, 1130, 1900, 2000

↳ max_air_ships = 3

↳ currently_landed_flights = 0

(900, a) (910, d) (940, a) (950, a) (1100, a) (1130, d) (1130, d)
(1200, d) (1500, a) (1800, a) (1900, d) (2000, d)

Jump game



a_i

range for → $[i+1, i+a_i]$

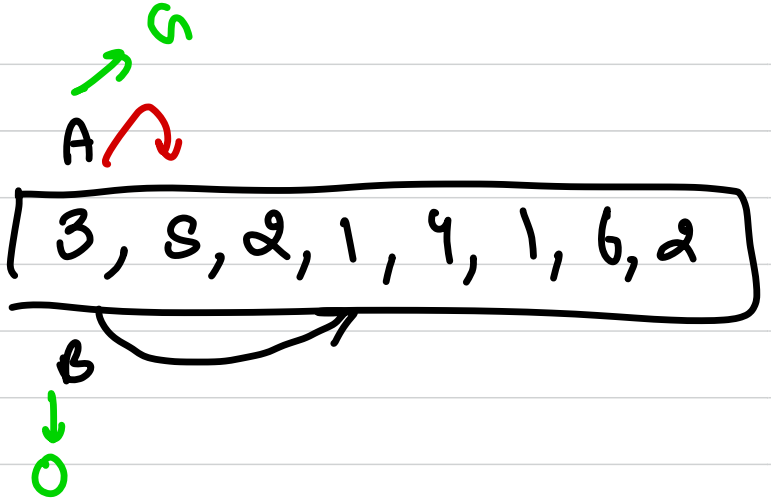
next step

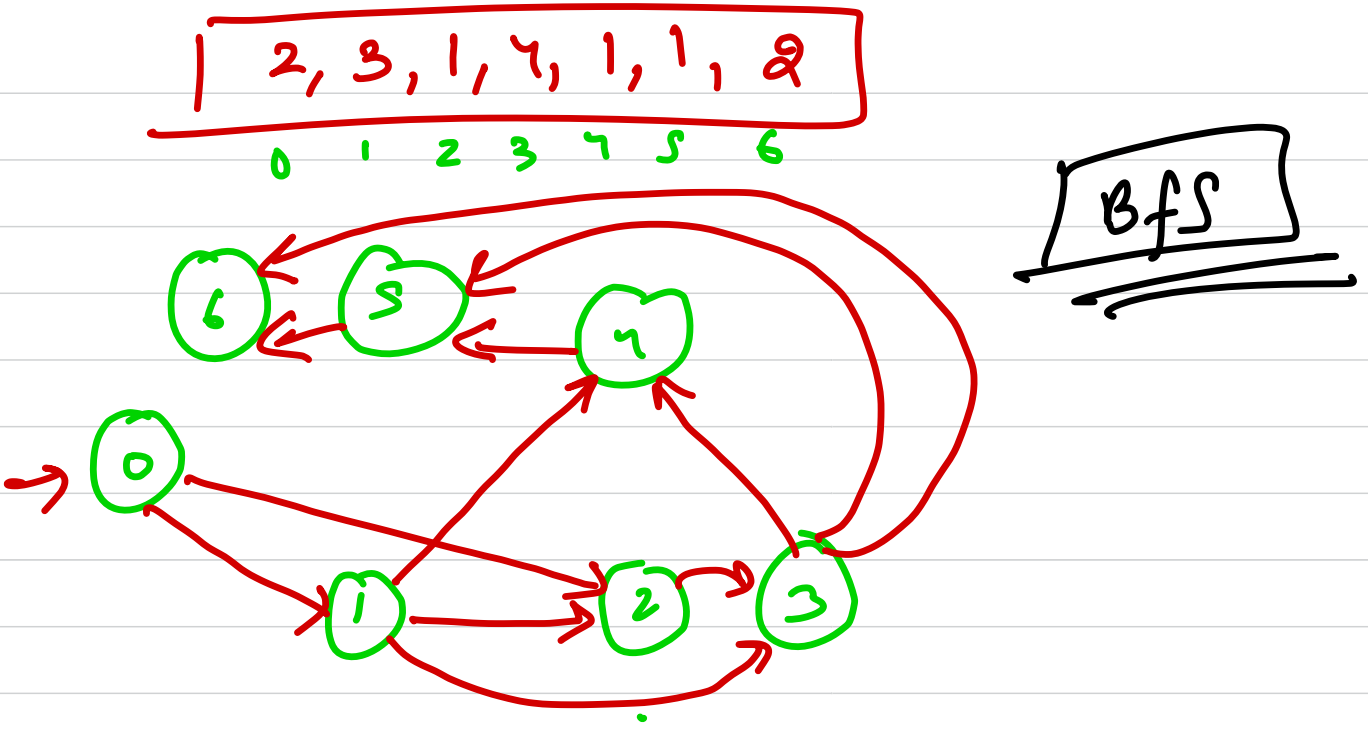
we will chose the one which can give us the longest jump.

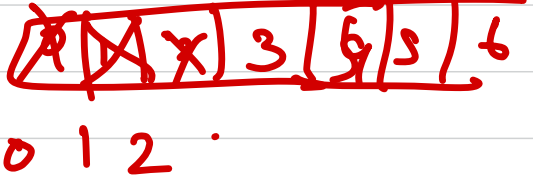
greedy

we have to find

→ if at any step we make a different choice than what our greedy algo makes, we can find a btr soln.




2, 3, 1, 4, 1, 1, 2
0 1 2 3 4 5 6
BFS
6
5
4
0
1
2
3


3
6
5
6
0 1 2