

Arrays - Subarrays

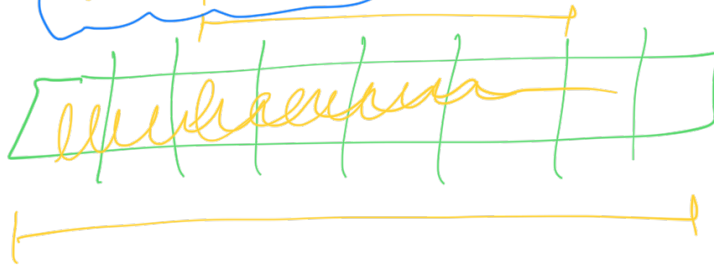
Subarray

Continuous chunk / part of an array

✓ Complete array \equiv subarray

✓ Single element \equiv subarray

✓ \emptyset array \equiv subarray



A =

3	8	7	6
---	---	---	---

A₁ =

7	6
---	---

A₂ =

8	7	6
---	---	---

A₃ =

9	7	6
---	---	---

A₄ =

3

yes

yes

No

yes

A₅ =

3	8	7	6
---	---	---	---

A₆ =

6	7
---	---

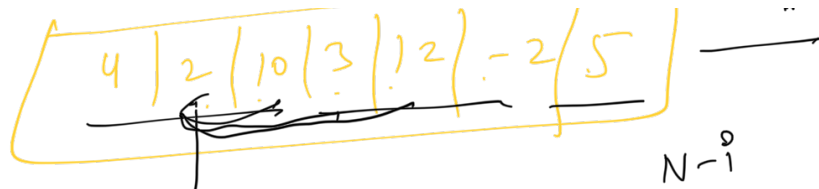
No

Ques

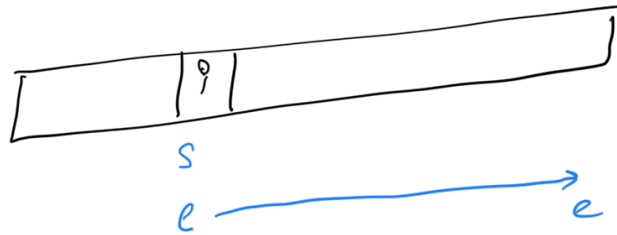
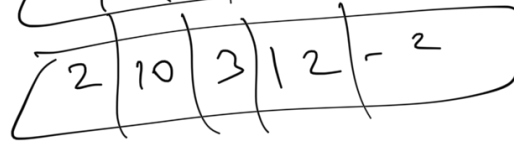
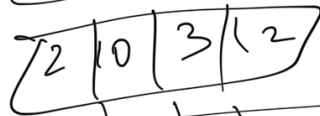
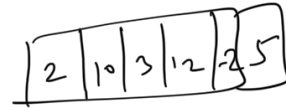
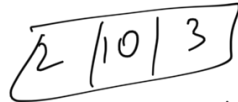
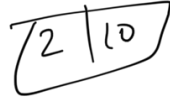


N = 7

i = 1

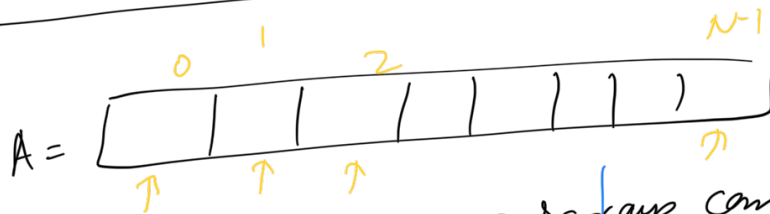


2



$$|\text{subarray}| = N-1$$

😊 😊



Q) How many subarray can
exist

non empty

subarrays (non empty)

$$\begin{aligned}
 &= \# \text{ subArr start 0} \\
 &+ \# \text{ subArr} \quad 1. \\
 &+ \# \text{ subArr} \quad 2. \\
 &+ | \text{subArr } 3 | \\
 &+ | \text{subArr } 4 | \\
 &\vdots \\
 &+ | \text{subArr } N-1 |
 \end{aligned}$$

$$| \text{subArr} | = | \text{subArr}_0 | + | \text{subArr}_1 | + \dots + | \text{subArr}_{N-1} |$$

$\downarrow \quad \quad \quad \downarrow \quad \quad \quad \downarrow$
 $N-0 \quad \quad \quad N-1 \quad \quad \quad N-(N-1)$
 $\quad \quad \quad \quad \quad \quad \quad \quad \quad = 1$

$$= N + (N-1) + (N-2) + \dots + 1$$



$$= 1 + 2 + 3 + 4 + \dots + N$$

$$= \frac{N(N+1)}{2}$$



①

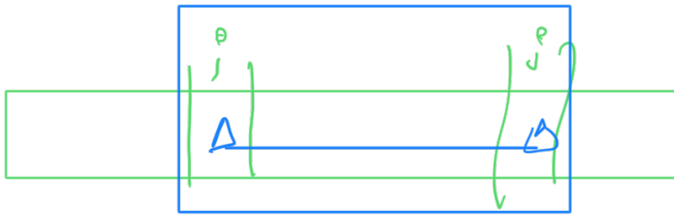
$(A) = 20$

Print all values of a

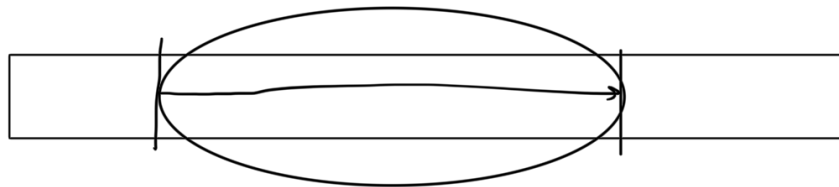
subarray start with

index = 5

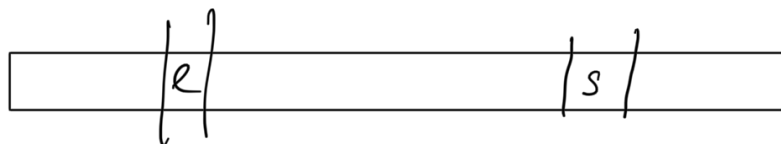
and end with index = 12



start = $i = 12$
end = $j = 5$



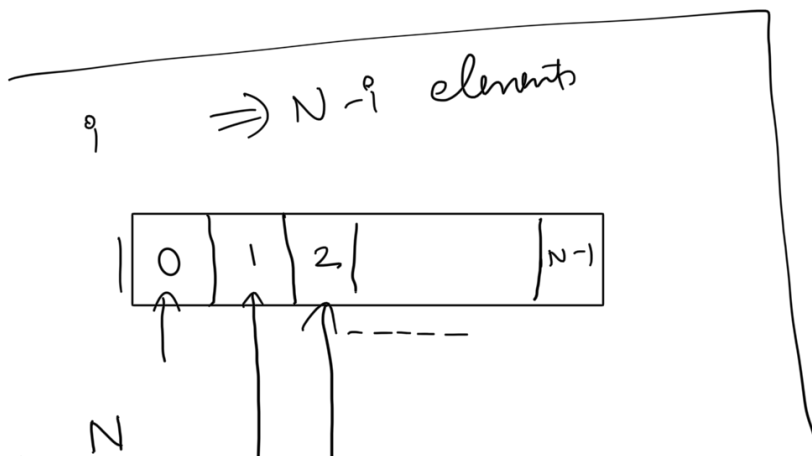
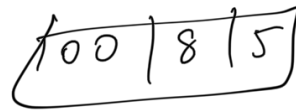
start > end





\uparrow
L

\uparrow
S



N

$N-1$

$N-2$

$N-3$

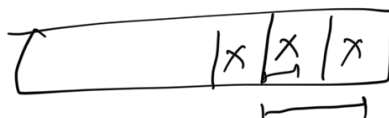
$N-4$

0

4

3

2



1

N

$$1 + 2 + \dots -$$

