HashSet<Integer> set = new HashSet<>()

→ no duplicate value
→ get in O(1)
→ order is not preserved

Ques Find Common Elements

⇒ 3, 4, 1

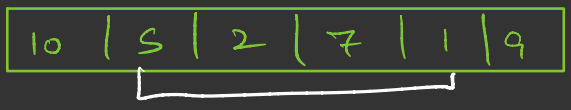
Brute Force

For each elem in arr1, we will search the elem in arr2

⇒ O(n × m) ⇒ O(n²)

O(n)
+
O(n) → O(n)

Q.ees Length of longest Subarray with sum = k



k = 15

maxL = 4

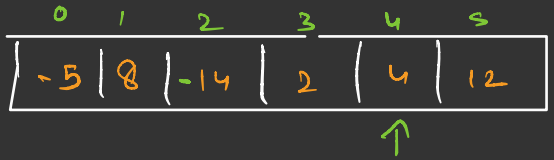
Brute Force

for (start → end)

for (start to end)
→ n

O(n2)

k = -5



max = 4

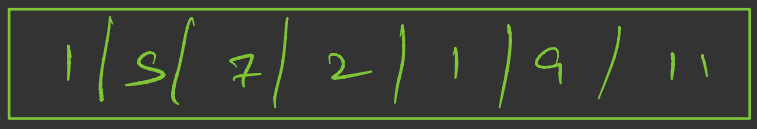
ps	first ind
0	-1
-5	0
3	1
-11	2
-9	3
4	4

ps -5 3 -11 -9 -

ps - k

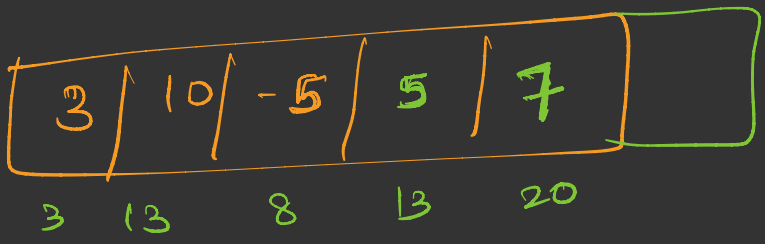
-5 - (-5)

-10



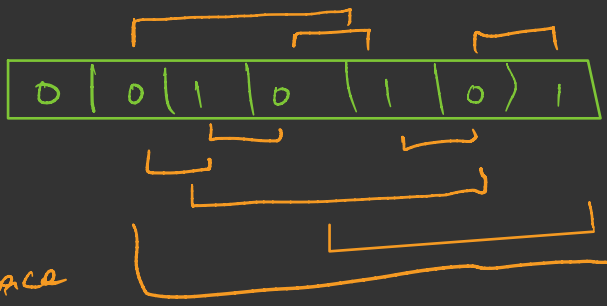
bs - k
16 - 15
⇒ 1

0	-1
1	0
6	1
13	2
15	3
16	4
25	5



k = 7

Ques



⇒ 9

Brute Force — $O(n^2)$

Count all sub arrays with equal 0 and 1

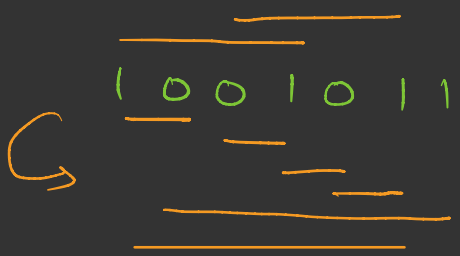
c0 = ~~12~~
c1 = ~~0~~ x 2

total count = ~~0~~ x 2

ps -1 -2 -1 -2 -1 -2 -1

ps	Count
0	1 ~~2~~
-1	~~1~~ 2
-2	~~1~~ 2
	3

Count = ~~0~~ 1 ~~2~~ ~~2~~ ~~4~~ ~~6~~ 9



ps 1 0 -1 0 -1 0 1

Count = ~~0~~ 1+2+1+3+1

~~8~~ ~~7~~ ~~7~~ 8

ps	Count
0	1 ~~2~~ ~~3~~ ~~4~~
1	~~1~~ 2
-1	~~1~~ 2

2 1 1 3 0 2 -1

ps 0 2 3 4 7 7 9 8

↳ k = 4

ps	Count
0	1
2	1
3	1
4	1
7	X 2
9	1
8	1

Count = 0 + 1 + 1 + 1 + 1

⇒ ~~0~~ X ~~2~~ ~~3~~ 4

Longest

Count

Ques Shortest substring that has all the vovels

0	1	2	3	4	5	6	7	8	9	10
a	b	i	o	u	j	u	e	a	b	d

s+1 en

min = ~~∞~~ 8

① Aquire

② passible answer

vovel	Count
a	1
o	1
u	X 2
e	1

(3) Release till the condition is true (optimise)

(4) Check passible ans s-1 end

v	c
e	1
i	1
o	1
u	1

maxL = ~~6~~ ~~11~~ 7

(1) Acquire loop (map.s < 5)

e++

}

(2) Passible ans e - s + 1

(2) Release loop (map.s == 5) {
Char at s

s++

}