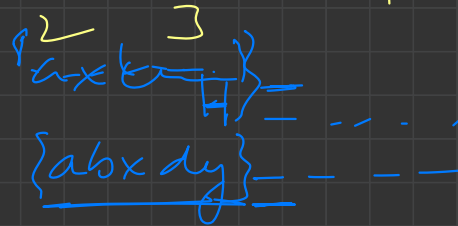
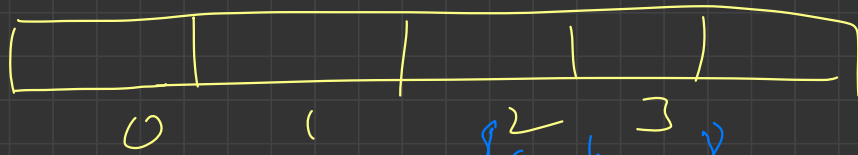


- string multiplication

- sentence reverse

0 1 2 3 4 5 6 7 8 9 - - -

- - the _ is _ sky _ blue - - -



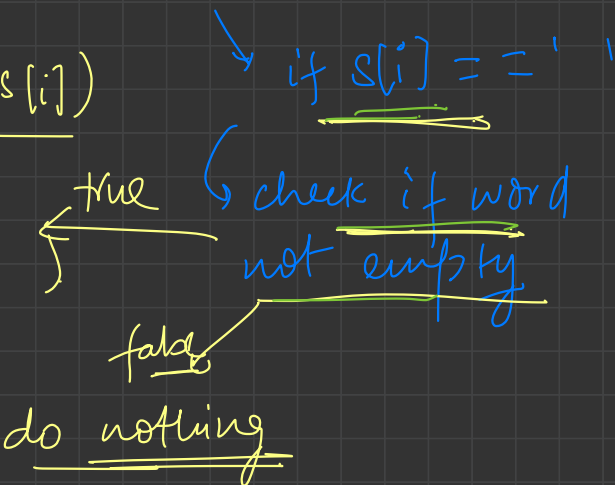
vector<string> v;

{ "the",
"is",
"sky",
"blue" }

string w =

w. push-back (s[i])

{ v. push-back (w)
word = " ",



Fact

if key is broken : will print twice (always even no. of continuous chars)

if some character occurs odd number of times

consecutively \Rightarrow the key cannot be broken

\downarrow
key is working

(a) X.

[a a] [a a]

$S \rightarrow$ a a a a } b b } c c [a] [d] [a a a a a a]

a \rightarrow 6 times

freq [] =

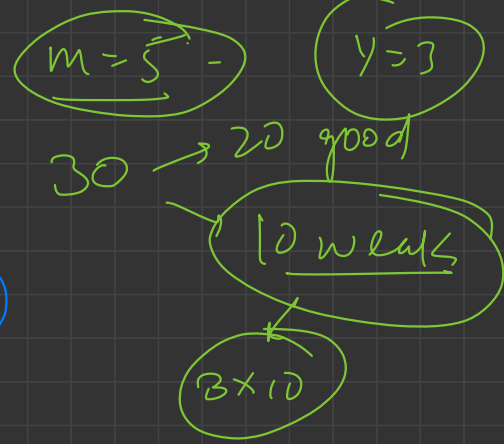
T	F	F	T	F	F	F	-	-	-
a	b	c	d	e	f	g	-	-	-

→ if at any place in the string I get odd-occ-freq for a char. ⇒ it is working

N students
↙ ↘
g → good N-g → weak

the total no. of coupons we have

$$\text{initial } N + (N - g) \times Y$$



35 (circled)

no. of coupons needed for good students

$$(G \times X)$$



if $(g \cdot x \leq m + (n - g) \cdot y)$

we can give them coupons

$$N \quad N \quad X \quad Y \quad (g)$$

$$\underline{\text{have}} = 5 + (15 \times 3) = 5 + 45 = \underline{50}$$

$$\text{needed} = 15 \times 2 = \underline{30}$$

30 students total

$$g \rightarrow 0, 1, 2, 3, 4, 5, 28, 29, 30, \textcircled{\times}$$

⇒ maximum possible value of g

for (g = N; g >= 0; g--) {

(check if possible) → true : output g
and stop

}

$g \rightarrow \{0, 1, 2, \dots, i, \dots, N\}$

s

①
move
students
possible

②
??

this much
student
not
possible

if $(i \times n \leq (n-i) \times y + m)$

true

false

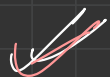
$\uparrow (i+1) \times n$

$(n-i-1) \times y + m \downarrow$

$$\underline{t=0} \quad \underline{T \rightarrow 0}$$

first cust: $\underline{t=5}$

$$T_{\text{needed}} \{1, 4\}$$



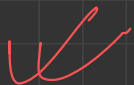
$$T += 4$$

$$T \rightarrow 4$$

$$t_{\text{curr}} - t_{\text{prev}} = 5 - 0 = 5$$

second cust: $\underline{t=7}$

$$T_{\text{needed}} \{4, 6\}$$



$$T += 2$$

$$T \rightarrow 6$$

$$t_{\text{curr}} - t_{\text{prev}} = 7 - 5 = 2$$

third cust:

$$t = 10$$

$$T_{\text{needed}} \{9, 15\}$$

$$T += 3$$

$$t_{\text{curr}} - t_{\text{prev}} = 10 - 7 = 3$$

✓✓
=

$$T \rightarrow 9$$

init

$$T_{\min} = \underline{0}$$

$$T_{\max} = \underline{\underline{0}}$$

first $t = 5$

$$: t_{\text{cur}} - t_{\text{pre}} = 5 - 0 = \underline{\underline{5}}$$

req $\{1, 4\}$

$$\begin{cases} T_{\min} = -\underline{5} \\ T_{\max} = 5 \end{cases}$$

any temp. in
this range is achievable

— if $\{T_{\min}, T_{\max}\}$ does not intersect
with requirement, then

NO

— otherwise it intersects at some range,

possible



required

$$\Rightarrow \left\{ \begin{array}{l} T_{\min} = \max(T_{\min}, req_{\min}) \\ T_{\max} = \min(T_{\max}, req_{\max}) \end{array} \right.$$