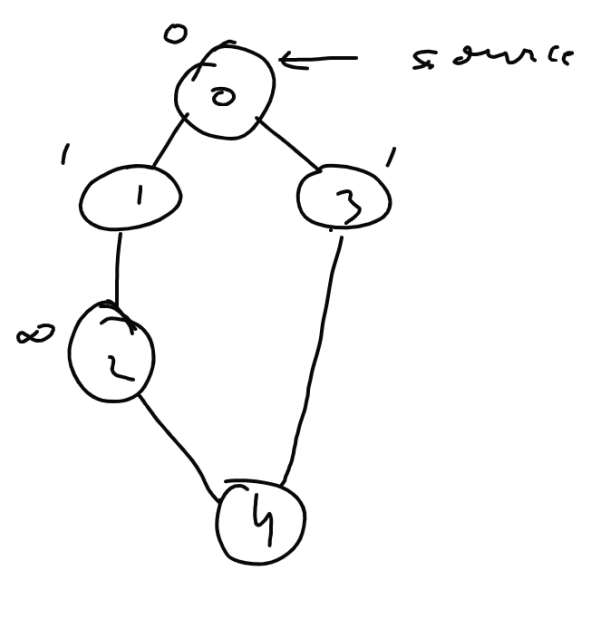


$1+1=2$

(2)
neighbour_dist = ∞

if $(\infty > \underbrace{1+1})$

[4, 2, 1, 2, 5] T = ~~8~~ ~~7~~ ~~5~~ 3

[1, 2, 2, ④, 5]

count = ~~0~~
~~1~~
~~2~~
3

N = 3 $W_0 = 50$
values: [60, 100, 120]
weights: [10, 20, 30]

max_value = 240

$\frac{1}{4}(60) = 15$

$\frac{1}{4}(10) = 2.5$

100% of 1 +
100% of 2
⇒ value = 100 + 120 = $\boxed{220}$
wt = 20 + 30 = 50

100% of 0 +
100% of 1 +
$\left(\frac{2}{3}\right)^{rd}$ of 2

value = $60 + 100 + \frac{2}{3}(120)$
= 60 + 100 + 80
= $\boxed{240}$
wt = $10 + 20 + \frac{2}{3}(30)$
= 10 + 20 + 20
= 50

values = [5, 7, 100] W = 50
wts = [10, 40, 45]

[100% of 0 +
100% of 1] ⇒ value: 5 + 7 = 12
wt = 10 + 40 = 50

[100% of 2
50% of 0] ⇒ value = 100 + 5/2 = 102.5
wt = 45 + 10/2 = 50

N = 3 W = ~~50~~ ~~40~~ 20
values = [60, 100, 120]
wts = [10, 20, 30]
value/wt = 6, 5, 4

total_value = 60 + 100 + 80

$\left(\frac{value}{wt}\right)$

$\frac{1}{30} \times 20 = \frac{W}{wt[i]}$

$\frac{6}{0}$ $\frac{6}{1}$ $\frac{6}{2}$ $\frac{6}{3}$ $\frac{6}{4}$ $\frac{6}{5}$ $\frac{6}{6}$ $\frac{6}{7}$ $\frac{6}{8}$ $\frac{6}{9}$ -------- $\frac{}{48}$ $\frac{}{49}$

$\left(\frac{W}{wt[i]} \times value[i]\right)$

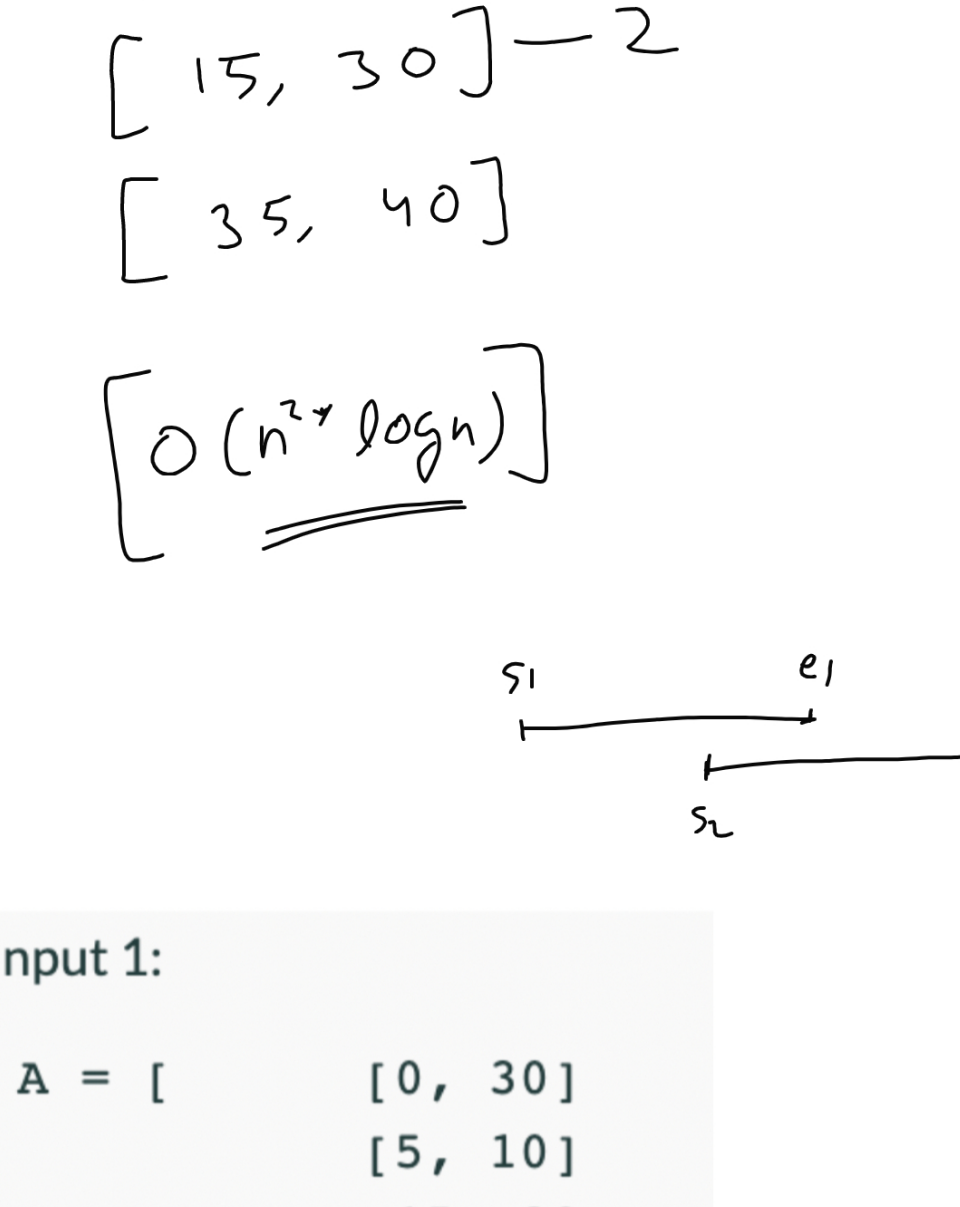
1st 10 pockets → 6 * 10 = 60
Next 20 pockets → 5 * 20 = 100
Remaining 20 pockets → 4 * 20 = 80
= 240.

item-1
value = 4
wt = 2
⇒ $\frac{value}{wt} = 2$

item-2
value = 5
wt = 2
⇒ $\frac{value}{wt} = 2.5$

value = 100
wt = 30

$\frac{100}{30} =$



Input 1:

```
A = [      [0, 30]  — 1
           [5, 10]  — 2
           [15, 20] — 2
    ]
```

Input 2:

```
A = [      [1, 18]  — 1
           [18, 23] — 1
           [15, 29] — 2
           [4, 15]  — 2
           [2, 11]  — 3
           [5, 13]  — 4
    ]
```

O/P = 2

[a, t] [t, b]

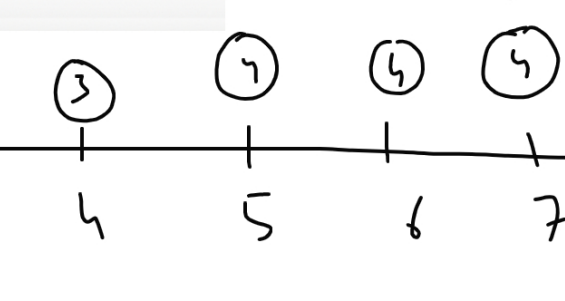
O/P = 4

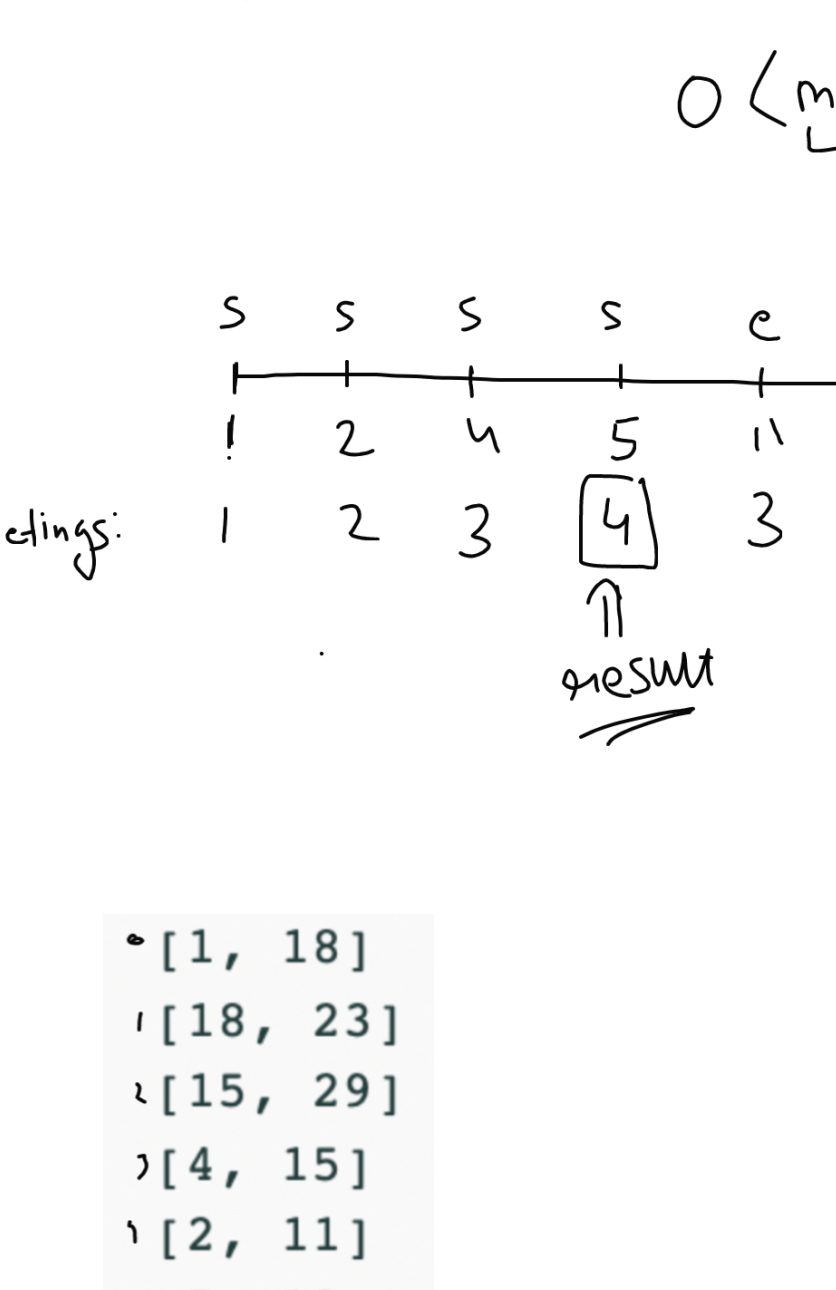
[1, 10] — 1
[11, 20] — 1
[15, 30] — 2
[35, 40]

$\boxed{O(n^2 * \log n)}$

[1, 18] — 1
[20, 23] — 1
[19, 20] — 1

end_1 = 20
end_2 = 30





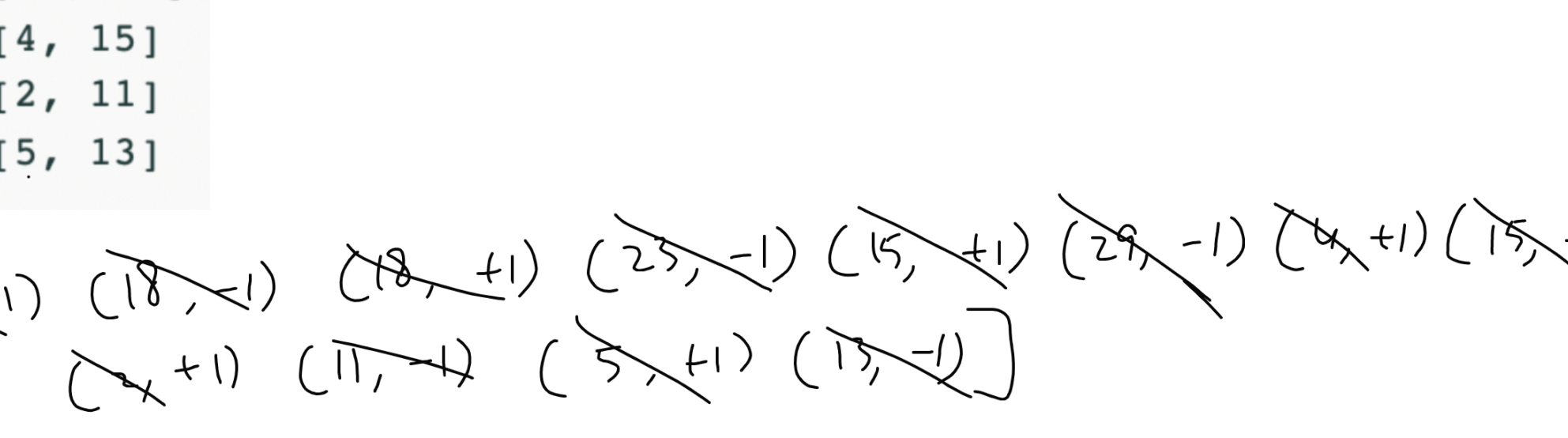
Input 1:

```
A = [      [0, 30]
           [5, 10]
           [15, 20]
    ]
```

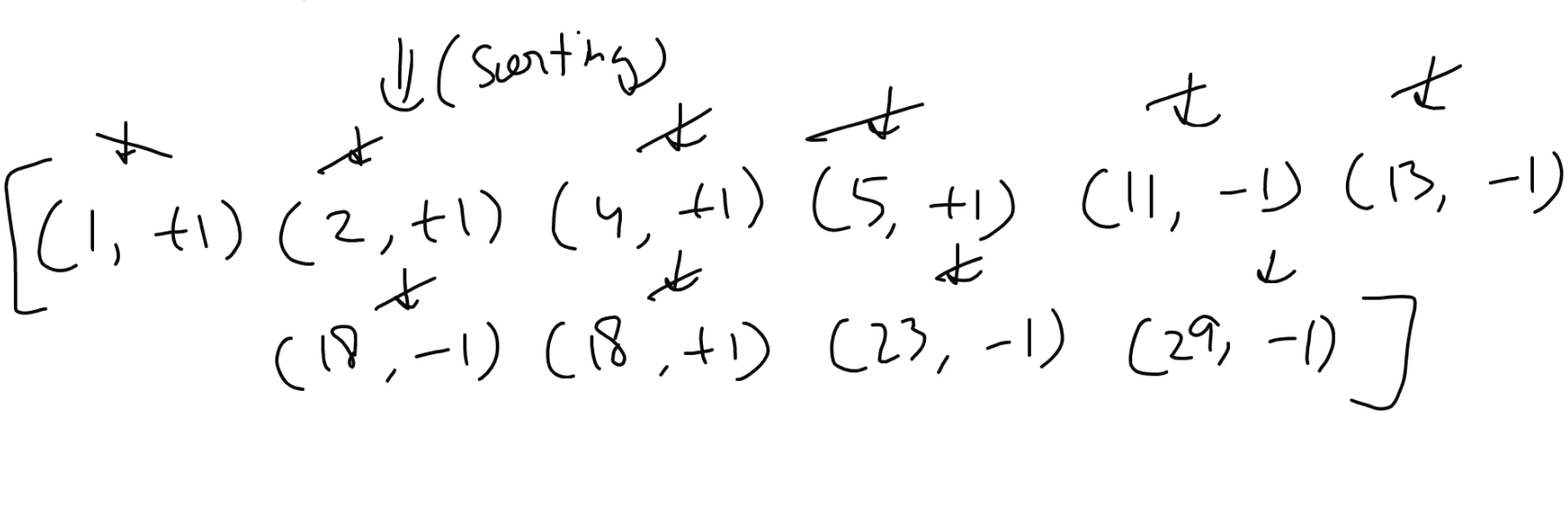
Input 2:

```
A = [      [1, 18]
           [18, 23]
           [15, 29]
           [4, 15]
           [2, 11]
           [5, 13]
    ]
```

O/P = 4.



$O(\underbrace{max\_end} * n)$



O(n)

+1 → starting
−1 → ending

```
[1, 18]
[18, 23]
[15, 29]
[4, 15]
[2, 11]
[5, 13]
```

[~~(1, +1)~~ ~~(18, −1)~~ ~~(18, +1)~~ ~~(23, −1)~~ ~~(15, +1)~~ ~~(29, −1)~~ ~~(4, +1)~~ ~~(15, −1)~~
~~(2, +1)~~ ~~(11, −1)~~ ~~(5, +1)~~ ~~(13, −1)~~]

⇓ (sorting)

[(1, +1) (2, +1) (4, +1) (5, +1) (11, −1) (13, −1) (15, −1) (15, +1)
(18, −1) (18, +1) (23, −1) (29, −1)]

simultaneous_meeting = ~~0~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~3~~ ~~2~~ ~~1~~ ~~2~~ ~~1~~ ~~2~~ ~~1~~ 0

$\boxed{max = 4}$

Jobs:

ID	Deadline	Profit
1	4	20
2	1	10
3	1	40
4	1	30

0−1 : task-3 ⇒ Profit = 40
1−2 : task-1 ⇒ Profit = 40 + 20 = 60.

Jobs:
ID, Deadline, Profit
(1, 2, 100)
(2, 1, 19)
(3, 2, 27)
(4, 1, 25)
(5, 1, 15)

[0−1: Job-4
1−2: Job-1
Profit = 25 + 100 = 125]

✓[0−1 : Job-3
1−2 : Job-1
⇒ Profit = 27 + 100 = 127]

Deadline - k:
0→1, 1→2, 2→3 . . . . (k−1 → k)

Jobs:
ID, Deadline, Profit
(1, 2, 100)
(2, 1, 19)
(3, 18, 27)
(4, 1, 25)
(5, 1, 15)
⇒
ID
(1, 2, 100) ←
(3, 1, 27) ←
(4, 1, 25)
(2, 1, 19)
(5, 1, 15)

No. of Jobs = 2
Profit = 127.

$\frac{3}{0-1}$ $\frac{1}{1-2}$

[(①, 1, 50)
(②, 2, 50)] ←
(3, 2, 100) ←

[$\frac{50}{0-1}$ $\frac{70}{1-2}$ $\frac{100}{2-3}$]

$\frac{}{0-1}$ $\frac{100}{1-2}$

ID, Deadline, Profit
(1, 2, 100)
(2, 1, 19)
(3, 18, 27)
(4, 1, 25)
(5, 1, 15)
⇒
ID
(1, 2, 100) ←
(3, 1, 27) ←
(4, 1, 25)
(2, 1, 19)
(5, 1, 15)

Jobs_count = ~~0~~ 1
max_Profit = ~~0~~ 100

$\frac{}{0-1}$ $\frac{}{1-2}$

slots:

0	1
F	~~F~~ T
0-1	1-2

index i : $\underline{[i \rightarrow (i+1)]}$

[(1, 2, 100)
(2, 2, 50)]

$\frac{}{0-1}$ $\frac{}{1-2}$