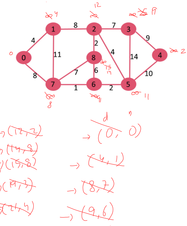

→ (1,7,2)
→ (1,4,2)
→ (1,5,2)
→ (1,7,1)
→ (1,4,1)

d
→ (0, 0)
→ (4, 1)
→ (8, 2)
→ (9, 6)
→ (11, 5)

(0, 0)
(4, 1)
(8, 2)
(9, 2)
⇒ (9, 2) ←
(9, 4)
(11, 5)
(25, 3)
(21, 4)
⇒ (14, 8) ←
(19, 3)

(v, w)

0 → [( ), ( )]
1
2
3

N = 3 W = 50

vals: [60, 100, 120]
wts: [10, 20, 30]
7

0 → 100%

(120, 30) + (100, 20) → 220

(60, 10) + (100, 20) + (20/30 × int, 20/30 × 30)

60 + 100 + 2/3 + 30 = 10 + 10.80
= 240

vals = [60, 100, 120]
wts = [10, 26, 30]

(60, 10) + (100, 26) + (10/10 × 100, 14/26 × 26)

60 + 100 + 14 × 10 = 160 + 56
= 216

(60, 10) + (120, 30) + (10/30 × 120, 20/30 × 30)

60 + 120 + 38 = 218

[60, 100, 120]
[10, 20, 30]

w = 50 weight: 6 5 4

6 5 6 — — — — — — — — — 10

{value, wt}

6.5 6.2

- int → int
- int → int

int/double → double double/int → double

val/wt = 6 wt = 30

W = 10

id	deadline	profit
→ 1	4	20
2	1	10
→ 3	1	40
4	1	30

0-1 / 3 1-2 / 4 2-3 3-4

40 + 20 = 60

d	deadline	profit
→ 1	2	100
2	1	19 ~~200~~
→ 3	2	27
4	1	25
5	1	15

0-1 / 1 1-2 / 3 125 ×

100 + 27 = 127

	id	d	P
→	1	2	300 ←
→	2	1	100
	3	2	50
	4	1	70
	5	1	10

0-1 / 2 1-2 / 1
100 + 300 = 400

0	1	2	3
2			

(2 → 4)

timeline

0	1
-1	1

200 d-1

d	P
2	100

d	P
3	100

0	1	2

n

6	5	4	3	2	1

⇒ O(n²)

1 → 1
2 → 2
3 → 3
4 → 4
⋮
n → n

d	d	P
1	2	100
2	1	19
3	2	27
4	1	25
5	1	15

⇒ d=2 P=200

d=1 P=100

0	1

d=1 P=200

d=2 P=100

d=1 25
⇒ 100 1 19
~~50~~ 1 15
~~70~~ 2 100
→ 5 2 27

nd = 2
vals Prev = ~~0~~ 1 2
profit = ~~0~~ 25 125
100 127

Max-Heap
27
~~25~~, 100

~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~
[1, 2, 3, 2, 3, 3, 3]

crit = ~~0~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~

candidate = ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ 3

~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~
[1, 2, 3, 2, 3, 3, 3]

crit = ~~0~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~

cand = ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~

~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~
[1, 2, 3, 2]

crit = ~~0~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~

cand = ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~