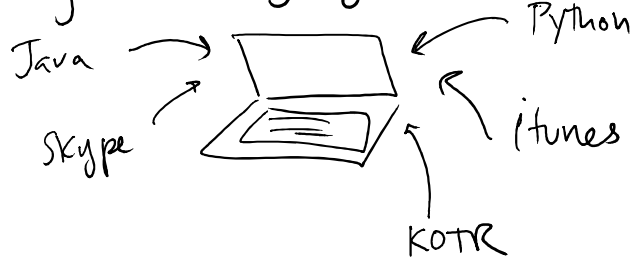
S. KIMMEL

Scheduling

Suppose you are trying to run many applications on a processor



What order is best?

Each job i; $i \in \{1, \ldots, n\}$

- weight (importance) w_i
- time t_i to complete

def: Completion time C_j of job j is sum of times required to complete all jobs run before j, plus t_j.

Scheduling Goal:

Minimize $\sum_{j=1}^{n} w_j C_j$ $\Leftarrow$ "Objective function" A

Q: Why is this a good goal?

A: If important jobs left until end, $w_j C_j \rightarrow$ A large

(w_j: large, C_j: large)

(If choose different objective function → different algorithm.)

Consider

job	time	weight
1	3	1
2	5	2

What is the smallest possible value of A?

A) 3

B) 8

C) 13

D) 18

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(If choose different objective function → different algorithm.)

Consider

job	time	weight
1	3	1
2	5	2

What is the smallest possible value of A?

A) 3
B) 8
C) 13
D) 18

$A = w_1 C_1 + w_2 C_2$

(1,2)

t=0

$A = 1 \cdot 3 + 2 \cdot 8 = 19$

(2,1)

$A = 2 \cdot 5 + 1 \cdot 8 = 18$