

Lecture Notes: Scheduling, Scheduling with Priority Lists

Math F113X Math and Society

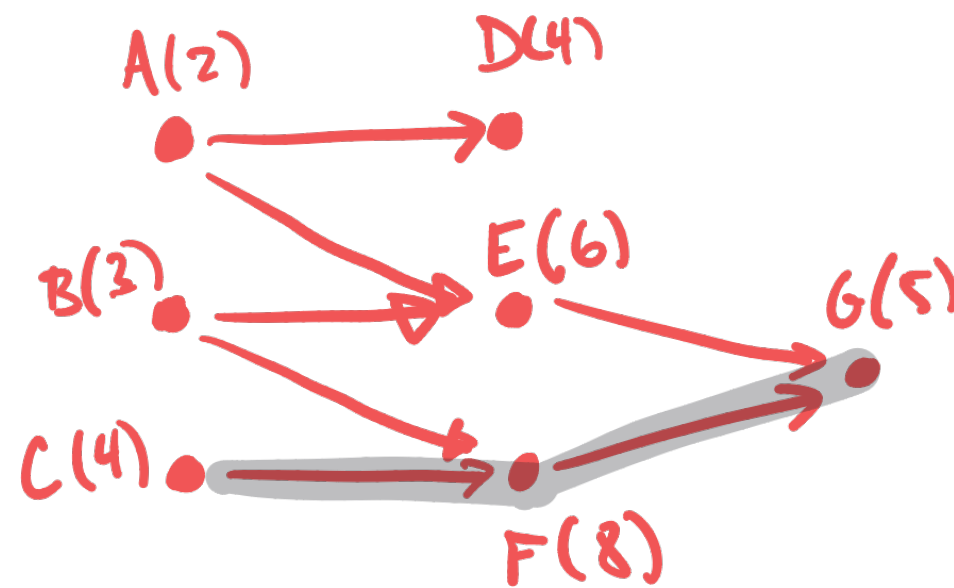
Goal:

Learn how to construct a schedule, given a priority list and **document your thinking**. Learn strategies for making a priority list.

Create an associated digraph

Create an associated digraph. Find a critical path and critical time.

label/task	time	dependence
A	2	
B	3	
C	4	
D	4	A
E	6	A,B
F	8	B,C
G	5	E,F



critical path: C → F → G

critical time: 17

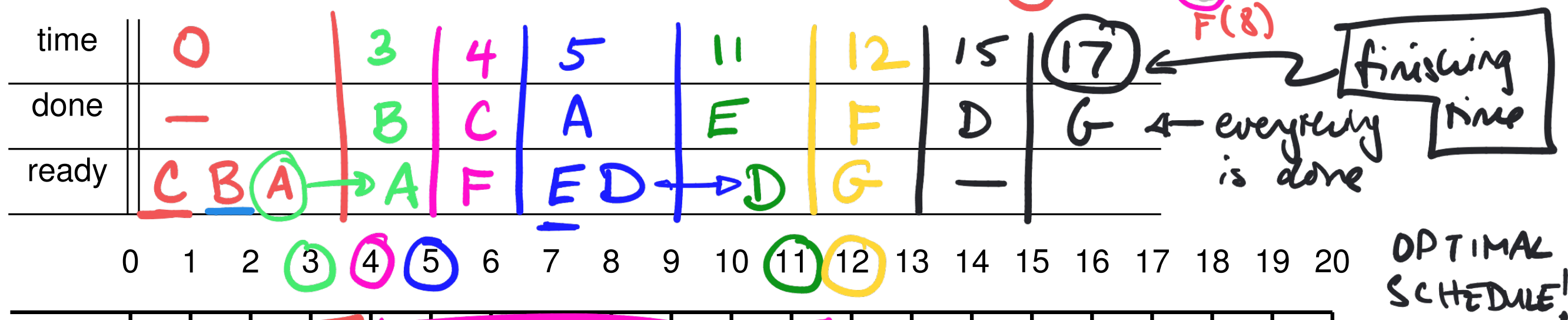
← any optimal schedule must take at least 17 time units!

Construct a schedule with two processors

Construct a schedule with two processors using the priority list below.

F E G C D B A

task	A	B	C	D	E	F	G
time	2	3	4	4	6	8	5
dependence				A	A,B	B,C	E,F



Construct a schedule with two processors

How long did this schedule take? 17 units

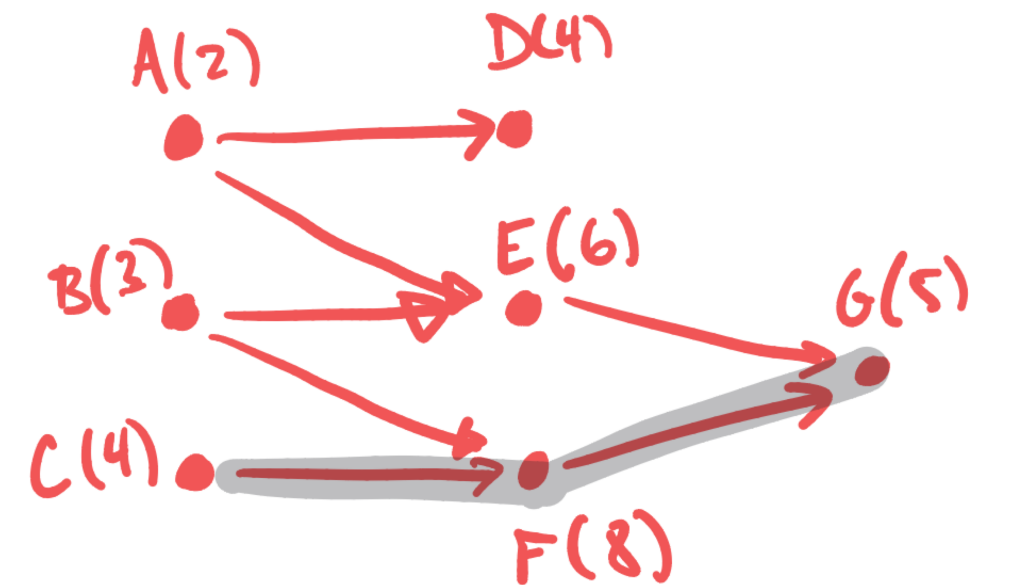
Is this the best possible? How do you know?

Yes! It matches the critical time, so we can't do better

How much idle time was there? 2 units

Decreasing Time Algorithm

Construct a priority list by listing all the vertices in order from longest time to complete to shortest time to complete.



F	E	G	C	D	B	A
8	6	5	4	4	3	2
<u>F</u>	<u>E</u>	G	<u>C</u>	<u>D</u>	<u>B</u>	<u>A</u>