Goal: Learn about the following terminology: schedule, digraph, processors, finishing time, optimal finishing time, optimal schedule, idle time, critical path, critical time.
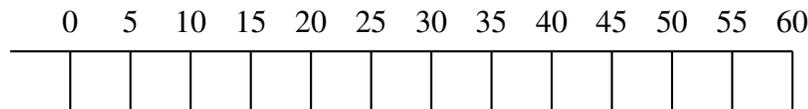
Real World Example: Carnegie Mellon Road Construction Plan

1. **Example** Fixing a Flat Bike Tire

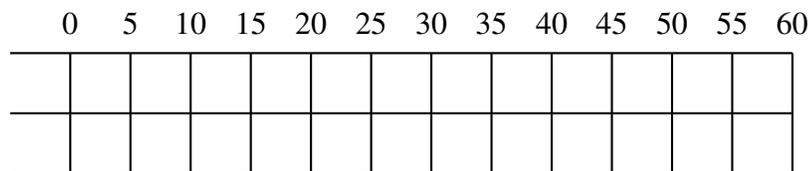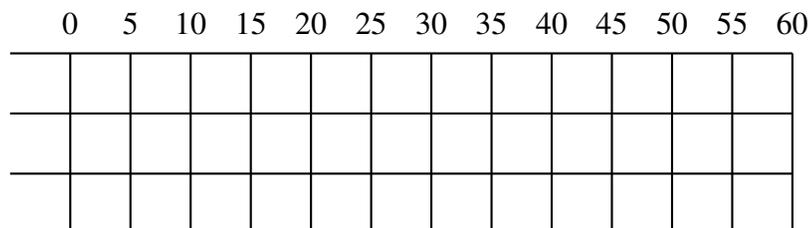| label	task	time	dependence
A	buy a new tube and patch kit	20 minutes	
B	find tools	5 minutes	
C	remove tire and old tube	10 minutes	
D	insert new tube, reattach tire	10 minutes	
E	repair old tube	10 minutes	

   (a) Schedule with one processor

   total time: _____

   0   5   10   15   20   25   30   35   40   45   50   55   60

   (b) Schedule with two processors

   total time: _____

time	
done	
ready	

   0   5   10   15   20   25   30   35   40   45   50   55   60
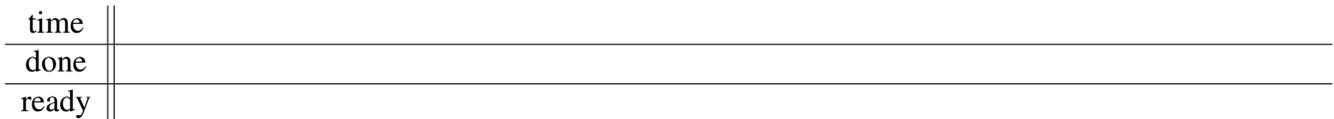
   (c) Schedule with three processors

   total time: _____

time	
done	
ready	

   0   5   10   15   20   25   30   35   40   45   50   55   60

1
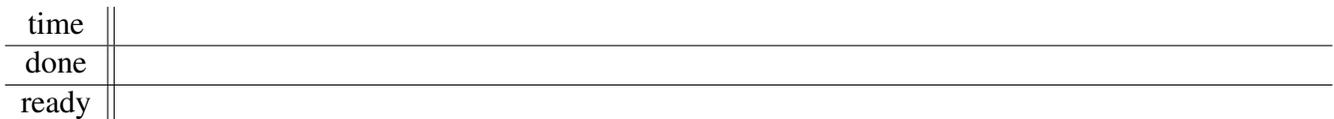
2. Terminology

    (a) **schedule**

    (b) **digraph**

    (c) **processors**

    (d) **finishing time**

    (e) **optimal finishing time and optimal schedule**

    (f) **idle time**

    (g) **critical path**

    (h) **critical time**

3. **General Example**: Create a digraph. Make a valid schedule with TWO processors. Determine values of finishing time, idle time and critical time.

label/task	time	dependence
A	2	
B	1	
C	2	
D	3	A
E	6	A, B
F	8	B, C
G	5	E, F

time	
done	
ready	

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20