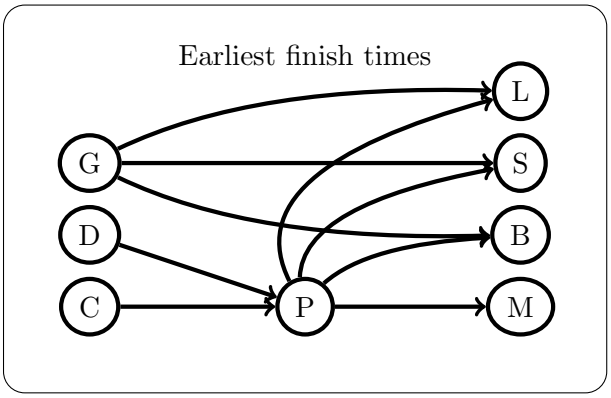
Pasta Party Priorities!

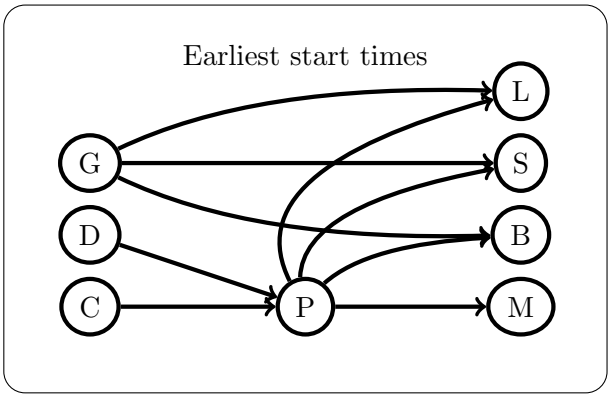
The pasta party has 8 main tasks. Some tasks cannot be done until others are finished. No two tasks can be done at the same time by a single person, though theoretically tasks could be done at the same time if you had more than a single person. You already have the pasta (hence the great idea), but don't have ingredients for salad, bread, or sauce. Also the counters and dishes are nasty.

	Name	Duration	Need to finish these first
M:	Make the pasta	34 minutes	(P) Put out the pots and pans
S:	Make the sauce	10 minutes	(P&G) Put out the pots and pans, get groceries
B:	Make the bread	11 minutes	(P&G) Put out the pots and pans, get groceries
L:	Make the salad	12 minutes	(P&G) Put out the pots and pans, get groceries
P:	Put out pots and pans	3 minutes	(C&D) Clean counter, do dishes
C:	Clean counter	2 minutes	(nothing)
D:	Do dishes	33 minutes	(nothing)
G:	Get groceries	35 minutes	(nothing)

Drawing the dependencies

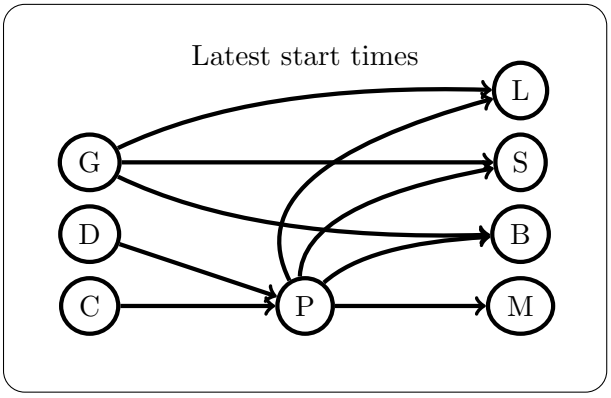
It can be helpful to draw which task depends on another. This doesn't tell us exactly which task to do next, but it does tell us what tasks we could do next. If we assume we have unlimited workers, then anything we *could* do, we *do* do. Use this idea to find the earliest time each task could finish, the earliest time it could start.

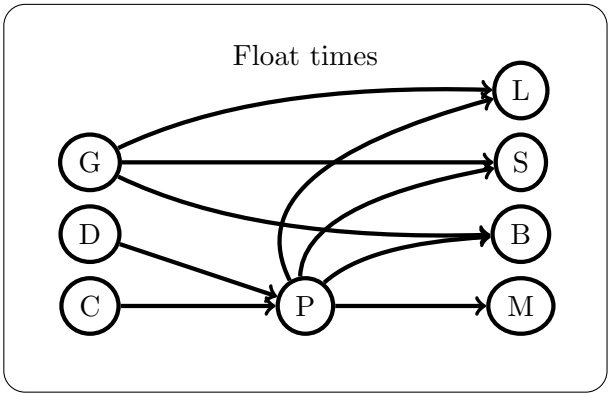




Float time

From the previous we see that even with an army, we cannot finish in early than 70 minutes. That was the answer to the hard part of yesterday's exit quiz. Suppose we want to finish in 70 minutes. What is the very latest we can start each task? We still assume we'll always have enough people to handle the tasks that need to be done at each time. The difference between the earliest start time and the latest start time is called the **float time**. Write down all the float times.



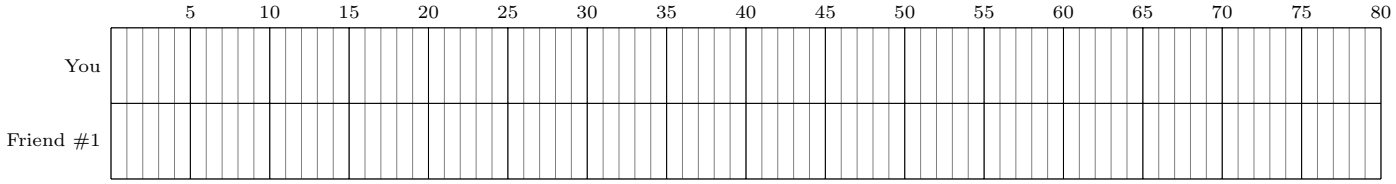


Float times as a priority list

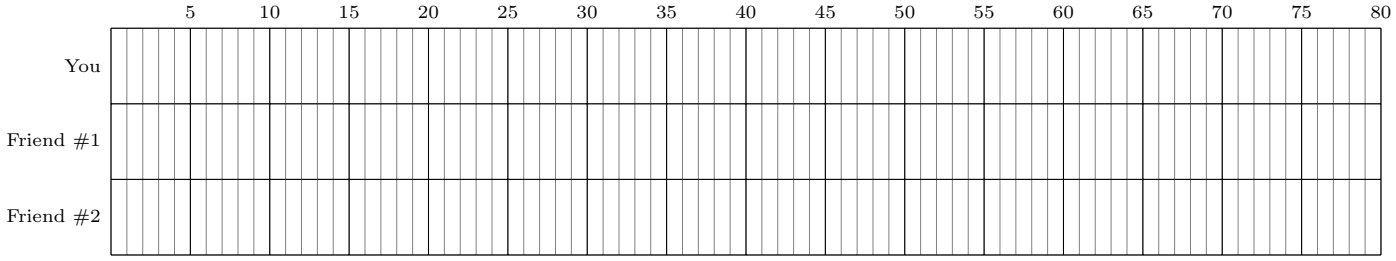
Copy your float times into this table:

	Name	Duration	Float Times	Need to finish these first
M:	Make the pasta	34 minutes		(P) Put out the pots and pans
S:	Make the sauce	10 minutes		(P&G) Put out the pots and pans, get groceries
B:	Make the bread	11 minutes		(P&G) Put out the pots and pans, get groceries
L:	Make the salad	12 minutes		(P&G) Put out the pots and pans, get groceries
P:	Put out pans	3 minutes		(C&D) Clean counter, do dishes
C:	Clean counter	2 minutes		(nothing)
D:	Do dishes	33 minutes		(nothing)
G:	Get groceries	35 minutes		(nothing)

Now schedule the tasks using this rule: each person works on the task with the smallest float time available (amongst those tasks we can actually do at that moment). First have two workers:

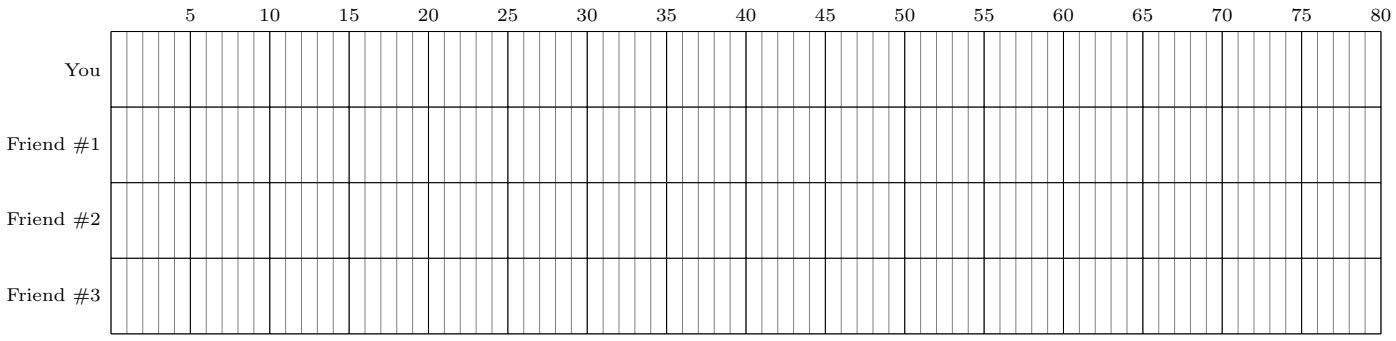


Not quite as good, but not bad. I think some people in the back had used this schedule on Tuesday. Remember how badly our 3 person version went? Let's see how it goes now:



Much better! Can you do better by choosing different priorities?

Now try with 4 people. We should make sure nothign goes wrong there.



This method of scheduling tasks is fairly famous. It is called the **critical path method**. We'll cover some improvements on Tuesday.