# 9/6 Modeling Projects Day 1

## Example 1: Making Fried Chicken Sandwiches

↳ Assume we have already gone to the store and gotten all of the ingredients

**Chicken**
- Make marinade 5m
- Marinate Chicken 8h
- Make Dry Batter 5m
- Heat up oil 10m
- Fry Chicken 15m

**Buns/Sauce**
- Toast Buns 5m
- Spread Sauce 2m

**Pickles**
- Cut up ingredients 10m
- Put into jars 2m
- Let Sit 24h

* Final Step* Assemble (10 min)

- If only on person was doing this and did all the steps in order it would take 33 hours (33h 9m)

- You can speed this process up by adding more people, doing multiple steps at once, waiting to start certain steps until later in the process etc.

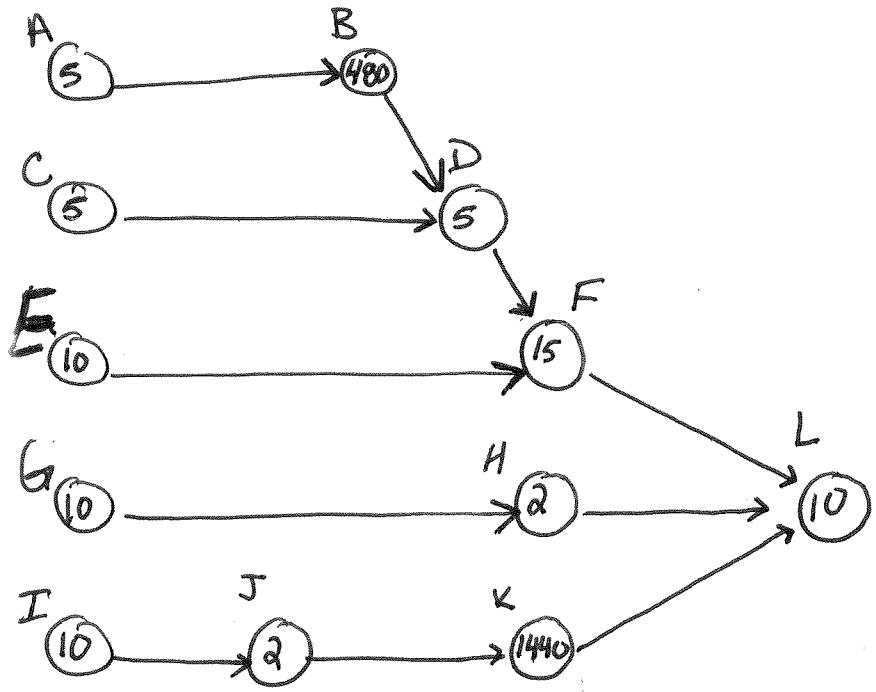
Let's Organize This Differently

| Activity | Time (min) | Prerequisite Tasks |
|---|---|---|
| A. Make Marinade | 5 | — |
| B. Marinate Chicken | 480 | A |
| C. Make Dry Batter | 5 | — |
| D. Batter Chicken | 5 | B, C |
| E. Heat Oil | 10 | — |
| F. Fry Chicken | 15 | D, E |
| G. Toast Buns | 10 | — |
| H. Spread Sauce | 2 | G |
| I. Cut ingredients | 10 | — |
| J. Put Stuff in Jars | 2 | I |
| K. Let Pickles Sit | 1,440 | J |
| L. Assemble | 10 | F, H, K |

→ These should be the task immediately before the one you're looking at

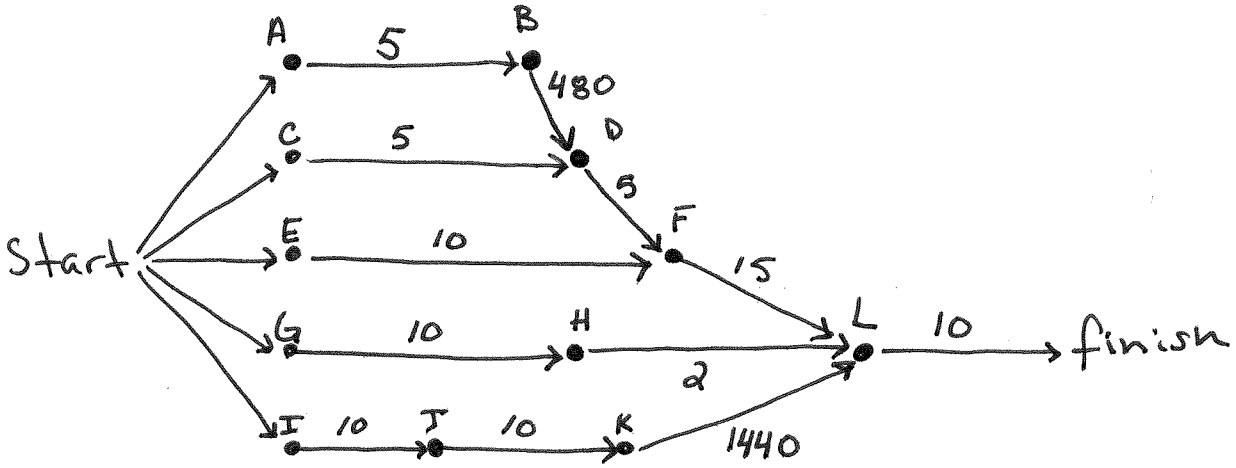
# Model This Visually

## -Weighted Vertices




* For both always make sure to have arrows to show direction *

## -Weighted Edges




- WE always needs a start and finish
- put time AFTER the vertex the time belongs to
- It's okay if your lines cross or are curved

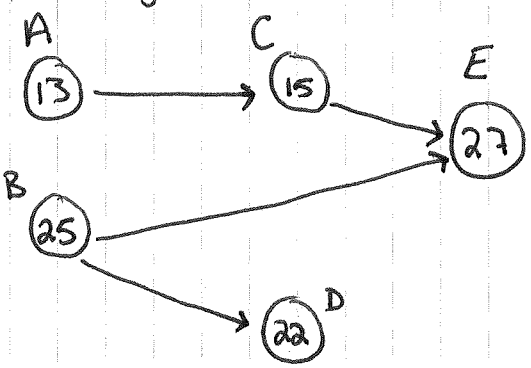
# On your own: Turning around an airplane

↳ An airplane carries both passengers and freight. The airplane must have its passengers and freight unloaded and new passengers and cargo loaded before it can take off again. The cabin must also be cleaned before departure. The times for each task are listed below.

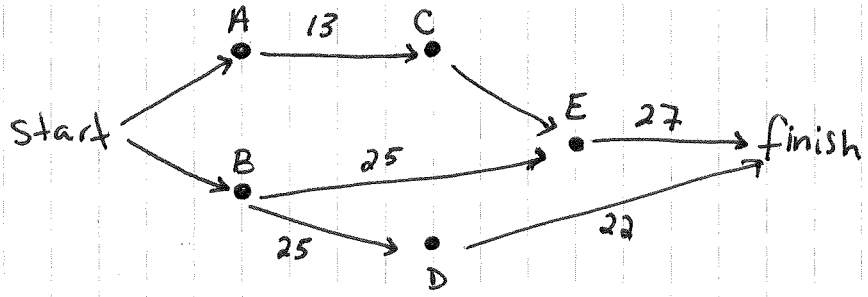
| Task | Time (min) | Prerequisite Tasks |
|---|---|---|
| A. Unload Passengers | 13 | — |
| B. Unload Cargo | 25 | — |
| C. Clean Cabin | 15 | A |
| D. Load New Cargo | 22 | B |
| E Load New Passengers | 27 | B, D |

* Note: you must uload all cargo before new passengers can board the plane *

## Weighted Vertices




## Weighted Edges




1. How long will this take if all tasks are done in order? 1h 42 min
2. Can task B be done before task A? Yes (More useful to do simultaneously)
3. Can task D be done before task C? Yes
4. Can Task E be done before task B? No

* Try to do some tasks together/simultaneously *