20 Hazards, Predictors
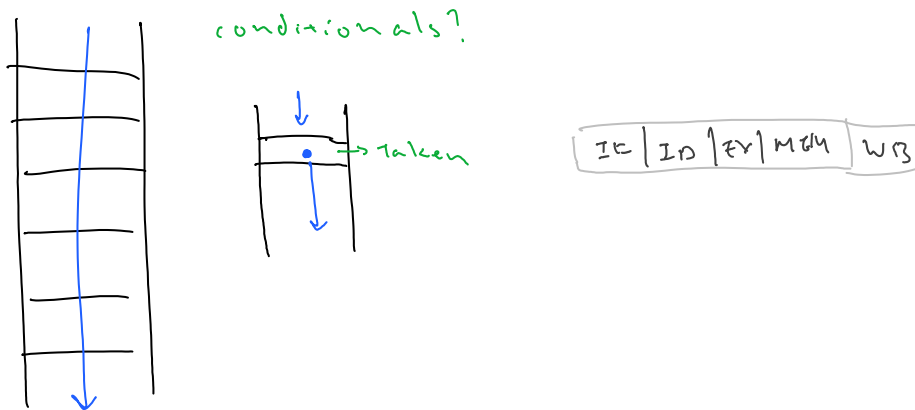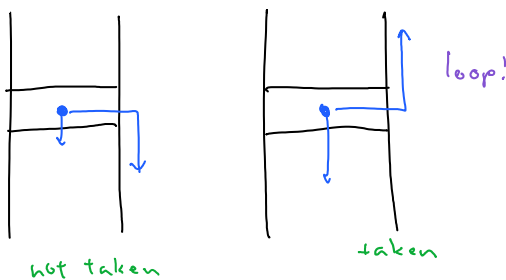
Hazards
- Structural
- Data
- Control

Without hazards, pipeline would be super happy and whiz to the finish

1. Wait 2 pipeline stages worth
2. Start executing something
   a. if correct, yay
   b. If not, "undo" the instruction

BRANCH PREDICTORS
- Static
  - Always taken
  - Always not taken
  - Prediction direction
- Dynamic
      What if we start remembering what happened to this branch
      before
  - 1 bit per branch, e.g. record 1 for taken, 0 otherwise
  - E.g. 256 bit
    - Get to the branch, look it up
      - 0 not taken

- 1 taken
- Update array