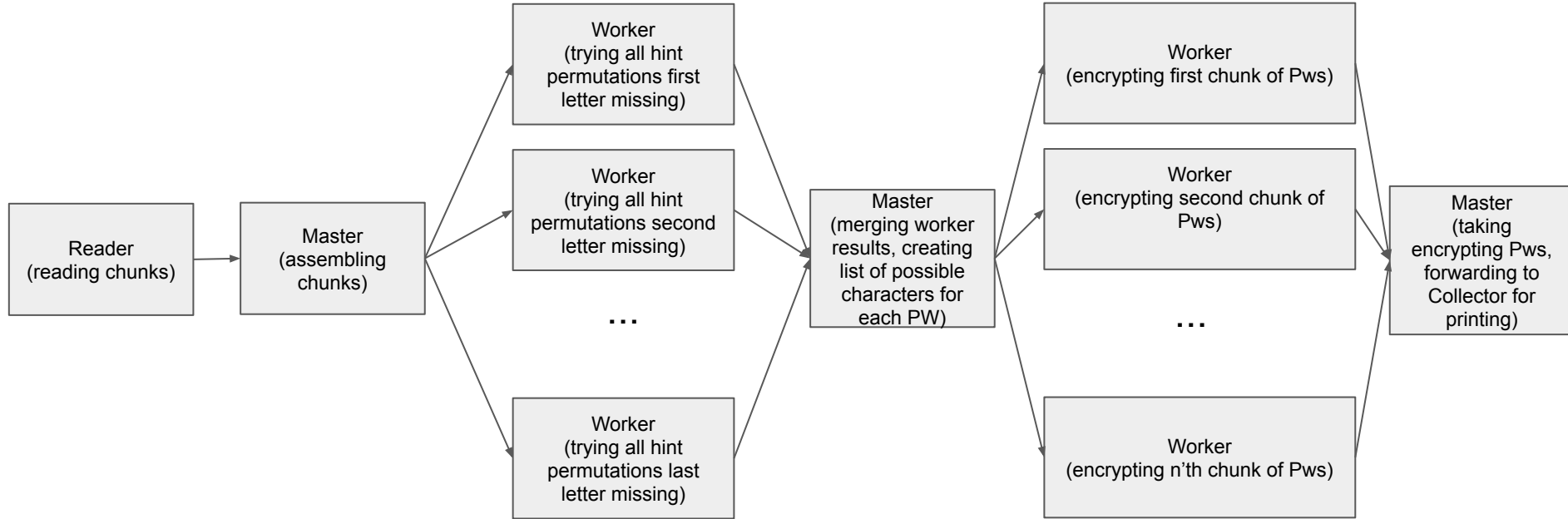# Distributed Data Exercise 1

Task 3, Tobias Pietz

General Idea

Some thoughts

- Hints are permutations >> there are not that many hints possible
  - Generating all possible hints, hashing them and comparing to available hints using a Hashmap is faster than decrypting each hint
- First decrypting all hints before starting to decrypt passwords because hints make pw problem much easier
- Parallelising hint decryption by starting one worker for each letter who then tries all permutations of all the remaining letters
  - Advantage: easy to implement, easy way to distribute some work, higher number of different characters -> higher number of workers
  - Disadvantage: does not utilize large machines fully (e.g. only 10 workers for 10 different letters), does not scale linear
  - >>> there is room for improvement but the given solution is straightforward and simple, runs in ok-ish time for the test data and fully utilizes all cores of my local machine so I stick with the simple solution here, leaving the solutions optimized for large clusters to some other teams