Assignment 3
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For each record:
    Queue of PasswordData
        Id
        remainingHintsToCrack
        charsInPassword
        hashedPassword

    Queue of HintData
        passwordId
        hashedHints
        indexCharToCheck

Reader

BatchMessage

ReadMessage

Master

Queue of freeWorkers
Map of Id -> PasswordData

WorkOnHintMessage

HintResultMessage

Worker

WorkOnPasswordMessage

PasswordResultMessage

CollectMessage

PrintMessage

Collector
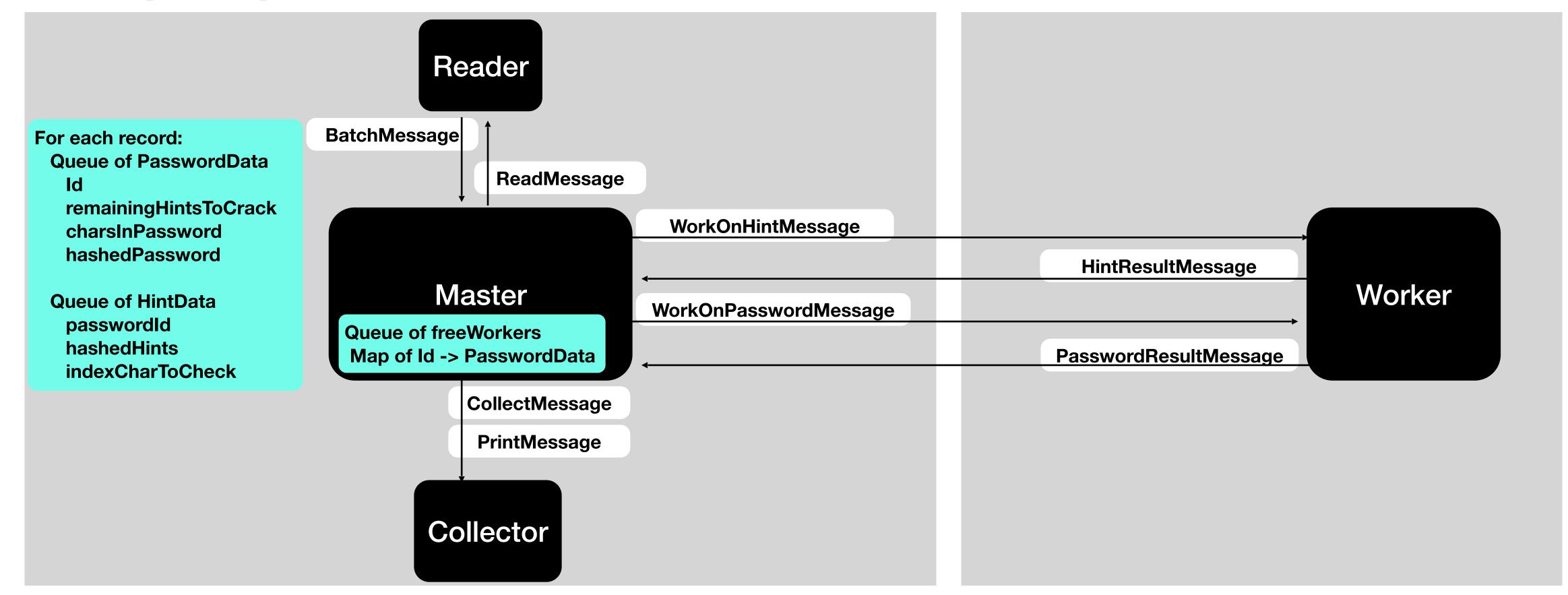
The Master creates passwordData and hintData from each record and stores them in a queue of HintData and a Map of Id to PasswordData.
Each registered free worker gets 1 item from the hint queue or later the password queue to crack.
The HintData prompts the worker to find out if a specific character is not in the password by trying to crack a hint.
This specific character or null is returned back with the HintResultMessage.
The Master then removes this character from the corresponding password's charsInPassword.
This way, for each password all hints are cracked iteratively, each time checking if a character is part of the password or not.
Hint cracking takes a long Time. By letting 1 worker only crack 1 hint as a task, the work is split evenly and we avoid idling workers at the end (as far as possible) that wait for others to finish.
When all hints for a password are cracked, the corresponding PasswordData is added to the password queue which can be given to a free worker to crack.
When receiving a PasswordResultMessage the information is sent to the collector.