

# 15-110 Recitation 11

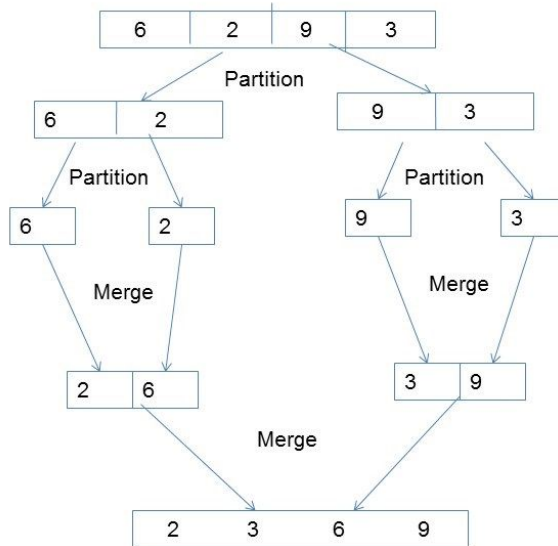
04/02/2020

**Covering:** concurrency, map reduce, pipelining,

**Reminder:** HW5 due Friday, April 9

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## Problem 1: mergesort concurrency



What steps can be done in parallel?

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## Problem 2: mapReduce

Suppose we make a mapReduce function to count the number of files that have an even number of even numbers. Define the mapper, collector, reducer function.

Your own approach:

Mapper	
Collector	
Reducer	

Class approach:

Mapper	
Collector	

Reducer	
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**Problem 3:** laundry pipelining

Similar to the laundry problem in lecture: say we have a system where we need to wash, dry, iron, and fold each load of laundry. Each stage takes 30 minutes, and we have access to 4 washers, 4 dryers, 4 ironing stations, and 4 folding stations.

Laundry without pipelining drawing space :



Laundry with pipelining drawing space :



Based on your diagram:

Without any pipelining, how many loads of laundry could you do in 3 hours?	
With pipelining, how many loads of laundry could you do in 3 hours?	