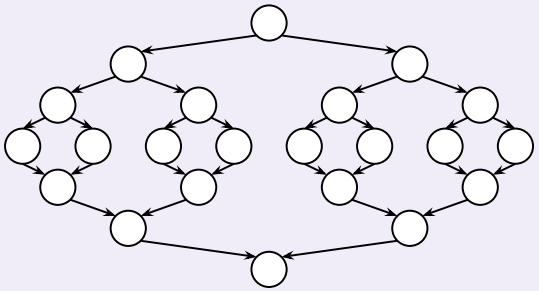
Q Thread Counting

How many threads are created during the execution of SumTask in terms of N, the number of items (a power of 2)? Cutoff at 1024 items and call left.fork(), right.compute(), and left.join().



2

Q1: How many threads are created during the execution of SumTask in terms of N, the number of items (a power of 2)? Cutoff at 1024 items and call left.fork(), right.compute(), and left.join().

Q Execution DAG

Given a list of N items, draw the execution DAG for an algorithm that adds the items to a min-PQ, removes them from the min-PQ, and then sums all of the items in the array. Which part(s) can be parallelized?

4

Q1: Given a list of N items, draw the execution DAG for an algorithm that adds the items to a min-PQ, removes them from the min-PQ, and then sums all of the items in the array. Which part(s) can be parallelized?

Q Worst-Case Execution DAG

Draw the execution DAG for an algorithm with order N work and span.

6

Q1: Draw the execution DAG for an algorithm with order N work and span.

Q Amdahl's Law

How many processors would you need to get 4x speedup on a program where 4/5 of the program is parallelizable? Is this possible?

Calculator required: What percentage of a program would have to be perfectly parallelizable in order to get a 100x speedup on 256 processors?

8

Q1: How many processors would you need to get 4x speedup on a program where 4/5 of the program is parallelizable? Is this possible?

Q2: What percentage of a program would have to be perfectly parallelizable in order to get a 100x speedup on 256 processors?