CS5220 Project Proposal

Speedup/efficiency of different size parallel experiments

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1. Back ground

We often need to change the parameter when we are doing some experiment. With different experiment, the parameter may affect the size of the problem. For example, in some experiment, we may need to multiply matrix whose size depends on the parameter. In this case, the input parameter may change the size of problem.

Also, we usually want to do experiment with different parameter in parallel. But as the size of problem with different parameter is different, we cannot get linear speed up because some of the results always show up later than others.

2. Goal of the project

The goal of the project is to get the speedup/efficiency of applying parallel on different complexity problem. And search for some ways (for example, different order of the parameter) to get a better speed up. Basically:

1)   Do experiment on algorithms that have different complexity based on the input parameter. See what the speed up looks like for each complexity case.

2)   Set up some rules for arrange the jobs in some order, decide what kind of rules can get a better performance.

This is a problem that I met when I'm doing some experiment whose complexity depend on the parameters. So I don't have reference to it now.