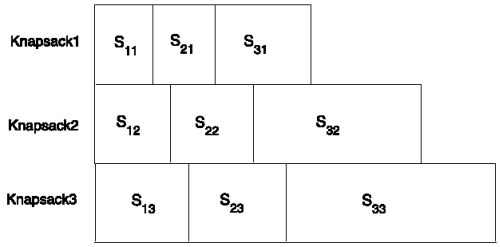
HPC Lab Week 8

Developing a Scheduler for Multiprocessing

Objective of this lab is to implement an automatic scheduler for assigning jobs to the CPU-cores based on the size of jobs.

To do:

1. Create different functions each doing a simple computation. Functions can be executing operations of different complexities such as N, N^2, N^3, Log N, N Log N, etc.
2. You can make use of already known searching or sorting algorithm's and their implementations.
3. Given P number of cores (minimum P=2) where all the jobs are ready to go at the same time, create a scheduling mechanism to allocate them to CPU cores.
4. The size of job depends upon the complexity as well as the corresponding N.
5. Scheduler choices can be following.
    a. Random Allocation of jobs to each core in a sequence.
    b. Shortest Job First
    c. Multiple Knapsack based allocation



6. Execute jobs on given cores. Wait for the job to finish the execution using sync and start the next allocated job.
7. Calculate the time taken by serial execution of jobs, parallel scheduler schemes.