ANALYSIS
Homework-3

1. For each of the three tasks, it can be seen that the parallel efficiency decreases with increase in number of processors. This suggests that the degree of parallelization keeps decreasing and approaches zero as more parallel computational power is added to the infrastructure. This was an expected result. Not all tasks can achieve perfect parallelization, and this also holds good for the three tasks which we experimented with.

2. With this kind of infrastructure it is difficult to calculate T∞ since all the infinite processors have to be explicitly mentioned in the build.xml for them to be started. Also it is an execution overhead to ssh to infinite machines and start the infinite computers remotely.
   Also infinite machines should be started dynamically when the load demands the processors and with the current infrastructure it is not possible to start computers depending on the load requirements dynamically.

3. The task scheduler that we have used is a first-in-first-out scheduler which assigns the tasks to random proxies as when they are received.
   The advantage of this the tasks do not wait in the schedulers queue for long and get assigned to a computer as and when they arrive.
   The disadvantage is work stealing cannot be done and when there is a processor with empty queue it becomes idle even though some other processor might be overloaded. Also it is not possible to assign priorities to tasks so that high priority tasks are executed first.

4. The efficiency of the scheduler can be increased by implementing the “work-stealing” scheduling approach. With this no processor will be idle when its queue is empty and it would also make the processing faster and the work is offloaded of a heavily loaded processor with work-stealing.

5. When there is a network of Spaces the client before submitting the task has to have a reference to the entire network of and there should be an algorithm to decide which space the task at hand should be submitted to.

- Similar decision should be made by the Computer when new Child and Successor tasks are generated.
- If certain subtasks of a given task are in one Space and some other subtasks in a second work space then there is a difficulty for the child tasks to find the successor of their parent , where they should return to.
- Also measures should be taken to avoid two spaces choosing the same computer proxy to assign a task