**2. Familiarization with SLURM commands**

**What is SLURM?**

SLURM (**Simple Linux Utility for Resource Management**) is a job scheduler for clusters.  
It helps you **allocate resources, run jobs, monitor jobs, and manage workloads**.

**Basic SLURM Workflow**

1. **Request resources** (interactive or batch job).
2. **Submit job** (sbatch for batch jobs).
3. **Check status** (squeue, sacct).
4. **Cancel jobs** (scancel).
5. **Get information** about nodes/partitions (sinfo).

**Common SLURM Commands**

**🖥️ Cluster Information**

* sinfo → Show information about nodes and partitions.
* scontrol show partition → Detailed partition info.
* scontrol show node <node-name> → Details of a specific node.

**📤 Submitting Jobs**

* sbatch script.sh → Submit a batch job script.
* salloc -N 1 -n 4 -t 01:00:00 → Request resources for an **interactive session** (1 node, 4 tasks, 1 hour).
* srun --pty bash → Run command interactively on allocated resources.

**📊 Monitoring Jobs**

* squeue → Show running/pending jobs.
  + squeue -u <username> → Show only your jobs.
* sacct → Show job accounting (completed jobs, resource usage).
* sstat -j <jobid> → Show resource usage for a running job.

**Managing Jobs**

* scancel <jobid> → Cancel a specific job.
* scancel -u <username> → Cancel all jobs from a user.

**⚙️ Job Script Directives (inside script.sh)**

Example script.sh:

#!/bin/bash

#SBATCH --job-name=test\_job

#SBATCH --output=output.txt

#SBATCH --ntasks=4

#SBATCH --time=01:00:00

#SBATCH --partition=compute

srun hostname

Submit with:

sbatch script.sh

**🔹 Quick Example Workflow**

sinfo # Check partitions and nodes

salloc -N 1 -n 2 -t 10:00 # Allocate resources

srun hostname # Run job interactively

sbatch my\_job.sh # Submit batch job

squeue -u yourusername # Check job status

scancel 123456 # Cancel job with ID