



nvidia-smi (NVIDIA System Management Interface)

- Is a command-line utility, provided by NVIDIA.
- It offers monitoring and management of the GPUs.



nvidia-smi (NVIDIA System Management Interface)

- 3 Key features

- Performance monitoring.

- Utilization, memory usage, temperature and power.

- Settings management.

- Controlling the clock speed and power limits.

- Device information querying.

- GPU name, driver version ,,, etc

```
hamdy@DESKTOP-26L8BIV:/mnt/c/Users/hamdy/cuda_course$ nvidia-smi
Wed Mar 20 02:18:37 2024

+-----+
| NVIDIA-SMI 545.23.07                  Driver Version: 546.12          CUDA Version: 12.3          |
+-----+-----+-----+-----+-----+-----+
| GPU   Name                               Persistence-M | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf              Pwr:Usage/Cap |      Memory-Usage | GPU-Util  Compute M. |
|=====+=====+=====+=====+=====+=====+
|  0  NVIDIA GeForce RTX 3090              On         | 00000000:84:00.0  On  |          N/A         |
| 30%   36C   P8               17W / 350W | 4061MiB / 24576MiB |      1%      Default |
|                                           |                      | N/A              |
+-----+-----+-----+-----+-----+-----+
|
+-----+
| Processes:                                |
| GPU   GI    CI          PID    Type    Process name                        GPU Memory |
|      ID    ID                                   |            Usage   |
+-----+-----+-----+-----+-----+-----+
|
```

- Necessary data to make informed decisions



nvidia-smi command:

```
nvidia-smi
```



nvidia-smi command:

- **Monitoring GPUs Continuously**

`nvidia-smi -l 5`

- **Displaying Specific Information**

`nvidia-smi --query-gpu=gpu_name,driver_version,temperature.gpu --format=csv`

- **Setting Power Limits**

`nvidia-smi -i 0 -pl 200`

- **Permission mode**

`nvidia-smi pm -0`

- **Saving Output to a File**

`nvidia-smi -l 5 > gpu_log.txt`



nvidia-smi command:

- **To check the current clocks in use:**

```
nvidia-smi -q -d CLOCK
```

- **To check all supported clocks that can be used**

```
nvidia-smi -q -d SUPPORTED_CLOCKS
```

- **To determine certain clocks to be used:**

```
nvidia-smi --application-clocks=1216,765
```

```
--reset-gpu-clocks
```