

170050020

Kiran

N↓ Time(in sec) →	Serial Code	CUDA code	CUDA code
Block Size→	16	16	32
100	0.006	0.0018	0.00272
500	1.56	0.098	0.0885
1000	5.34	0.1407	0.114
2000	45.42	1.003	0.935
2500	90.22	2.87	2.43
5000	308.19	186.53	129.31

From above table we can depict that on using GPU cuda code gives very less amount of time than Serial code in HW2.

Another observation says that using gpu CUDA code with 32 block size has given lesser time than gpu CUDA code with 16 block size. It signifies that as we increase block size we allow the kernels to run as parallelly as possible.

```
Kiran@Kiran-Lenovo:/mnt/c/Users/Shree/Downloads/ME_766/HW3$ ./a.out
Serial Code output:-
For Block Size: 16
    100    0.006
    500    1.56
   1000    5.34
   2000   45.42
   2500   90.22
   5000  308.19
```

```
Kiran@Kiran-Lenovo:/mnt/c/Users/Shree/Downloads/ME_766/HW3$ ./a.out
CUDA Code output:-
For Block Size: 16
    100    0.0018
    500    0.098
   1000    0.1207
   2000    1.003
   2500    2.87
```

```
\Kiran@Kiran-Lenovo:/mnt/c/Users/Shree/Downloads/ME_766/HW3$ ./a.out
CUDA Code output:-
For Block Size: 32
    100    0.00272
    500    0.0855
   1000    0.114
   2000    0.935
   2500    2.43
```

MACHINE SPECIFICATIONS:

I used windows with wsl(Windows Subsystem for Linux (WSL)) which enabled me to install CUDA on it and run the code just like ubuntu.

NVIDIA GeForce 940MX :- 2 GB

8 GB RAM

OCTA core processor

Intel i7 8th Gen

Windows 10