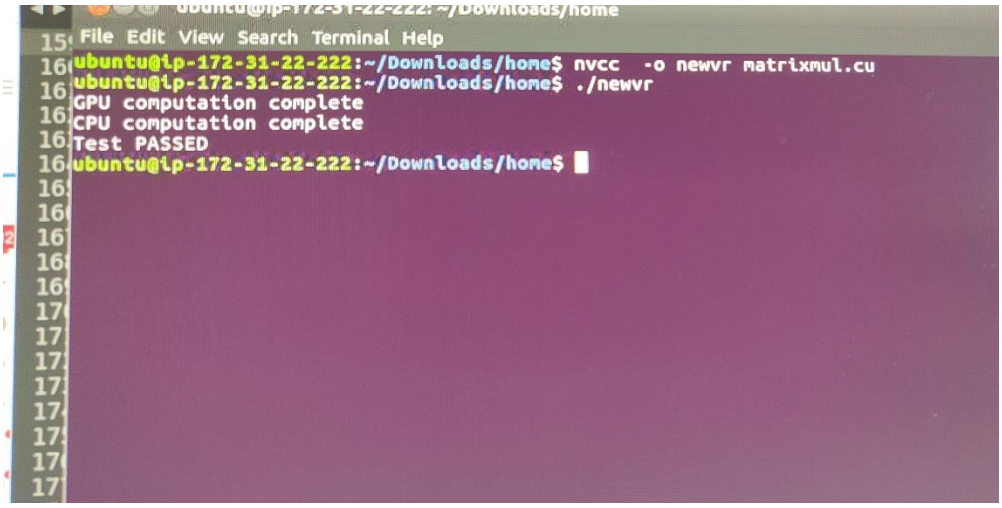
CS 677 homewok- Vardaan Kishore

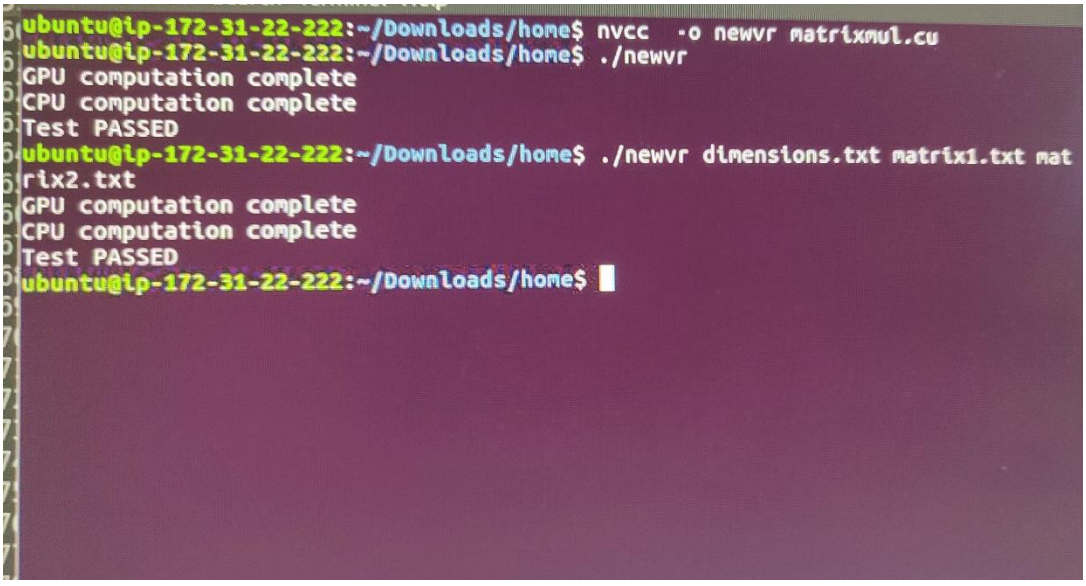
Question 1:

I have attached the screenshots of the 2 operating modes of the program.

1. No arguments:



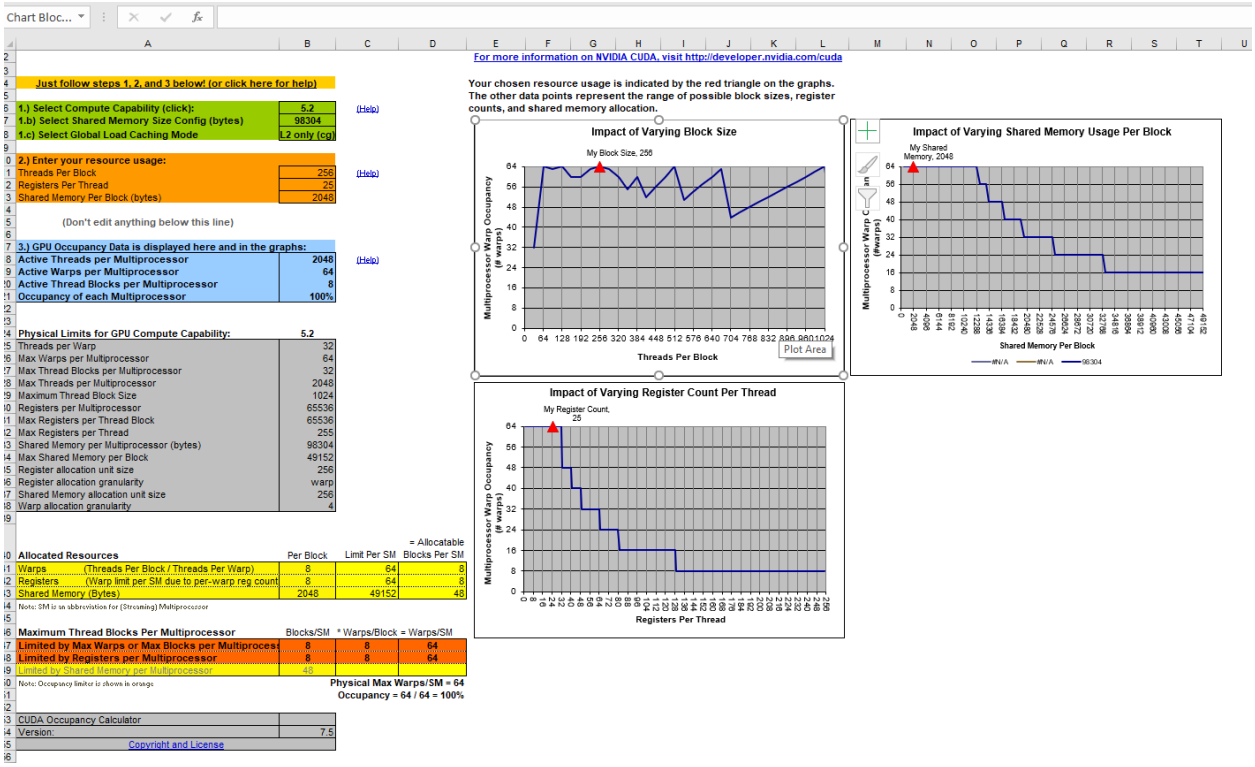
2.Three arguments :



Question 4:

1. 2048 bytes of shared memory. 48 will be the max number of blocks if shared memory was the bottleneck.
2. 25 registers are used. 8 will be the number of blocks if limited by the registers

3. The max blocks per sm would be 8.
4. From the occupancy calculator we can see that occupancy is 100%, so 64 warps i.e 2048 threads are executing simultaneously.



For more information on NVIDIA CUDA, visit http://developer.nvidia.com/cuda

Just follow steps 1, 2, and 3 below! (or click here for help)

1.) Select Compute Capability (click):	5.2	(Help)
1.b) Select Shared Memory Size Config (bytes)	98304	
1.c) Select Global Load Caching Mode	L2 only (cg)	

2.) Enter your resource usage:		
Threads Per Block	256	(Help)
Registers Per Thread	25	
Shared Memory Per Block (bytes)	2048	

(Don't edit anything below this line)

3.) GPU Occupancy Data is displayed here and in the graphs:		
Active Threads per Multiprocessor	2048	(Help)
Active Warps per Multiprocessor	64	
Active Thread Blocks per Multiprocessor	8	
Occupancy of each Multiprocessor	100%	

Physical Limits for GPU Compute Capability:	5.2
Threads per Warp	32
Max Warps per Multiprocessor	64
Max Thread Blocks per Multiprocessor	32
Max Threads per Multiprocessor	2048
Maximum Thread Block Size	1024
Registers per Multiprocessor	65536
Max Registers per Thread Block	65536
Max Registers per Thread	255
Shared Memory per Multiprocessor (bytes)	98304
Max Shared Memory per Block	49152
Register allocation unit size	256
Register allocation granularity	warp
Shared Memory allocation unit size	256
Warp allocation granularity	4

Allocated Resources	Per Block	Limit Per SM	= Allocatable Blocks Per SM
Warps (Threads Per Block / Threads Per Warp)	8	64	8
Registers (Warp limit per SM due to per-warp reg count)	8	64	8
Shared Memory (Bytes)	2048	49152	48

Note: SM is an abbreviation for (Streaming) Multiprocessor

Maximum Thread Blocks Per Multiprocessor	Blocks/SM	* Warps/Block	= Warps/SM
Limited by Max Warps or Max Blocks per Multiprocessor	8	8	64
Limited by Registers per Multiprocessor	8	8	64
Limited by Shared Memory per Multiprocessor	48		

Note: Occupancy limiter is shown in orange

Physical Max Warps/SM = 64
Occupancy = 64 / 64 = 100%

CUDA Occupancy Calculator	
Version:	7.5

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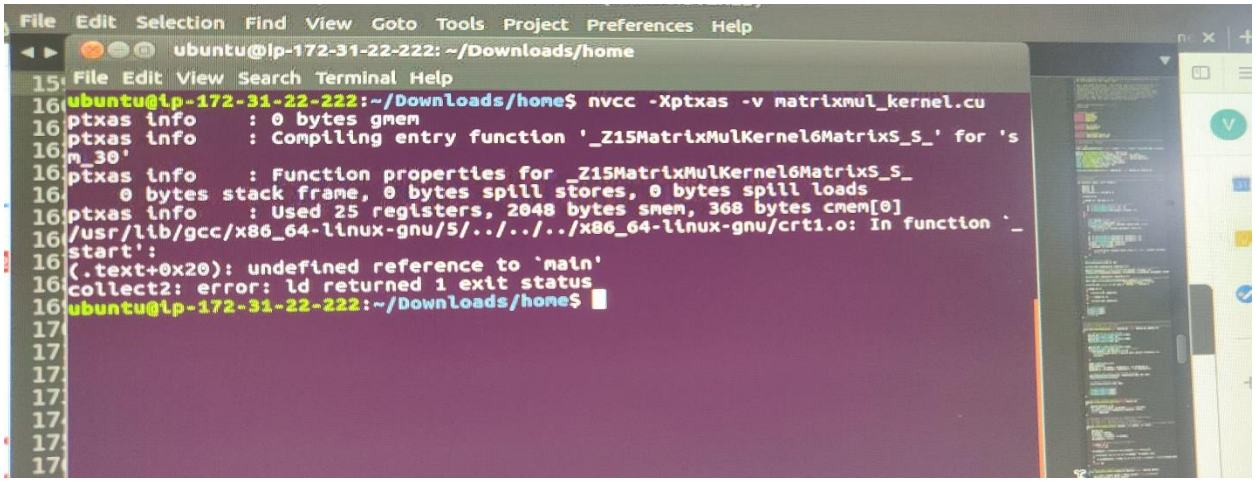
Your chosen resource usage is indicated by the red triangle on the graphs. The other data points represent the range of possible block sizes, register counts, and shared memory allocation.