EC527: Lab 7

Part 1:
The code ran as expected.

Part 2: (code: cuda_SOR.cu)
1. The first part was implemented. The code is attached.

2. The difference observed in the GPU and CPU time is as shown in the image below. The GPU took around 24 seconds while the host (CPU) took 130 seconds to do the same operation. Hence, on GPU, the code ran 5.3 times faster than on CPU.

```
GPU time: 24352.589844 (msec)

calculating results on host
130017.272290
scc-jb2:~ %
```

3. Same as (2).

Part 3: (code: cuda_multi_SOR.cu)

```
GPU time: 1610.889404 (msec)

calculating results on host
129096.062798
scc-jb2:~ % vim cuda_SOR.cu
scc-jb2:~ %
```

In this part, my code ran in 1.6 seconds in GPU while in CPU it took the same time as before that is 130 seconds. The speed up observed was nearly 80x.