

# Parallel Processing

## Assignment 1

**This assignment is individual assignment, every student should submit by himself.**

**Due: Next Section**

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### 1. True or False:

- Nodays Processors getting faster because we are clocking their transistors faster.
- All applications can be programmed in a parallel fashion.
- GPU and CPU have the same design concepts.
- GPU are optimized to decrease latency.
- GPU good at running one thread very quickly.

### 2. If we lunch a kernel in CUDA with the following statement.

```
Kernel<<<100, 25>>>(in, out)
```

- How many blocks does we have?
- How many threads does we have?
- Rewrite this command to express the blocks as a 10\*10 two dimensions array.
- Rewrite this command to express the threads as a 5\*5 two dimensions array.

### 3. The following link provide a CUDA program to output the square for an array of float elements:

[Square with CUDA](#)

Download this program and apply the following changes:

- Replace line 36 with ( square <<< dim3(2,1,1),32 >>>(d\_out, d\_in); ) and do the appropriate changes to get the same results
- Change the size of the array to 100 and handle any other required changes.
- Change the operation to get the cube of the array elements.
- Write a similar program to sum two arrays of length 100.