CSE141L Lab 3 Caching Optimizations Worksheet2

Name: _____ Student ID: _____

Instructions

- Complete this worksheet while reading/working through the lab write up. The worksheet doesn't make sense without the lab.
- The point values are listed for each question. Altering the size of the cells will cost you 1 point. The write up portion of the lab is 30% of your total point for the lab as shown in the lab's README.md

Tier 2: Optimizing calc_grads

P1 (4pt) Change the order of loops from `b i n` to `b n i` in the the triply-nested loop in `fc_layer_t::calc_grads` and report the speedup.

Speedup after loop reordering : _____

P2 (4pt) Block loop `n` in the the triply-nested loop in `fc_layer_t::calc_grads` with different step sizes and fill out the following table.

Function	Step size	Base implementation time	Blocked implementation time	Speedup
calc_grads	_____	_____	_____	_____
calc_grads	_____	_____	_____	_____
calc_grads	_____	_____	_____	_____
calc_grads	_____	_____	_____	_____
calc_grads	_____	_____	_____	_____

P3 (4pt) In a single line plot, plot performance vs. block size for blocking the loop `n` in the the triply-nested loop in `fc_layer_t::calc_grads` and return block size that gives maximum speedup. Block size is the independent vairable.

```
Your graph here
```

Best block size : _____

Tier 3: Applying More Optimizations

P1 (5pt) Give a brief description of two additional loops you tried blocking. Report the speedup you achieved for each one.

```
Your answer here
```

P2 (5pt) Give a brief description of an additional optimization you implemented to speedup training.

```
Your answer here
```

P3 (2pt) Illustrate the effect of one of your tier 3 optimizations with a screen capture from moneta.

```
Your answer here
```

P4 (1pt) Were there any differences in the miss rate observed using the performance counters and moneta? What could contribute to the differences? (A brief answer is fine)

```
Your answer here
```