CS 6230/5960

Homework 2

Spring 2020

Due 11:59pm, Friday, 1/24

1. Part of HW2 (a) see on canvas.
2. Part of HW2 (a) see on canvas.
3. (20 points) Consider the following nested loop code:

```
double A[512][512], B[512][512];
  for (i=0; i<512; i++)
   for (j=0; j<512;j++)
   for (k=i; k<512; k++)
      C[i][j] += A[i][k]*B[k][j];
```

   Perform loop permutation to generate the ***kij*** form (Hint: Think of the needed permutation as a sequence of "simpler" permutations for which the code generation is easier to reason about).

4. (20 points) For the same code as the previous problem, generate a version that is 2-way unrolled on both the ***i*** and ***j*** loops (just unrolling; no loop permutation).

```
double A[512][512], B[512][512];
  for (i=0;i<512;i++)
   for (j=0;j<512;j++)
    for (k=i;k<512;k++)
      C[i][j] += A[i][k]*B[k][j];
```