

**Due on Sunday, September 6, 2015 by midnight**

**Last accepted on Wednesday, September 9, 2015 at midnight**

## Updates

(Aug. 31) The assignment is new.

## What Will You Be Doing

Answer the following questions:

1. Consider the following code:

```
for (i = 0; i < 100; i++) {  
    for (k = 0; k < 5; k++) {  
        x[i] = x[i] * k;  
    }  
}
```

- a. Discuss the spatially locality in this code.
  - b. Discuss the temporal locality of this code.
2. You have a computer with the following memory attributes:
    - It takes 10 ns to get a value from cache
    - It takes 70 ns to get a value from main memory
    - It takes 50 ms to access an item in virtual memory
    - a. You find the value in cache 99% of the time. Of the remaining 1%, it is in memory 99% of the time. The rest are in virtual memory. What is the average memory access time?
    - b. You find the value in cache 90% of the time. Of the remaining 10%, it is in memory 90% of the time. The rest are in virtual memory. What is the average memory access time?
  3. Exercise 2.2 from Hailperin.
  4. Exercise 2.3 from Hailperin.
  5. Exercise 2.4 from Hailperin.

## Working Alone Or In Groups

You may either do this assignment alone or in groups of up to three people. You must put the name of everyone involved at the top of your answers. If you choose to work in a group then all persons must completely understand and have contributed to all parts of the answer. If someone did not contribute to a specific question then this must be noted in writing. More details on this subject can be found in the [course rules on academic integrity](#). If you work in a group then every member is charged for all late days as per the class policy.

## Turning In Your Assignment

Turn in your complete solution electronically to Moodle. Only one member of your group needs to turn in your answers. I can accept most file formats including PDF, RTF, LibreOffice & Microsoft Word.