



Assignment 5

This assignment is due on December 10.

1. (40%) Given the following reference string,
1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 6, 7, 8, 6, 7, 8, 1, 2, 3, 4, 3, 4, 3, 4, 5, 6, 5, 6, 5, 6, 8
show the working set of the process (only when it changes) for working set windows of sizes 3 and 4.
How many pages faults occur with each window size?
2. (30%) The kernel of some operating system uses the buddy system for managing kernel memory. Initially it has one block of 256KB at address 0. After successive requests for blocks of sizes 5KB, 25KB, 35KB, and 20KB, how many blocks are left and what are their sizes and addresses? How much internal fragmentation is there in total?
3. (30%) FreeBSD is an operating system that extends ordinary UNIX protection with optional access control lists. Find information online about how BSD accomplishes this and summarize in a paragraph or two how it works and what features it has. This is an open-ended question obviously. Try to be informative but succinct.

Submitting the Solution

You must type your assignment. Handwritten assignments will not be accepted. You may, if you wish, submit it electronically instead of handing it in. This will save paper. If you choose to do this, then login to eniac remotely or go to Lab 1000G and login there and follow these instructions:

- The file must be either a plain text file or a PDF document;
- It must be named *hwk5_username* (with a .pdf extension if it is a PDF file);
- It must be placed in the directory `/data/yoda/b/student.accounts/cs340/projects/hwk5`;
- It must have permission 0600. If you (still) do not know how to do this, use the command `chmod 0600 filename`.

Do not submit it by hand if you also submit electronically. That is a waste of paper. Fear not; I will be able to read your assignment if you put it on-line.