

Northern Michigan University (Marquette Co, MI)

CS 426-01-26F: Operating Systems

Program 3

Due: Wednesday 7 October 2026 3:00 P.M. EDT

Create a directory called “PG3” in the root of your CS426-01-26F folder. When you are ready for your program to be graded, put a (possibly empty) file in the root of your PG3 folder called “DONE”.

You are to write, in C, in a Linux environment, a program that does the following.

It simulates an allocation system using both first-fit and best-fit.

Your program will first ask the user for the number of bytes in the space. All bytes are assumed to be free at this time.

You will then repeatedly ask the user for a command:
ALLOC *n* $\Rightarrow$ allocate this number of contiguous bytes.

An alloc is successful if there is a spot in the space large enough to accommodate the allocation.

DEALLOC *n* $\Rightarrow$ deallocate the block beginning at position *n*.

A dealloc is successful if there is indeed an allocated section beginning at position *n*.

For each command, you will need to print if it is successful or not successful using first-fit and using best-fit. (You will be running two versions of this system simultaneously, one for first-fit and one for best-fit.)

If an alloc is successful, print out the first position of the new allocation. If a dealloc is successful, print out the number of bytes that were deallocated.

If the user enters a blank line, end the program.

You DO NOT need to restrict yourself to low-level system calls. This isn't that kind of program.