Lab 7 – Implicit Free List Memory Allocator (16.3.15)

In this lab, you will get familiar with the implicit free list memory allocator and make a relatively simple change to the design.

Getting started

1. Copy all the files in lab folder to a protected directory in which you plan to do the work.
2. Type you name and email address in the header comment at the top of `mm.c`.
3. Type the command make to compile and link a basic memory allocator, the support routines, and the test driver. This basic memory allocator is based on an implicit free list, first fit placement, and boundary tag coalescing.
4. Run the test driver `mdriver` to test the memory utilization and throughput performance of this basic memory allocator.

Boundary tag optimization

Carefully go through the source code provided in `mm.c`. The `mm.c` file implements a simple memory allocator as described in Section 10.9.12 of textbook. It requires both a header and a footer for each block in order to perform constant-time coalescing. Modify the allocator so that free blocks require a header and footer, but allocated blocks require only a header. Use the driver program to test the modified allocator. Your implementation must pass the correctness tests performed by the driver program.