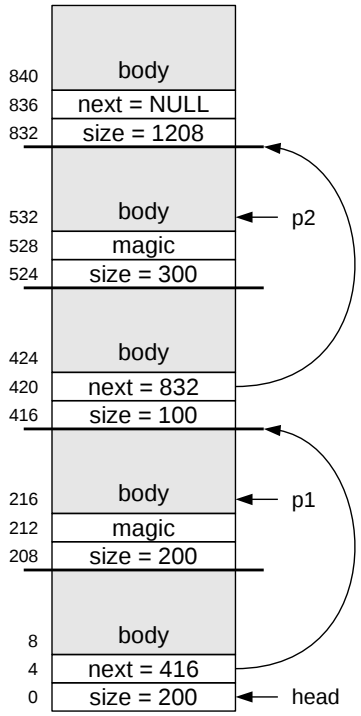
Homework #5

Upload a PDF file named `hw5.pdf` with the answers for this homework assignment.

Question 1 (5 pt.)

The following diagram represents the state of a 2048-byte heap segment for a process, formed of five regions of 200, 200, 100, 300, 1208 bytes, respectively, where the 2nd and 4th of these regions have been allocated by the process with calls to `malloc` and captured by pointers `p1` and `p2`.



Represent, using the exact same format and information as above, the new state of the heap when a call to `p3 = malloc(50)` is made, applying each of the following free space management policies:

a) Best fit.

b) Worst fit.

c) First fit.

Question 2 (5 pt.)

Consider a system using paging as the memory virtualization technique, with 256-byte pages, virtual memory spaces formed of 8 pages, a physical memory space formed of 4 frames, and the following content for the page table of process A:

Page	Frame
0	1
2	0
5	3

a) Plot a diagram representing the page table for process A. Write the virtual address space on the left, and the physical on the right. Number the pages and frames, and draw arrows that connect pages with their associated frames.

b) How many bits are used to represent a VA? How many for a PA? How many for the page offset?

c) Translate the following VAs into Pas: 418, 0, 581, 460