CS224 – Project 5: Memory Allocation

Background

Memory the is allocated dynamically in the execution of a program, like arrays and objects, are stored on a heap. Likewise the memory can be dynamically deallocated and returned to free space to be used once again. There are several techniques for choosing a block of memory in the free list to allocated and how to deal with fragmentation.

Objective

You will find the file Memory.jack in the project/12 directory with method stubs. Complete this file and compile it with a Jack compiler. Then use your Memory.vm file rather than the given one to test the given Jack programs like Pong. You can use either first-fit or best-fit heuristic to choose the free block in the free list to allocate. These algorithms may be found in Webber Chapter 14.

Criteria for Success

Jack programs that allocate memory, like Pong, should work perfectly with your Memory module. I will be looking at your code to verify that you are using a linked list to store the free-list and that you are coalescing free blocks together if possible when deallocating.

Resources

The relevant reading for this project is in Chapter 12.1.3 in the nand2tetris text and Chapter 14 in Webber.

Submission and Assessment

Submit in Canvas your Memory.jack program. Your project will be graded using the rubric provided in the Canvas submission.