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CMSC 421: Homework 2

April 18, 2018

1. Describe the functions of the Memory Management Unit in a modern computer system.
2. What is a virtual address space? Why do we use virtual address spaces in modern operating systems?
3. Compare and contrast the use of paging and segmentation for memory management in an OS.
4. Consider a logical address space of 64 pages of 1024 words each, mapped onto a physical memory of 32 frames of 1024 words each. How many bits are required to represent a logical address (assuming word-based addressing).
5. With the same address space layout as the previous question, how many bits are required to represent a physical address (once again, assuming word-based addressing).