COS Questions – Lecture 6

Operating System Concepts (Tenth Edition)

Virtual Memory

10.1 What is the idea behind virtual memory? Name some benefits.

10.2 What is the virtual address space? How is virtual memory mapped to physical memory?

10.3 Briefly describe demand paging. What is required to implement demand paging?

10.4 What is a page fault?

10.5 How is the performance of demand paging measured?

10.6 Given an average page-fault service time of 8 milliseconds and memory access time of 200 nanoseconds, if the performance degradation is desired to be less than 5%, what is the required page fault rate?

10.7 Briefly describe Copy-on-Write. Why is it useful?

10.8 In order to implement demand paging, what two major problems must be solved?

10.9 What metric defines a good page replacement algorithm? How are these evaluated?

10.10 What is the idea behind the LRU algorithm? How does the stack-based implementation work? What is the alternative implementation?

10.11 What defines the minimum and maximum number of frames in frame allocation?

10.12 What are the two schemes for frame allocation?

10.13 What are the two main classification of page-replacement algorithms?

10.14 What is thrashing? How can it occur?

10.15 Briefly explain the locality model; what is a locality?

10.16 What is the idea behind the working-set model?

10.17 How is the page-fault frequency used to control thrashing?