

OS 資格考題 (107 學年度第二學期)

1. [15%] Please describe the difference(s) between page faults and segmentation faults.
2. [15%] What are thread-specific data? Please compare them with local/global variables.
3. [15%] Please use the *test-and-set* instruction to implement mutual exclusion.
4. [20%] Please describe the requirements of deadlock occurrence.
5. [15%] Please describe the clock page replacement algorithm (i.e., the second-chance algorithm). Which kind of hardware support is required in this algorithm?
6. [20%] A computer with a 32-bit address. The physical memory size is 1 GB, and each page is 4KB. A program has its code and data together fitted in the lowest 8KB and stack fitted in the highest 8KB of its virtual address space.
 - (a) [10%] What is the size of the page table if 1-level traditional page table is used? Assume that each page table entry occupies 4 bytes.
 - (b) [10%] What is the size of the inverted page table? Assume that each inverted page table entry occupies 4 bytes.