Chapter: Chapter 8 (Finished)

1. Absolute code can be generated for \_\_\_\_.

A) compile-time binding

B) load-time binding

C) execution-time binding

D) interrupt binding

Feedback: 8.1.2

3. An address generated by a CPU is referred to as a \_\_\_\_.

A) physical address

B) logical address

C) post relocation register address

D) Memory-Management Unit (MMU) generated address

Feedback: 8.1.3

4. Suppose a program is operating with execution-time binding and the physical address generated is 300. The relocation register is set to 100. What is the corresponding logical address?

A) 199

B) 201

C) 200

D) 300

Feedback: 8.1.3

5. The mapping of a logical address to a physical address is done in hardware by the \_\_\_\_\_\_\_\_.

A) memory-management-unit (MMU)

B) memory address register

C) relocation register

D) dynamic loading register

Feedback: 8.1.3

9. \_\_\_\_\_ is the dynamic storage-allocation algorithm which results in the smallest leftover hole in memory.

A) First fit

B) Best fit

C) Worst fit

D) None of the above

Feedback: 8.3.2

10. \_\_\_\_\_ is the dynamic storage-allocation algorithm which results in the largest leftover hole in memory.

A) First fit

B) Best fit

C) Worst fit

D) None of the above

Feedback: 8.3.2

12. A(n) \_\_\_\_ page table has one page entry for each real page (or frame) of memory.

A) inverted

B) clustered

C) forward-mapped

D) virtual

Feedback: 8.6.3 (p.381)

13. Consider a logical address with a page size of 8 KB. How many bits must be used to represent the page offset in the logical address?

A) 10

B) 8

C) 13

D) 12

Feedback: 8.5

14. Consider a logical address with 18 bits used to represent an entry in a conventional page table. How many entries are in the conventional page table?

A) 262144

B) 1024

C) 1048576

D) 18

Feedback: 8.5

1. 524,288/2 = 262,144
2. 262,144/2 = 131,072
3. 131,072/2 = 65,536
4. 65,536/2 = 32,768
5. 32,768/2 = 16,384
6. 16,384/2 = 8,192
7. 8,192/2 = 4,096
8. 4,096/2 = 2,048
9. 2,048/2 = 1,024
10. 1,024/2 = 512
11. 512/2 = 256
12. 256/2 = 128
13. 128/2 = 64
14. 64/2 = 32
15. 32/2 = 16
16. 16/2 = 8
17. 8/2 = 4
18. 4/2 = 2
19. 2/2 = 1

16. Given the logical address 0xAEF9 (in hexadecimal) with a page size of 256 bytes, what is the page number?

A) 0xAE

B) 0xF9

C) 0xA

D) 0x00F9

Feedback: 8.5

17. Given the logical address 0xAEF9 (in hexadecimal) with a page size of 256 bytes, what is the page offset?

A) 0xAE

B) 0xF9

C) 0xA

D) 0xF900

Feedback: 8.5

18. Consider a 32-bit address for a two-level paging system with an 8 KB page size. The outer page table has 1024 entries. How many bits are used to represent the second-level page table?

A) 10

B) 8

C) 12

D) 9

Feedback: 8.6.1

19. With segmentation, a logical address consists of \_\_\_\_\_.

A) segment number and offset

B) segment name and offset

C) segment number and page number

D) segment table and segment number

Feedback: 8.4.1

21. Assume the value of the base and limit registers are 1200 and 350 respectively. Which of the following addresses is legal?

A) 355

B) 1200

C) 1551

D) all of the above

Feedback: 8.1.1

23. Which of the following statements are true with respect to hashed page tables?

A) They only work for sparse address spaces.

B) The virtual address is used to hash into the hash table.

C) A common approach for handling address spaces larger than 32 bits.

D) Hash table collisions do not occur because of the importance of paging.

Feedback: 8.6.2 (p.380)

25. Which of the following is not a reason explaining why mobile devices generally do not support swapping?

A) Limited space constraints of flash memory.

B) Small size of mobile applications do not require use of swap space.

C) Limited number of writes of flash memory.

D) Poor throughput between main memory and flash memory.

Feedback: 8.2.2

Chapter: Chapter 9(@ p.406)

2. In systems that support virtual memory, \_\_\_\_.

A) virtual memory is separated from logical memory.

B) virtual memory is separated from physical memory.

C) physical memory is separated from secondary storage.

D) physical memory is separated from logical memory.

Feedback: 9.1 (p. 398)

3. The vfork() system call in UNIX \_\_\_\_.

A) allows the child process to use the address space of the parent

B) uses copy-on-write with the fork() call

C) is not intended to be used when the child process calls exec() immediately after creation

D) duplicates all pages that are modified by the child process

Feedback: 9.1 (p.400,409)

4. Suppose we have the following page accesses: 1 2 3 4 2 3 4 1 2 1 1 3 1 4 and that there are three frames within our system. Using the FIFO replacement algorithm, what is the number of page faults for the given reference string?

A) 14

B) 8

C) 13

D) 10

Feedback: 9.4.2

5. Suppose we have the following page accesses: 1 2 3 4 2 3 4 1 2 1 1 3 1 4 and that there are three frames within our system. Using the FIFO replacement algorithm, what will be the final configuration of the three frames following the execution of the given reference string?

A) 4, 1, 3

B) 3, 1, 4

C) 4, 2, 3

D) 3, 4, 2

Feedback: 9.4.2

6. Suppose we have the following page accesses: 1 2 3 4 2 3 4 1 2 1 1 3 1 4 and that there are three frames within our system. Using the LRU replacement algorithm, what is the number of page faults for the given reference string?

A) 14

B) 13

C) 8

D) 10

Feedback: 9.4.4

7. Given the reference string of page accesses: 1 2 3 4 2 3 4 1 2 1 1 3 1 4 and a system with three page frames, what is the final configuration of the three frames after the LRU algorithm is applied?

A) 1, 3, 4

B) 3, 1, 4

C) 4, 1, 2

D) 1, 2, 3

Feedback: 9.4.4

8. Belady's anomaly states that \_\_\_\_.

A) giving more memory to a process will improve its performance

B) as the number of allocated frames increases, the page-fault rate may decrease for all page replacement algorithms

C) for some page replacement algorithms, the page-fault rate may decrease as the number of allocated frames increases

D) for some page replacement algorithms, the page-fault rate may increase as the number of allocated frames increases

Feedback: 9.4.2 (p.414)

9. Optimal page replacement \_\_\_\_.

A) is the page-replacement algorithm most often implemented

B) is used mostly for comparison with other page-replacement schemes

C) can suffer from Belady's anomaly

D) requires that the system keep track of previously used pages

Feedback: 9.4.3 (p.415)

10. In the enhanced second chance algorithm, which of the following ordered pairs represents a page that would be the best choice for replacement?

A) (0,0)

B) (0,1)

C) (1,0)

D) (1,1)

Feedback: 9.4.5.3 (p.419)

11. The \_\_\_\_\_ allocation algorithm allocates available memory to each process according to its size.

A) equal

B) global

C) proportional

D) slab

Feedback: 9.5.2 (p.423)

12. The \_\_\_\_ is the number of entries in the TLB multiplied by the page size.

A) TLB cache

B) page resolution

C) TLB reach

D) hit ratio

Feedback: 9.9.3 (p.441)

13. \_\_\_\_\_\_\_\_ allows the parent and child processes to initially share the same pages, but when either process modifies a page, a copy of the shared page is created.

A) copy-on-write

B) zero-fill-on-demand

C) memory-mapped

D) virtual memory fork

Feedback: 9.3

14. \_\_\_\_\_ is the algorithm implemented on most systems.

A) FIFO

B) Least frequently used

C) Most frequently used

D) LRU

Feedback: 9.4

15. \_\_\_\_\_ occurs when a process spends more time paging than executing.

A) Thrashing

B) Memory-mapping

C) Demand paging

D) Swapping

Feedback: 9.6

18. What size segment will be allocated for a 39 KB request on a system using the Buddy system for kernel memory allocation?

A) 39 KB

B) 42 KB

C) 64 KB

D) None of the above

Feedback: 9.8.1

19. Which of the following statements is false with regard to allocating kernel memory?

A) Slab allocation does not suffer from fragmentation.

B) Adjacent segments can be combined into one larger segment with the buddy system.

C) Because the kernel requests memory of varying sizes, some of which may be quite small, the system does not have to be concerned about wasting memory.

D) The slab allocator allows memory requests to be satisfied very quickly.

Feedback: 9.8

20. The \_\_\_\_\_ is an approximation of a program's locality.

A) locality model

B) working set

C) page fault frequency

D) page replacement algorithm

Feedback: 9.6.2 (p.427)

21. \_\_\_\_\_\_ allows a portion of a virtual address space to be logically associated with a file.

A) Memory-mapping

B) Shared memory

C) Slab allocation

D) Locality of reference

Feedback: 9.7

22. Systems in which memory access times vary significantly are known as \_\_\_\_\_\_\_\_\_\_.

A) memory-mapped I/O

B) demand-paged memory

C) non-uniform memory access

D) copy-on-write memory

Feedback: 9.5.4

23. Which of the following is considered a benefit when using the slab allocator?

A) Memory is allocated using a simple power-of-2 allocator.

B) It allows kernel code and data to be efficiently paged.

C) It allows larger segments to be combined using coalescing.

D) There is no memory fragmentation.

Feedback: 9.8.2

Chapter 11(p.503-542)

1. A(n) \_\_\_\_ file is a sequence of functions.

A) text

B) source

C) object

D) executable

Feedback: 11.1 (p.504)

2. A(n) \_\_\_\_ file is a sequence of bytes organized into blocks understandable by the system's linker.

A) text

B) source

C) object

D) executable

Feedback: 11.1

3. A(n) \_\_\_\_ file is a series of code sections that the loader can bring into memory and execute.

A) text

B) source

C) object

D) executable

Feedback: 11.1

4. In an environment where several processes may open the same file at the same time, \_\_\_\_.

A) the operating system typically uses only one internal table to keep track of open files

B) the operating system typically uses two internal tables called the system-wide and per-disk tables to keep track of open files

C) the operating system typically uses three internal tables called the system-wide, per-disk, and per-partition tables to keep track of open files

D) the operating system typically uses two internal tables called the system-wide and per-process tables to keep track of open files

Feedback: 11.1

5. Suppose that the operating system uses two internal tables to keep track of open files. Process A has two files open and process B has three files open. Two files are shared between the two processes. How many entries are in the per-process table of process A, the per-process table of process B, and the system-wide tables, respectively?

A) 5, 5, 5

B) 2, 3, 3

C) 2, 3, 5

D) 2, 3, 1

Feedback: 11.1

8. The simplest file access method is \_\_\_\_.

A) sequential access

B) logical access

C) relative access

D) direct access

Feedback: 11.2.1 (p.513)

9. A \_\_\_\_\_ is used on UNIX systems at the beginning of some files to roughly indicate the type of the file.

A) file extension

B) creator name

C) hint

D) magic number

Feedback: 11.1.3 (p.511)

10. Which of the following is true of the direct-access method?

A) It is the most common mode of access.

B) It allows programs to read and write records in no particular order.

C) Files are made up of variable-length records.

D) It is not a good method for accessing large amounts of data quickly.

Feedback: 11.2.2 (p.513)

13. The path name /home/people/os-student/chap11.txt is an example of

A) a relative path name

B) an absolute path name

C) a relative path name to the current directory of /home

D) an invalid path name

Feedback: 11.3.5

16. Which of the following is not considered a classification of users in connection with each file?

A) owner

B) current user

C) group

D) universe

Feedback: 11.6.2 (p.535)

18. app.exe is an example of a(n) \_\_\_\_\_.

A) batch file

B) object file

C) executable file

D) text file

Feedback: 11.1.3

19. A mount point is \_\_\_\_\_.

A) a root of the file system

B) a location of a shared file system

C) only appropriate for shared file systems

D) the location within the file structure where the file system is to be attached.

Feedback: 11.4 (p.526)

21. Which of the following is not considered a file attribute?

A) Name

B) Size

C) Resolution

D) Protection

Feedback: 11.1.1

22. The path name os-student/src/vm.c is an example of

A) a relative path name

B) an absolute path name

C) a relative path name to the current directory of /os-student

D) an invalid path name

Feedback: 11.3.5

23. Which of the following statements regarding the client-server model is true?

A) A remote file system may be mounted.

B) The client-server relationship is not very common with networked machines.

C) A client may only use a single server.

D) The client and server agree on which resources will be made available by servers.

Feedback: 11.5.2 (p.529)

**Chapter 12(p.543-p.587)**

1. Transfers between memory and disk are performed a \_\_\_\_.

A) byte at a time

B) file at a time

C) block at a time

D) sector at a time

Feedback: 12.1 (p.543)

5. In the Linux VFS architecture, a(n) \_\_\_\_ object represents an individual file.

A) inode

B) file

C) superblock

D) dentry

Feedback: 12.2.3

11. A disk with free blocks 0,1,5,9,15 would be represented with what bit map?

A) 0011101110111110

B) 1100010001000001

C) 0100010001000001

D) 1100010001000000

Feedback: 12.5.1 (p. 561)

13. \_\_\_\_\_\_ includes all of the file system structure, minus the actual contents of files.

A) Metadata

B) Logical file system

C) Basic file system

D) File-organization module

Feedback: 12.1

17. On UNIX systems, the data structure for maintaining information about a file is a(n) \_\_\_\_\_.

A) superblock

B) inode

C) file-control block (FCB)

D) master file table

Feedback: 12.1

Chapter 17

1. In a distributed system, a \_\_\_\_ usually indicates the location of a machine.

A) node

B) host

C) site

D) resource

Section: 17.1 (p.741)

2. \_\_\_\_ involves the movement of jobs from one site to another to distribute processing more evenly across the network.

A) Computer migration

B) Load sharing

C) Resource sharing

D) Downsizing

Section: 17.1.2 (p.742)

3. The sftp \_\_\_ command transfers a file from the remote machine to the local machine.

A) copy

B) put

C) get

D) cd

Section: 17.2.1 (p.744)

7. Which of the following is not considered a benefit of process migration?

A) Load balancing /

B) Software neutrality

C) Hardware preference /

D) Computation speedup /

Feedback: 17.2 (p.747)