

Assignment 8
(Due date: Thursday, 4/23/2009, in class)

Your name:	Grade:
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Important notice on how to submit and grade this assignment:

- Write your solutions on **different papers** from the question papers; otherwise, they will NOT be graded.
- You do NOT have to write the question text. You need to **write the question number** for each question.
- Put your solutions in the **same order** as the questions appear on the assignment; otherwise, missed/misplaced solutions will NOT be graded.
- **An extra 10% will be given to those who turned in TYPEWRITTEN submissions).**

The following questions are taken from the textbook Chapter 10 (p. 345-351). **For questions 1 through 26, using A, B, C, D, E, or F as your answers** for each of these questions

For Exercises 1–18, mark the answers true or false as follows:

- A. True**
- B. False**

1. An operating system is an example of application software.
2. An operating system provides a basic user interface that allows the user to use the computer.
3. A computer can have more than one operating system, but only one is in control at any given time.
4. Multiprogramming is the technique of using multiple CPUs to run programs.
7. A timesharing system allows multiple users to interact with a computer at the same time.
8. A dumb terminal is an I/O device that connects to a mainframe computer.
9. A logical address specifies an actual location in main memory.
11. In a fixed partition system, main memory is divided into several partitions of the same size.
14. A process in the running state is currently being executed by the CPU.
16. CPU scheduling determines which programs are in memory.

17. The first-come, first-served scheduling algorithm is probably optimal.
18. A time slice is the amount of time each process is given before being preempted in a round-robin scheduler.

For Exercises 19–23, match the operating system with information about it.

- A. Mac OS**
- B. UNIX**
- C. Linux**
- D. DOS**
- E. Windows**

19. Which is the operating system of choice for Apple Computers?
20. Historically, which is the operating system of choice for serious programmers?
21. Which is the PC version of UNIX?
22. What is the Microsoft operating system family provided on PCs called?
23. What is the original PC operating system called?

For Exercises 24–26, match the following software type with its definition.

- A. Systems software**
- B. Operating system**
- C. Application software**

24. Programs that help us solve real-world problems.
25. Programs that manage a computer system and interact with hardware.
26. Programs that manage computer resources and provide interfaces for other programs.
27. Distinguish between application software and systems software. Give an example for each of them.
28. What is an operating system?
29. Explain the term multiprogramming.

30. The following terms relate to how the operating system manages multiprogramming. Describe the part each plays in this process.

- a. Process
- b. Process management
- c. Memory management
- d. CPU scheduling

The following questions are taken from the textbook Chapter 11 (p. 371-374). **For questions 1 through 23, using A, B, C, D, E, or F as your answers** for each of these questions

For Exercises 1–13, mark the answers true or false as follows:

- A. True**
B. False

1. A text file stores binary data that is organized into groups of 8 or 16 bits that are interpreted as characters.
2. A program written in a high-level language is stored in a text file that is also called a source file.
3. The type of a file determines what kinds of operations can be performed on it.
5. Sequential access and direct access take about the same amount of time to retrieve data.
7. Unix file permissions allow a group of users to access a file in various ways.
9. Two files in a directory system can have the same name if they are in different directories.
10. A relative path is relative to the root of the directory hierarchy.
11. An absolute path and a relative path will always be the same length.
12. An operating system is responsible for managing the access to a disk drive.
13. The seek time is the amount of time it takes for the heads of a disk to reach a particular cylinder.

For Exercises 16–20, match the file extensions with the appropriate file.

- A. txt**
- B. mp3, au, and wav**
- C. gif, tiff, and jpg**
- D. doc and wp3**
- E. java, c, and cpp**

- 16. Audio file
- 17. Image file
- 18. Text data file
- 19. Program source file
- 20. Word processing file

For Exercises 21–23, match the symbol with its use.

- A. /
- B. \
- C. ..

- 21. Symbol used to separate the names in a path in a Windows environment
- 22. Symbol used to separate the names in a path in a UNIX environment
- 23. Symbol used to represent the parent directory in a relative path name

The following questions are taken from the textbook Chapter 12 (p. 402-406). **For questions 1 through 28, using A, B, C, D, E, or F as your answers** for each of these questions

For Exercises 1–16, mark the answers true or false as follows:

- A. True**
- B. False**

- 1. A cell in a spreadsheet can contain only raw data.
- 2. The values in a spreadsheet can be formatted in a variety of ways.

3. A spreadsheet should be set up so that changes to the data are automatically reflected in any cells affected by that data.
9. A database engine is software that supports access to the database contents.
10. The physical database represents the logical structure of the data in the database.
11. A query is a request to a database for information.
12. The results of a query can be structured in many ways.
14. A database table is a collection of records, and a record is a collection of fields.
15. The values in the key fields of a table uniquely identify a record among all other records in the table.
16. A database engine often interacts with a particular language for accessing and modifying the database.

For Exercises 24–26, match the solution to the question.

- A. dynamic**
- B. function**
- C. circular**
- D. range**
- E. schema**
- F. field**

24. A spreadsheet is ____ in that it responds to changes in the data by immediately updating all affected values.
 25. A spreadsheet formula may operate on a ____ of cells, such as C4..C18.
 26. The database ____ is the specification of the logical structure of the data in the database.
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46. Compare a database with a database management system.
 47. What is a database schema?

The following questions are NOT from the textbook (use the slides for the solutions).

101. What is the difference between virtual memory and main memory?

102. Summarize the booting process.

103. Briefly describe the functions of Operating System.

104. Why OS is called a Resource Allocator?

105. Use the following figure for **next 3** questions (105a, 105b, and 105c).

EMPLOYEE relation			
Empl Id	Name	Address	SSN
25X15	Joe E. Baker	33 Nowhere St.	111223333
34Y70	Cheryl H. Clark	563 Downtown Ave.	999009999
23Y34	G. Jerry Smith	1555 Circle Dr.	111005555
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.	.	.	.
.	.	.	.

JOB relation			
Job Id	JobTitle	Skill Code	Dept
S25X	Secretary	T5	Personnel
S26Z	Secretary	T6	Accounting
F5	Floor manager	FM3	Sales
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.	.	.	.
.	.	.	.

ASSIGNMENT relation			
Empl Id	Job Id	Start Date	Term Date
23Y34	S25X	3-1-1999	4-30-2006
34Y70	F5	10-1-2007	*
23Y34	S26Z	5-1-2006	*
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.	.	.	.
.	.	.	.

105a). Answer the following questions based on the partial information given in the EMPLOYEE, JOB, and ASSIGNMENT relations in the above figure:

- Who is the secretary in the accounting department with experience in the personnel department?
- Who is the floor manager in the sales department?
- What job does G. Jerry Smith currently hold?

105b). Based on the EMPLOYEE, JOB, and ASSIGNMENT relations in the figure; write an SQL instruction to obtain a list of all job titles within the personnel department.

105c). Write an SQL instruction to retrieve the JobId, StartDate, and TermDate for each job in the accounting department from the relational database described in the above figure.