Assignment 8
(**Due date: 12/4/2009, Friday, in class**)

Your name:	Grade:

Important notice on how to submit and grade this assignment:

- Write your answers on **different papers** from the question sheets; otherwise, they will **NOT** be graded.
- You do **NOT** have to write the question text, but 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 or misplaced** solutions will **NOT** be graded.
- **How to Grade:**
  - The total score for the assignment is **100** points.
  - **An extra 8%** will be added to the **TYPEWRITTEN** submissions.
  - **3 points will be deducted** from your total score if you **missed any ONE** of the following (this is a *cumulative penalty*, e.g., 9 points will be taken for 1 missed name and 2 missed required blank lines):
    - **Your name** and **assignment number** on the top of each solution sheet/paper,
    - At least **one blank line** between solutions of adjacent questions (**except for** those of *Multiple Choice* or *True/False* questions).

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The following questions are taken from the textbook Chapter 10 (p. 345-351).

- **For questions 19 through 26, using A, B, C, D, E, or F as your answers** for each of these questions (you may write text solutions alongside these A, B, …F). **50%** will be deducted if your solutions are **NOT** one of these A, B, …F (even though your texts give the correct answers).

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For Exercises 1–18, mark the answers **true or false (or T/F)**:

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

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The following questions are taken from the textbook Chapter 11 (p. 371-374).

- **For questions 16 through 23, using A, B, C, D, E, or F as your answers** for each of these questions (you may write text solutions alongside these A, B, …F). **50%** will be deducted if your solutions are **NOT** one of these A, B, …F (even though your texts give the correct answers).

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For Exercises 1–13, mark the answers **true or false (or T/F)**:

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

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The following questions are taken from the textbook Chapter 12 (p. 402-406).

- **For questions 24 through 28, using A, B, C, D, E, or F as your answers** for each of these questions (you may write text solutions alongside these A, B, …F). **50%** will be deducted if your solutions are **NOT** one of these A, B, …F (even though your texts give the correct answers).

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For Exercises 1–16, mark the answers **true or false (or T/F)**:

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.

46. Compare a database with a database management system.

47. What is a database schema?

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

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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?