

Review Questions

Multiple Choice

1. A file that data is written to is known as a(n)
 - a. input file
 - b. output file
 - c. sequential access file
 - d. binary file
2. A file that data is read from is known as a(n)
 - a. input file
 - b. output file
 - c. sequential access file
 - d. binary file
3. Before a file can be used by a program, it must be
 - a. formatted
 - b. encrypted
 - c. closed
 - d. opened
4. When a program is finished using a file, it should do this.
 - a. erase the file
 - b. open the file
 - c. close the file
 - d. encrypt the file
5. The contents of this type of file can be viewed in an editor such as Notepad.
 - a. text file
 - b. binary file
 - c. English file
 - d. human-readable file
6. This type of file contains data that has not been converted to text.
 - a. text file
 - b. binary file
 - c. Unicode file
 - d. symbolic file
7. When working with this type of file, you access its data from the beginning of the file to the end of the file.
 - a. ordered access
 - b. binary access
 - c. direct access
 - d. sequential access

8. When working with this type of file, you can jump directly to any piece of data in the file without reading the data that comes before it.
 - a. ordered access
 - b. binary access
 - c. direct access
 - d. sequential access
9. This is a small "holding section" in memory that many systems write data to before writing the data to a file.
 - a. buffer
 - b. variable
 - c. virtual file
 - d. temporary file
10. This is a character or set of characters that marks the end of a piece of data.
 - a. median value
 - b. delimiter
 - c. boundary marker
 - d. EOF marker
11. This is a character or set of characters that marks the end of a file.
 - a. median value
 - b. delimiter
 - c. boundary marker
 - d. EOF marker
12. This marks the location of the next item that will be read from a file.
 - a. input position
 - b. delimiter
 - c. pointer
 - d. read position
13. When a file is opened in this mode, data will be written at the end of the file's existing contents.
 - a. output mode
 - b. append mode
 - c. backup mode
 - d. read-only mode
14. The expression `NOT eof(myFile)` is equivalent to
 - a. `eof(myFile) == True`
 - b. `eof(myFile)`
 - c. `eof(myFile) == False`
 - d. `eof(myFile) < 0`
15. This is a single piece of data within a record.
 - a. field
 - b. variable
 - c. delimiter
 - d. subrecord

True or False

1. When working with a sequential access file, you can jump directly to any piece of data in the file without reading the data that comes before it.
2. In most languages, when you open an output file and that file already exists on the disk, the contents of the existing file will be erased.
3. The process of opening a file is only necessary with input files. Output files are automatically opened when data is written to them.
4. The purpose of an EOF marker is to indicate where a field ends. Files typically contain several EOF markers.
5. When an input file is opened, its read position is initially set to the first item in the file.
6. When a file that already exists is opened in append mode, the file's existing contents are erased.
7. In control break logic, the program performs some ongoing task (such as processing the items in a file), but permanently stops the task when a control variable reaches a specific value or changes its value.

Short Answer

1. Describe the three steps that must be taken when a file is used by a program.
2. Why should a program close a file when it's finished using it?
3. What is a file's read position? Where is the read position when a file is first opened for reading?
4. If an existing file is opened in append mode, what happens to the file's existing contents?
5. In most languages, if a file does not exist and a program attempts to open it in append mode, what happens?
6. What is the purpose of the eof function that was discussed in this chapter?
7. What is control break logic?

Algorithm Workbench

1. Design a program that opens an output file with the external name `my_name.dat`, writes your name to the file, and then closes the file.
2. Design a program that opens the `my_name.dat` file that was created by the algorithm in question 1, reads your name from the file, displays the name on the screen, and then closes the file.
3. Design an algorithm that does the following: opens an output file with the external name `number_list.dat`, uses a loop to write the numbers 1 through 100 to the file, and then closes the file.

4. Design an algorithm that does the following: opens the `number_list.dat` file that was created by the algorithm created in question 3, reads all of the numbers from the file and displays them, and then closes the file.
5. Modify the algorithm that you designed in question 4 so it adds all of the numbers read from the file and displays their total.
6. Write pseudocode that opens an output file with the external name `number_list.dat`, but does not erase the file's contents if it already exists.
7. A file exists on the disk named `students.dat`. The file contains several records, and each record contains two fields: (1) the student's name, and (2) the student's score for the final exam. Design an algorithm that deletes the record containing "John Perez" as the student name.
8. A file exists on the disk named `students.dat`. The file contains several records, and each record contains two fields: (1) the student's name, and (2) the student's score for the final exam. Design an algorithm that changes Julie Milan's score to 100.

Debugging Exercise

1. Why doesn't the following pseudocode module work as indicated in the comments?

```

// The readFile method accepts a string containing a filename as
// an argument. It reads and displays all the items in the file.
Module readFile(String filename)
    // Declare an input file.
    Declare InputFile file

    // A variable to hold an item that is read from the file.
    Declare String item

    // Open the file using the filename.
    Open file filename

    // Read all the items in the file and display them.
    While eof(file)
        Read file item
        Display item
    End While
End Module

```

Programming Exercises

1. File Display

Assume that a file containing a series of integers is named `numbers.dat` and exists on the computer's disk. Design a program that displays all of the numbers in the file.



VideoNote
File Display