Description | Solution | Discuss (461) | Submissions

157. Read N Characters Given Read4

Easy 458 2734 Add to List Share

Given a `file` and assume that you can only read the file using a given method `read4`, implement a method to read `n` characters.

Method read4:

The API `read4` reads **four consecutive characters** from `file`, then writes those characters into the buffer array `buf4`.

The return value is the number of actual characters read.

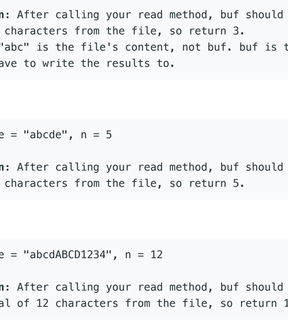
Note that `read4()` has its own file pointer, much like `FILE *fp` in C.

Definition of read4:

```
    Parameter:  char[] buf4
    Returns:    int

buf4[] is a destination, not a source. The results from read4 will be copied to
buf4[].
```

Below is a high-level example of how `read4` works:




```
File file("abcde"); // File is "abcde", initially file pointer (fp) points to 'a'
char[] buf4 = new char[4]; // Create buffer with enough space to store characters
read4(buf4); // read4 returns 4. Now buf4 = "abcd", fp points to 'e'
read4(buf4); // read4 returns 1. Now buf4 = "e", fp points to end of file
read4(buf4); // read4 returns 0. Now buf4 = "", fp points to end of file
```

Method read:

By using the `read4` method, implement the method read that reads `n` characters from `file` and store it in the buffer array `buf`. Consider that you cannot manipulate `file` directly.

The return value is the number of actual characters read.

Definition of read:

```
    Parameters: char[] buf, int n
    Returns:    int

buf[] is a destination, not a source. You will need to write the results to buf[].
```

Note:

- Consider that you cannot manipulate the file directly. The file is only accessible for `read4` but not for `read`.
- The `read` function will only be called once for each test case.
- You may assume the destination buffer array, `buf`, is guaranteed to have enough space for storing `n` characters.

Example 1:

```
Input: file = "abc", n = 4
Output: 3
Explanation: After calling your read method, buf should contain "abc". We read a
total of 3 characters from the file, so return 3.
Note that "abc" is the file's content, not buf. buf is the destination buffer that
you will have to write the results to.
```

Example 2:

```
Input: file = "abcde", n = 5
Output: 5
Explanation: After calling your read method, buf should contain "abcde". We read a
total of 5 characters from the file, so return 5.
```

Example 3:

```
Input: file = "abcdABCD1234", n = 12
Output: 12
Explanation: After calling your read method, buf should contain "abcdABCD1234". We
read a total of 12 characters from the file, so return 12.
```

Example 4:

```
Input: file = "leetcode", n = 5
Output: 5
Explanation: After calling your read method, buf should contain "leetc". We read a
total of 5 characters from the file, so return 5.
```

Constraints:

- `1 <= file.length <= 500`
- `file` consist of English letters and digits.
- `1 <= n <= 1000`

Accepted 156,649 | Submissions 396,600

Seen this question in a real interview before? Yes No

Companies

0 ~ 6 months 6 months ~ 1 year 1 year ~ 2 years

Microsoft 3 Rubrik 2 Lyft 2

Related Topics

String Simulation Interactive

Similar Questions

Read N Characters Given read4 II - Call Multiple Times Hard

Java Autocomplete

```java
public class Solution extends Reader4 {
    public int read(char[] buf, int n) {
        int copiedChars = 0, readChars = 4;
        char[] buf4 = new char[4];

        while (copiedChars < n && readChars == 4) {
            readChars = read4(buf4);

            for (int i = 0; i < readChars; ++i) {
                if (copiedChars == n)
                    return copiedChars;
                buf[copiedChars] = buf4[i];
                ++copiedChars;
            }
        }
        return copiedChars;
    }
}
```