158. Read N Characters Given read4 II - Call Multiple Times Premium

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Given a `file` and assume that you can only read the file using a given method `read4`, implement a method `read` to read `n` characters. Your method `read` may be **called multiple times**.

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.

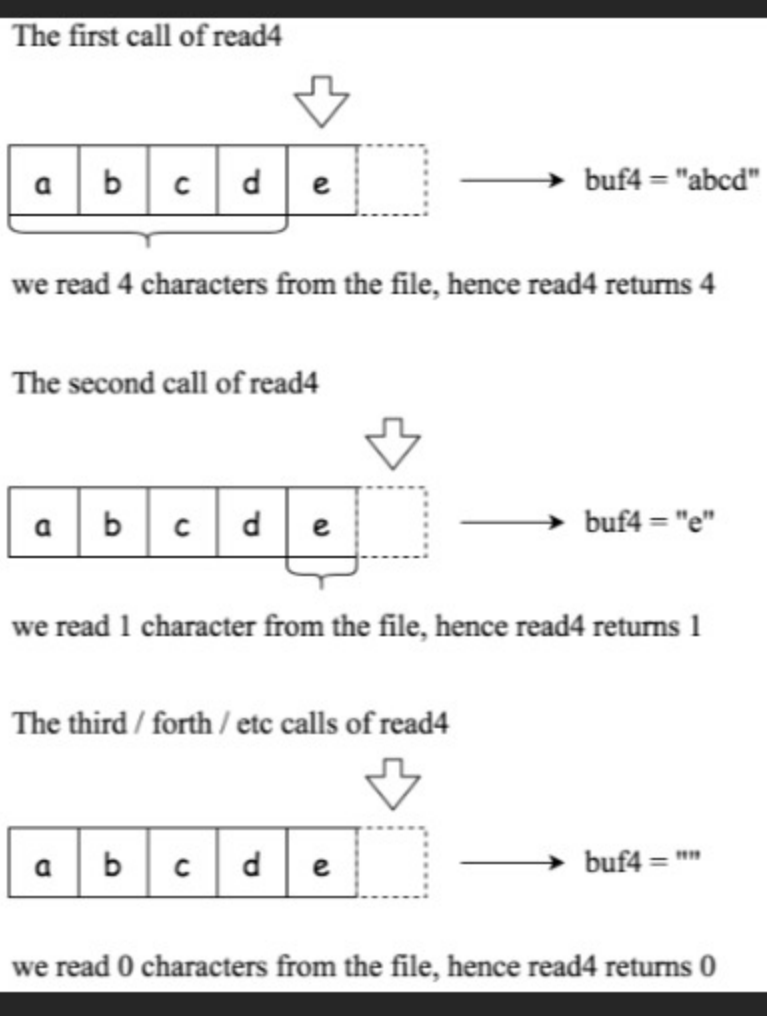
Note that `read4()` has its own file pointer, much like `FILE *fp` in C.

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 may be **called multiple times**.
- Please remember to **RESET** your class variables declared in Solution, as static/class variables are persisted across multiple test cases. Please see here for more details.
- You may assume the destination buffer array, `buf`, is guaranteed to have enough space for storing `n` characters.
- It is guaranteed that in a given test case the same buffer `buf` is called by `read`.

Example 1:

```
Input: file = "abc", queries = [1,2,1]
Output: [1,2,0]
Explanation: The test case represents the following scenario:
File file("abc");
Solution sol;
sol.read(buf, 1); // After calling your read method, buf should
contain "a". We read a total of 1 character from the file, so
return 1.
sol.read(buf, 2); // Now buf should contain "bc". We read a total
of 2 characters from the file, so return 2.
sol.read(buf, 1); // We have reached the end of file, no more
characters can be read. So return 0.
Assume buf is allocated and guaranteed to have enough space for
storing all characters from the file.
```

Example 2:

```
Input: file = "abc", queries = [4,1]
Output: [3,0]
Explanation: The test case represents the following scenario:
File file("abc");
Solution sol;
sol.read(buf, 4); // After calling your read method, buf should
contain "abc". We read a total of 3 characters from the file, so
return 3.
sol.read(buf, 1); // We have reached the end of file, no more
characters can be read. So return 0.
```

Constraints:

- `1 <= file.length <= 500`
- `file` consist of English letters and digits.
- `1 <= queries.length <= 10`
- `1 <= queries[i] <= 500`

Seen this question in a real interview before? 1/5

Yes No

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