

157. Read N Characters Given Read4

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

Method read4:

The API `read4` reads 4 consecutive characters from the file, then writes those characters into the buffer array `buf`.

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[] buf
Returns:   int
```

Note: `buf[]` is destination not source, the results from `read4` will be copied to `buf[]`

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

```
File file("abcdefghijk"); // File is "abcdefghijk", initially file pointer (fp) points to 'a'
char[] buf = new char[4]; // Create buffer with enough space to store characters
read4(buf); // read4 returns 4. Now buf = "abcd", fp points to 'e'
read4(buf); // read4 returns 4. Now buf = "efgh", fp points to 'i'
read4(buf); // read4 returns 3. Now buf = "ijk", fp points to end of file
```

Method read:

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

The return value is the number of actual characters read.

Definition of read:

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

Note: `buf[]` is destination not source, you will need to write the results to `buf[]`

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.
```

Note:

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

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