

In the module entry point `proc_init()`, we create the new `/proc/hello` entry using the `proc_create()` function. This function is passed `proc_ops`, which contains a reference to a struct file operations. This struct initializes the `.owner` and `.read` members. The value of `.read` is the name of the function `proc_read()` that is to be called whenever `/proc/hello` is read.

Examining this `proc_read()` function, we see that the string "Hello World\n" is written to the variable `buffer` where `buffer` exists in kernel memory. Since `/proc/hello` can be accessed from user space, we must copy the contents of `buffer` to user space using the kernel function `copy_to_user()`. This function copies the contents of kernel memory `buffer` to the variable `usr_buf`, which exists in user space.

Each time the `/proc/hello` file is read, the `proc_read()` function is called repeatedly until it returns 0, so there must be logic to ensure that this function returns 0 once it has collected the data (in this case, the string "Hello World\n") that is to go into the corresponding `/proc/hello` file.

Finally, notice that the `/proc/hello` file is removed in the module exit point `proc_exit()` using the function `remove_proc_entry()`.

cpsc 351-Project One --- Jiffies Project --- due 24 Mar 2021 at 2359
Your name: <u>Eduardo Gomez</u>
Repository: <u>https://github.com/egomez3412/Jiffies-Project</u>
Verify each of the following items and check the correct column. Incorrectly marked items will incur a 5% penalty.

Jiffies Project		
Completed	Not Completed	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Modify the <code>hello.c</code> project, and confirm that it correctly makes (using <code>make</code>), and displays the <code>GOLDEN_PRIME_RATIO</code> on module load, and the gcd of 3300 and 24 on module removal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Create a kernel module that creates a <i>proc file named <code>proc/jiffies</code></i> , and that reports the current value of jiffies when the <i>proc/jiffies</i> file is read, such as with the command: cat <code>proc/jiffies</code>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Be sure <code>/proc/jiffies</code> is removed when the module is removed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Save the output of <code>/proc/jiffies</code>, and submit it with your project
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Create a kernel module that creates a proc fie named <code>/proc/seconds</code> , that reports the number of elapsed seconds since the kernel module was loaded, such as with the command cat <code>proc/seconds</code>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Your calculation involves jiffies and HZ, and includes the header files needed to compile and run your code
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Be sure <code>/proc/seconds</code> is removed when the module is removed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Save the output of reading from <code>/proc/seconds</code>, and submit it with your project
Comments		