

Online on xv6 - System Call

Section: C2

Time: 25 minutes

Our favourite OS xv6 doesn't have any built-in functionality to count the frequency of a specific character in a string. In this online assignment, you will add a simple mechanism to set a target character and then count how many times this character appears in any user-supplied string.

Formally add 2 **system calls**.

1. `setTargetChar(char)` : sets the target character whose frequency will be counted in subsequent queries.
2. `countTargetFreq(char *str)` : returns the number of occurrences of the previously set target character in the input string `str`.

You will store the target character in kernel space. The `countTargetFreq` syscall will receive a null-terminated string from user space, count the occurrences of the target character, and return the count.

You also need to add 2 user commands.

1. `target c`
2. `freq str`

See the sample I/O for clarification:

```
$ target a
Target character set to 'a'
$ freq banana
Found 3 occurrences of target
$ target n
Target character set to 'n'
$ freq banana
Found 2 occurrences of target
$ freq apple
Found 0 occurrences of target
```

Submission:

```
git add --all
git diff HEAD > ../{studentID}.patch
```