**How to create the device file in /dev to operate on**

To create a character device file in Linux using the mknod command. Here are the steps to create a /dev/my\_chardev device file:

1. Open a terminal and navigate to the /dev directory: cd /dev
2. Run the following command to create a new character device file named my\_chardev with major number 238 and minor number 0: sudo mknod my\_chardev c 238 0

a. To find the major number of your kernel module you can:

i. Check the kernel log messages: When you load your module, the kernel logs

messages to the system log indicating the major number that the module was

assigned. You can check the log messages using the dmesg command. The major

number will be included in the log messages that correspond to the module

load.

ii. Check the output of lsmod: After loading your module, you can use the lsmod

command to list all currently loaded kernel modules. The output of lsmod

includes the major number of each module.

iii. Inspect the device file in /dev: If you have created a device file for your module

in the /dev directory, the major number of the module will be included in the

device file's major number. You can check the major number of the device file

using the ls -l command.

1. After running that command, we can check the permissions of the new device file: ls -l my\_chardev

The mknod command creates a special file with the specified name and file type. The c argument

specifies that the file type is a character device. The major number specifies the driver that controls the device and the minor number identifies a specific device controlled by the driver. In this case, we chose major number 238 and minor number 0 arbitrarily. However, in a real scenario, you would need to choose appropriate values based on the driver you are writing.