Linux exercise 7 - File permissions

1. **Create a new file *first.txt* and a new directory *second* to your user's home directory. What are the permissions for newly created file and directory?**

```
menom@ab0208:~/home/second$ ls -l
total 0
-rw-rw-r-- 1 menom menom 0 Oct  3 07:45 first.txt
```

```
drwxrwxr-x 2 menom menom 4096 Oct  3 07:45 second
```

2. **Change file (first.txt) permissions using numerical format in the following way: owner → all permissions, group → read and write permissions and other → no permissions. Return original permissions for the file using symbolic format.**

```
menom@ab0208:~$ chmod 760 -R home/second/first.txt
```

```
menom@ab0208:~$ chmod u-x,o+r home/second/first.txt
```

3. **Change root or other user for the owner for the directory (second).**

```
menom@ab0208:~$ sudo chown root home/second
```

4. **Change directory permissions in a way that only owner has permissions for the directory.**

```
menom@ab0208:~$ sudo chmod 700 home/second
```

5. **Create a new file and set root or other user as a file owner.**

```
menom@ab0208:~$ sudo chown root home/user/new_file.txt
```

6. **Create two files: hard_link.txt and soft_link.txt. Create hard and soft link for these files according to file names. Check the results with ls -l command. What does the output of the command tell about the links and how do links differ? Remove the files you created and recheck the results with ls -l command. What differences do you notice?**

```
menom@ab0208:~/home/my_user$ touch hard_link.txt soft_link.txt
```

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```
menom@ab0208:~/home/my_user$ ln hard_link.txt hard.txt
menom@ab0208:~/home/my_user$ ln -s soft_link.txt soft.txt
menom@ab0208:~/home/my_user$ ls -l
total 0
-rw-rw-r-- 2 menom menom  0 Oct  3 15:25 hard_link.txt
-rw-rw-r-- 2 menom menom  0 Oct  3 15:25 hard.txt
-rw-rw-r-- 1 menom menom  0 Oct  3 15:25 soft_link.txt
lrwxrwxrwx 1 menom menom 13 Oct  3 15:27 soft.txt -> soft_link.txt
```

Link count has been increased by one for for hard link files and file permissions for new soft link changed.

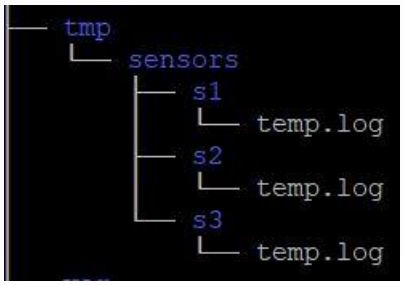
```
menom@ab0208:~/home/my_user$ rm  *_link.txt
menom@ab0208:~/home/my_user$ ls -l
total 0
-rw-rw-r-- 1 menom menom  0 Oct  3 15:25 hard.txt
lrwxrwxrwx 1 menom menom 13 Oct  3 15:27 soft.txt -> soft_link.txt
```

The color changed for soft link as it's source file does not exist.

7. **Use find command to list /etc directory contents including only files with .conf extension and starting with letter l (small l, not capital I). Do not include files from subdirectories!**

```
menom@ab0208:~$ find /etc -type f -name 'l*.conf'
```

8. **Below is a presentation of a directory structure where temperature data from sensors s1, s2 and s3 has been saved for log files under sensor specific directories. Create this directory structure with files. Important: Check the location of this directory structure within the Linux filesystem!**



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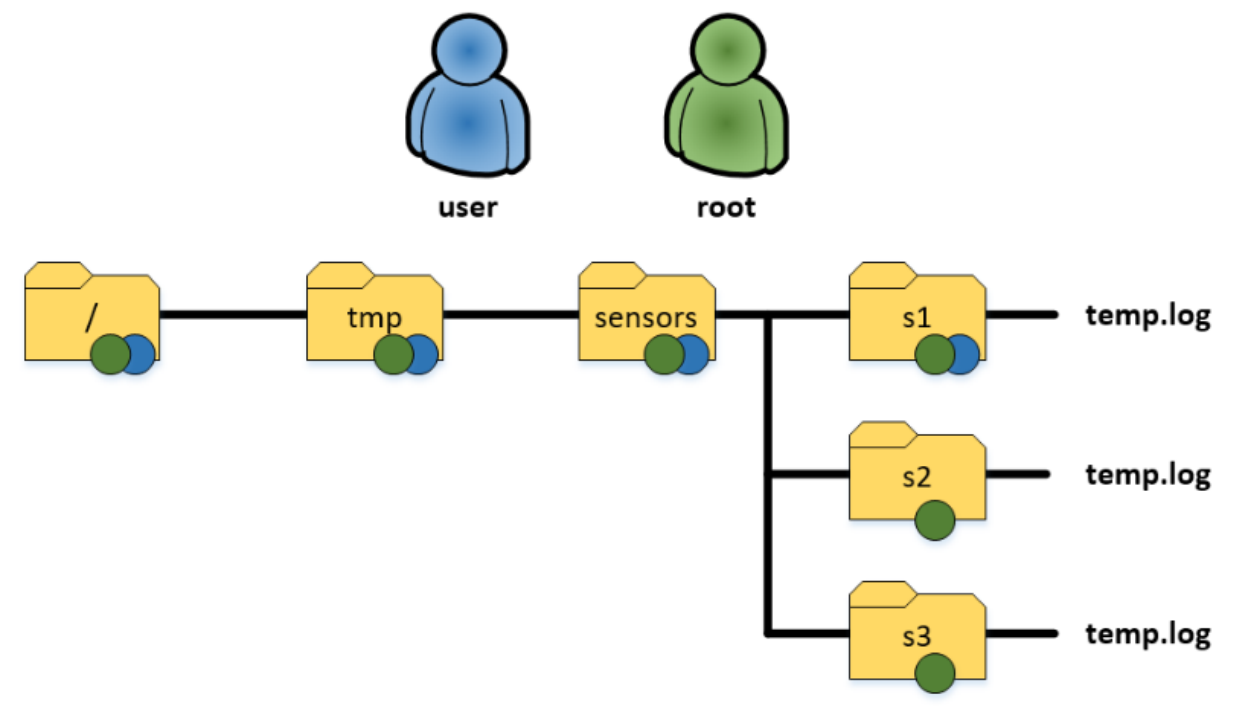
9. **Users user (regular user) and root have been marked for the directory presentation below. Create the following permissions: user can only access the first sensor's temp.log file and root has access to the whole directory structure. User should have adequate permissions for reading and editing the temp.log file.**




```
drwxr-xr-x 2 mike root 4096 Oct 15 14:49 s1
drwxr-xr-x 2 root root 4096 Oct 15 14:50 s2
drwxr-xr-x 2 root root 4096 Oct 15 14:50 s3
-rw-r--r-- 1 mike root 0 Oct 15 14:49 temp.log
```