1. **Create regular users sulo and riku using useradd command (use options for creating home directory and sets bash as a default shell). Set passwords for both users. Then create users joonas and jani using adduser command.**

```
user@AC4892-Ubuntu:~$ sudo useradd -m -s /bin/bash sulo
```

```
user@AC4892-Ubuntu:~$ sudo useradd -m -s /bin/bash riku
```

```
user@AC4892-Ubuntu:~$ sudo adduser joonas
```

```
user@AC4892-Ubuntu:~$ sudo adduser jani
```

2. **Create group called testers and add this group as a primary group for all users created in previous task. Verify this by creating a file with user jani and check the owner group. In addition, test commands id and groups for any of previously created users and for your own user. In what groups does your user belong to? Find out what is the purpose of these groups.**

```
user@AC4892-Ubuntu:~$ sudo groupadd testers
```

```
user@AC4892-Ubuntu:~$ sudo usermod -aG testers sulo
user@AC4892-Ubuntu:~$ sudo usermod -aG testers riku
user@AC4892-Ubuntu:~$ sudo usermod -aG testers joonas
user@AC4892-Ubuntu:~$ sudo usermod -aG testers jani
user@AC4892-Ubuntu:~$
```

```
jani@AC4892-Ubuntu:~$ touch asd
jani@AC4892-Ubuntu:~$ ls -l
total 0
-rw-rw-r-- 1 jani jani 0 Oct 12 19:42 asd
```

3. **Create group called coders and set it as the primary group for user joonas, but let joonas still be a member of testers group.**

```
user@AC4892-Ubuntu:~$ sudo groupadd coders
user@AC4892-Ubuntu:~$ sudo usermod -aG testers joonas
user@AC4892-Ubuntu:~$
```

4. **Remove the user riku (remove also user's home directory) and remove also user jani without removing user's home directory. In addition, remove the group called coders.**

```
su: user deluser does not exist
jani@AC4892-Ubuntu:~$ su -
Password:
root@AC4892-Ubuntu:~# deluser jani
```

```
root@AC4892-Ubuntu:~# groupdel coders
root@AC4892-Ubuntu:~#
```

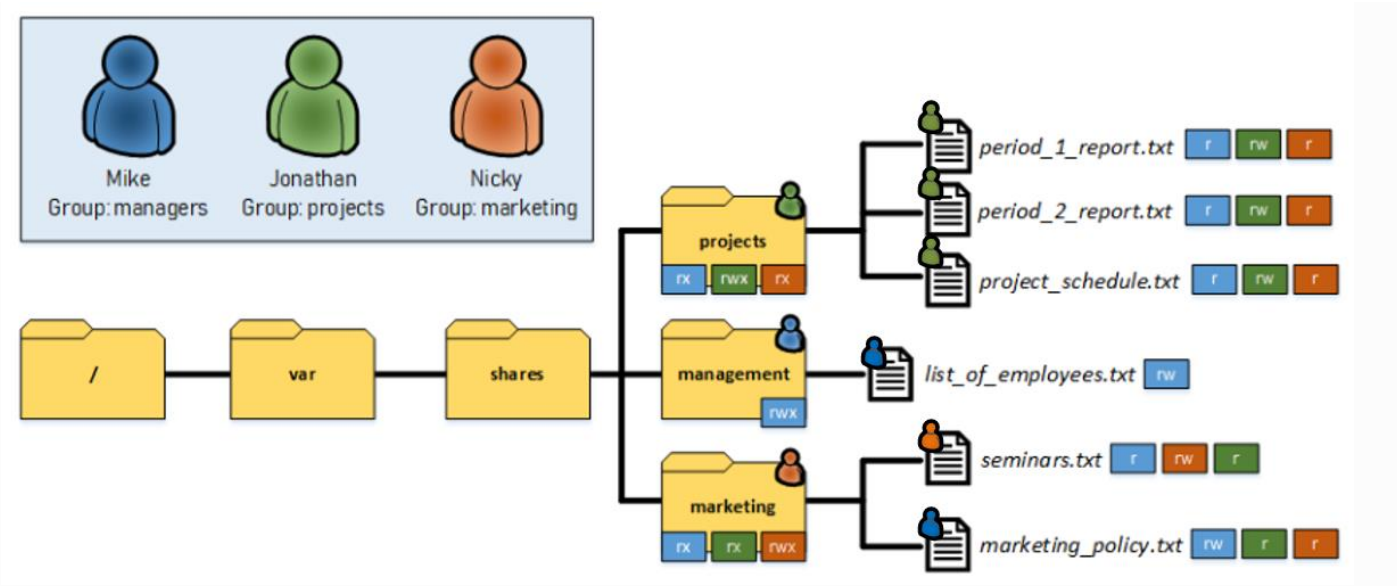
5. **Lock the password for user sulo. Verify the changes. After this, set the password as expired and login with user sulo (remember to remove the password lock before login). What happens?**

```
user@AC4892-Ubuntu:~$ sudo usermod -L sulo
[sudo] password for user:
```

```
user@AC4892-Ubuntu:~$ sudo usermod -U sulo
user@AC4892-Ubuntu:~$ sudo passwd -e sulo
passwd: password expiry information changed.
user@AC4892-Ubuntu:~$ su sulo
Password:
You are required to change your password immediately (administrator enforced)
Changing password for sulo.
```

6. **Below is the presentation of a directory structure from fictional company including users from different groups. Create the presented directory structure, users and groups for the filesystem of your Ubuntu. Set file permissions for files and directories as described in the figure (Tip: use material from the next course title: *File permissions*). Verify that permissions work as intended and take screenshot from several different situations with different users. Important: Owner and group permissions can be set to be equal and other**

users should have permissions if needed (check the image for other permissions)! Owner and group for each object is presented with colored user icon.




```
user@AC4892-Ubuntu:~/var/shares$ ls
management  marketing  projects
```

```
user@AC4892-Ubuntu:~/var/shares/projects$ ls
period_1_report.txt  period_2_report.txt  project_scedule.txt
```

```
user@AC4892-Ubuntu:~/var/shares/management$ ls
list_of_employees.txt
```

```
ser@AC4892-Ubuntu:~/var/shares/marketing$ ls
arketing_policy.txt  seminars.txt
```

```
user@AC4892-Ubuntu:~$ user@AC4892-Ubuntu:~$ sudo useradd -m -s /bin/bash jonathan
user@AC4892-Ubuntu:~$ sudo useradd -m -s /bin/bash nicky
user@AC4892-Ubuntu:~$ sudo useradd -m -s /bin/bash mike
```

```
user@AC4892-Ubuntu:~$ sudo addgroup managers
Adding group `managers' (GID 1011) ...
Done.
user@AC4892-Ubuntu:~$ sudo addgroup projects
Adding group `projects' (GID 1012) ...
Done.
user@AC4892-Ubuntu:~$ sudo addgroup marketing
Adding group `marketing' (GID 1013) ...
Done.
```

```
user@AC4892-Ubuntu:~$ sudo usermod -g projects jonathan
user@AC4892-Ubuntu:~$ sudo usermod -g managers mike
user@AC4892-Ubuntu:~$ sudo usermod -g marketing nicky
user@AC4892-Ubuntu:~$ groups
user adm cdrom sudo dip plugdev lxd
user@AC4892-Ubuntu:~$ groups jonathan mike nicky
jonathan : projects
mike : managers
nicky : marketing
```

```
user@AC4892-Ubuntu:~$ tree var/shares
var/shares
├── management
│   └── list_of_employees.txt
├── marketing
│   ├── marketing_policy.txt
│   └── seminars.txt
└── projects
    ├── period_1_report.txt
    ├── period_2_report.txt
    └── project_scedule.txt
```

```
user@AC4892-Ubuntu:~/var/shares$ sudo chown -R mike:managers management
user@AC4892-Ubuntu:~/var/shares$ ls -l
total 12
drwxrwxr-x 2 mike managers 4096 Oct 13 07:34 management
drwxrwxr-x 2 user user     4096 Oct 13 07:35 marketing
drwxrwxr-x 2 user user     4096 Oct 13 07:33 projects
user@AC4892-Ubuntu:~/var/shares$
```

```
user@AC4892-Ubuntu:~/var/shares$ sudo chown -R nicky:marketing market
user@AC4892-Ubuntu:~/var/shares$ sudo chown -R jonathan:projects proj
user@AC4892-Ubuntu:~/var/shares$ ls -l
total 12
drwxrwxr-x 2 mike     managers  4096 Oct 13 07:34 management
drwxrwxr-x 2 nicky    marketing 4096 Oct 13 07:35 marketing
drwxrwxr-x 2 jonathan projects  4096 Oct 13 07:33 projects
user@AC4892-Ubuntu:~/var/shares$
```

```
user@AC4892-Ubuntu:~/var/shares$ sudo chmod 775 projects
user@AC4892-Ubuntu:~/var/shares$ sudo chmod 70 management
user@AC4892-Ubuntu:~/var/shares$ sudo chmod 770 management
user@AC4892-Ubuntu:~/var/shares$ sudo chmod 775 marketing
user@AC4892-Ubuntu:~/var/shares$ ls -l
total 12
drwxrwx--- 2 mike     managers  4096 Oct 13 07:34 management
drwxrwxr-x 2 nicky    marketing 4096 Oct 13 07:35 marketing
drwxrwxr-x 2 jonathan projects  4096 Oct 13 07:33 projects
user@AC4892-Ubuntu:~/var/shares$
```

```
user@AC4892-Ubuntu:~/var/shares/projects$ sudo chmod 664 period_1_report.txt
user@AC4892-Ubuntu:~/var/shares/projects$ sudo chmod 664 period_2_report.txt
user@AC4892-Ubuntu:~/var/shares/projects$ sudo chmod 664 project_scedule.txt
```

```
user@AC4892-Ubuntu:~/var/shares$ sudo chmod 660 /var/shares/management/list_of_employees.txt
```