**Saint Petersburg National Research University
of Information Technologies, Mechanics and Optics**

System Programming Basics
Lab work № 3

Variant : 38
Author : Farrukh Karimov
Group number : P3302

St. Petersburg
2019

Task description

Write a program that produces:
- List of users who have the right to execute the specified file.
- A list of files for which the specified user has read permission.

All necessary information should be passed to the script through the command line arguments.

Select all files from the current directory excluding its subdirectories.

```bash
Script 1
#!/bin/bash
if [ -z $1 ]
then
  echo "Give this hard worker sleep!!"
  echo "He forgot the file name."
  exit 1
fi
fileName=$1 # имя файла
vara=$(ls $fileName)
if [ "$vara" != "" ]
then
        if [ -n "$2" ]; then
          access=$2 # права на файл
        else
          access='???' # дефолтные права на файл
        fi
        ls_result=$(ls -nd $fileName)
        i=0
        for var in $ls_result; do
          if [ $i -eq 2 ]; then
            user=$var
          fi
          if [ $i -eq 3 ]; then
            group=$var
          fi
          i=$(($i+1))
        done
        users_of_group=$(getent passwd | grep ".*:.*:.*:$group" | awk -F":" '{print $1}')
        if [[ (${ls_result:1:1} = ${access:0:1} || ${access:0:1} = '?') &&
        (${ls_result:2:1} = ${access:1:1} || ${access:2:1} = '?') &&
        (${ls_result:3:1} = ${access:2:1} || ${access:2:1} = '?') ]]
        then
          echo "Owner : $user"
        fi
        if [[ (${ls_result:4:1} = ${access:0:1} || ${access:0:1} = '?') &&
        (${ls_result:5:1} = ${access:1:1} || ${access:2:1} = '?') &&
        (${ls_result:6:1} = ${access:2:1} || ${access:2:1} = '?') ]]
        then
          echo "members of group $group , except owner."
          for arg in $users_of_group; do
            if [ arg != user ]; then
              echo "$arg"
            fi
          done
        fi
        if [[ (${ls_result:7:1} = ${access:0:1} || ${access:0:1} = '?') &&
        (${ls_result:8:1} = ${access:1:1} || ${access:2:1} = '?') &&
        (${ls_result:9:1} = ${access:2:1} || ${access:2:1} = '?') ]]
        then
```

```
            echo "Other users, except of Owner and members of group $group."
            echo $(compgen -u)
        fi
fi
exit 0
```

```
$ls -l
total 20
drwxr-xr-x   2 s247409  studs          2 окт. 26 04:41 filafial
----r----x   1 s247409  studs         12 окт. 12 10:57 file1
-rwxrwxrwx   1 s247409  studs         34 окт. 26 08:04 file2
-rw-r--r--   1 s247409  studs         12 окт. 26 08:12 file3
drwxr-xr-x   2 s247409  studs          2 окт. 26 04:50 huhuhu
-rwxrwxrwx   1 s247409  studs       1709 окт. 26 08:23 mona1.sh
-rwxrwxrwx   1 s247409  studs       1377 окт. 26 07:39 mona2.sh
-rwxrwxrwx   1 s247409  studs        237 окт. 12 11:30 script2.sh

$ ./mona1.sh file1 ---
Owner : 247409

./mona1.sh
Give this hard worker sleep!!
He forgot the file name.
```

Script 2
```bash
#!/bin/bash
# checking input parameters
if [ -z $1 ]
then
   echo "Give this hard worker sleep!!"
   echo "He forgot the username."
   exit 1
fi

# checking user availability
if ! [ -n "$(getent passwd $1)" ]
then
   echo "User I can't find that you are looking for"
   exit 1
fi
param_user=$1

param_user_id=$(getent passwd $param_user | awk -F":" '{print $3}')

for file in $(ls)
do
        file_le_result=$(ls -l $file)

        if [ ${file_le_result:0:1} == '-' ]
        then
        file_user_id=$(ls -nd "$file" | awk '{ print $3 }')
        file_group_id=$(ls -nd "$file" | awk '{ print $4 }')

        # is user - is file owner
        if [[ (${file_le_result:1:1} == 'r') &&
        ("$param_user_id" == "$file_user_id") ]]
        then
        echo "$file ( by owner rules )"
        elif [ "$param_user_id" != "$file_user_id" ]
```

```
        then
        users_of_file_group=$(getent passwd | grep ".*:.*:.*:$file_group_id" | awk -F":" '{print $1}')
        is_user_of_group=0
        for group_user in $users_of_file_group;
        do
                if [ "$group_user" == "$param_user" ]
                then
                is_user_of_group=1
                break
                fi
        done
        if [[ (${file_le_result:4:1} == 'r') &&
                ("$is_user_of_group" == '1') ]]
        then
                echo "$file ( by group rules )"
        elif [ "$is_user_of_group" == '0' ]
        then
                if [ ${file_le_result:7:1} == 'r' ]
                then
                echo "$file ( by other rules )"
                continue
                fi
        fi
        fi
        fi
done
exit 0
```

```
$ ./mona2.sh
Give this hard worker sleep!!
He forgot the username.

$ ./mona2.sh fakeUser
User I can't find that you are looking for

$ ls -l
total 20
drwxr-xr-x  2 s247409  studs         2 окт. 26 04:41 filafial
----r----x  1 s247409  studs        12 окт. 12 10:57 file1
-rwxrwxrwx  1 s247409  studs        34 окт. 26 08:04 file2
-rw-r--r--  1 s247409  studs        12 окт. 26 08:12 file3
drwxr-xr-x  2 s247409  studs         2 окт. 26 04:50 huhuhu
-rwxrwxrwx  1 s247409  studs      1709 окт. 26 08:23 mona1.sh
-rwxrwxrwx  1 s247409  studs      1377 окт. 26 07:39 mona2.sh
-rwxrwxrwx  1 s247409  studs       237 окт. 12 11:30 script2.sh
```

Conclusion: in this lab, I wrote a scripts, refresh the knowledge that will help me in the further study of this subject.