NATIONAL RESEARCH UNIVERSITY ITMO

FACULTY OF SOFTWARE ENGINEERING AND COMPYTER SYSTEMS

Labwork №3 [6/13]

System Software Fundamentals

Ivan Sarzhevskiy

Group P3302

Saint Petersburg

2019 г.

Assignment

Develop two shell scripts that will list:

- List of users that have right to search in specified directory

- List of users that can append to specified file but not overwrite it

Scripts code

First Task

```
declare −r TRUE=0
declare −r FALSE=1

good_boys=()   # Users that match criteria
bad_boys=()    # Users that don't

function can_owner_search
{
  user_permission=`stat −c "%a" $1 | cut −c1`
  [ $user_permission −eq 5 −o $user_permission −eq 7 ] && return $TRUE || r
}

function can_group_search
{
  group_permission=`stat −c "%a" $1 | cut −c2`
  [ $group_permission −eq 5 −o $group_permission −eq 7 ] && return $TRUE ||
}

function can_others_search
{
  others_permission=`stat −c "%a" $1 | cut −c3`
  [ $others_permission −eq 5 −o $others_permission −eq 7 ] && return $TRUE
}

owner=$(getent passwd `ls −n | grep " $1$" | awk '{print $3}'` | awk −F ':'
group_members=$(getent group `ls −n | grep " $1$" | awk '{print $4}'` | awk
others_str=$(getent passwd | awk −F ':' '{print $1}')
IFS=' '; others=($others_str); unset IFS;

can_owner_search $1 && good_boys=( "$owner" ) || bad_boys=( "$owner" )
can_group_search $1 && good_boys=( "${good_boys1[@]}" "${group_members[@]}"
can_others_search $1 && good_boys=( "${good_boys2[@]}" "${others[@]}" ) ||


for boy in ${good_boys[@]}
```

```
do
    if [[ "${bad_boys[@]}" =~ "${boy}" ]]; then
      continue
    fi
    echo $boy
done
```

Second Task

```
declare -r TRUE=0
declare -r FALSE=1

good_boys=()  # Users that match criteria

IFS=$'\n'
# iterate over files
for item in `ls -1`
do
  good_boys=()
  # skip all items except from files
  if [ ! -f "$item" ]; then
    continue
  fi

  owner_name=$(getent passwd `ls -n | grep " $item$" | nawk '{print $3}'` |
  owner_gid=$(ls -n | grep " $item$" | nawk '{print $4}')

  group_str=$(getent group `ls -n | grep " $item$" | nawk '{print $4}'` | n
  IFS=' '; group_members=($group_str); unset IFS;
  others_str=$(getent passwd | nawk -F ':' '{print $1}')
  IFS=' '; others=($others_str); unset IFS;



  for acl in $(/bin/ls -V "$item" | (read; cat) | tr -d " \t")
  do
    if [[ "$acl" == *"owner@"* ]]; then
      user_acl=$acl
      user_per=$(nawk -F ':' '{print $(NF-2)}' <<< $acl)
    fi
    if [[ "$acl" == *"group@"* ]]; then
      g_acl=$acl
      g_per=$(nawk -F ':' '{print $(NF-2)}' <<< $acl)
    fi
    if [[ "$acl" == *"everyone@"* ]]; then
      o_acl=$acl
      o_per=$(nawk -F ':' '{print $(NF-2)}' <<< $acl)
    fi
```

```bash
    done

    # check owner
    if [ "$USER" == "$owner_name" ]; then
      if [[ $user_per =~ "p" ]] && [[ ! $user_per =~ "w" ]]; then
        good_boys=( "$owner_name" )
      fi
    fi

    # Check group
    if [[ `/usr/xpg4/bin/id -G "$USER"` == *"$owner_gid"* ]]; then
      if [[ ! $g_per =~ *"w"* ]] && [[ $g_per =~ *"p"* ]]; then
        good_boys=( "${good_boys[@]}" "${group_members[@]}" )
      fi
    fi

    if [[ ! $o_per =~ *"w"* ]] && [[ $o_per =~ *"p"* ]]; then
      good_boys=( "${good_boys[@]}" "${others[@]}" )
    fi
    if [[ "${good_boys[@]}" =~ "$USER" ]]; then
      echo $item
    fi
done
```