

ITMO University

The Faculty of Software Engineering and Computer Systems

System software basics

**Practical work №2**  
*Shell-programming*

Variant 13

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## Part 1.

Task: Output the list of users who are banned from accessing system

Solution:

```
#/bin/bash
sudo cat /etc/shadow | awk -F: '{if ($8!="") print $1}' | sort
```

Description: I've suggested that this task is about 'usermod -e' or 'chage -E0' commands because there is several ways to restrict user from accessing system and these two are doing the best in terms of blocking users (with others, f.e. 'passwd -l' user still can login with ssh).

'usermod -e' sets expiration date of the account. If no date passed to the command, it sets expiration date to 1st jan of 1970th, so account is automatically expired. Information about expiration date is located at /etc/shadow in 8th field of the row. So, if 8th column isn't empty, then this user is blocked.

## Part 2.

Task: Output the list of the opened for writing pipes from the given directory

Solution:

```
#!/bin/bash

if [ -d "$1" ]; then
    lsof $1/* | awk '$4~"[wWuU]" && $5=="PIPE" {print $9}' | sort
else
    >&2 echo "Error: wrong directory name"
    exit 1
fi
```

Description: this program accepts directory name as an argument. 'lsof \$1/\*' outputs every process that uses files from given directory. Fourth column - "FD" - contains mode under which the file is open, so 'w' or 'W' stands for 'writing'. Fifth column - "TYPE" - contains the type of the file, so we are looking for the 'PIPE' file type.

## Conclusion

By getting this task done I've learned a lot of new information, for example

- ways to ban/unban users in \*nix systems
- ways to create and use named pipes
- ways to check which file used by which program, and so on.

I also improved my skills in shell-scripting.