“Київський фаховий коледж зв’язку”

Циклова комісія Комп’ютерної інженерії

**ЗВІТ ПО ВИКОНАННЮ**

**ЛАБОРАТОРНОЇ РОБОТИ №5**

з дисципліни: «Операційні системи»

**Тема: “ “Знайомство з командами навігації по файловій системі та керування файлами та каталогами””**

Виконали студенти

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Перевірив викладач

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**The goal of the work:**

**1. Getting practical skills for working with the Bash command shell.**

**2. Familiarity with basic file system navigation commands.**

**3. Familiarity with basic commands for managing files and directories.**

**Material provision of classes**

**1. IBM PC type computer.**

**2. OS family Windows (Windows 7).**

**3. Virtual machine - Virtual Box (Oracle).**

**4. GNU/Linux operating system - CentOS.**

**5. Cisco network academy site netacad.com and its online Linux courses**

***The material was prepared by student Neroshchin Daniil***

***Tasks for preliminary preparation.***

***2.1. Comparison of file structures of Windows-like and Linux-like systems:***

***Windows: In Windows, the primary file system is either NTFS or FAT. System files and programs are usually located in the "C:\Program Files" or "C:\Windows" directory. Each drive can have its own drive letter (eg "C:", "D:"). Windows uses backslashes () in file paths.***

***Linux: In Linux, the primary file system is ext4, but there are also others such as ext3, XFS, and others. The file structure starts with the root directory ("/"). All files and directories are located in one single directory tree structure. Drive letters are not used and file paths are specified with a forward slash (/).***

***2.2. FHS (Filesystem Hierarchy Standard) is a standard that defines the structure of directories and their purpose in Linux and other UNIX-like systems. FHS helps ensure consistency and portability between different Linux distributions. According to this standard, the main Linux root directory has the following structure:***

***/bin: Executable files (binaries) for the boot system.***

***/etc: Configuration files.***

***/home: Users' home directories.***

***/lib: Libraries needed to run executables in /bin and /sbin.***

***/mnt: Temporary mount points for external devices.***

***/opt: Optional software from third-party vendors.***

***/root: Home directory of user root.***

***/srv: Data related to services running on this computer.***

***/tmp: Temporary files.***

***/usr: Secondary data and programs (eg /usr/bin contains executables).***

***/var: Variable data such as logs and caches.***

***2.3. Basic commands for working with files and directories in Linux:***

***Creating directory: mkdir directory\_name***

***Moving (renaming) a file or directory: mv source destination***

***Copying a file or directory: cp source destination***

***To delete a file or directory: rm file\_or\_directory***

***Example:***

***mkdir new\_directory: Creates a new directory named "new\_directory".***

***mv old\_file new\_name: Renames the file "old\_file" to "new\_name".***

***cp file\_to\_copy destination\_directory: Copies the file "file\_to\_copy" to "destination\_directory".***

***rm file\_to\_delete: Deletes the file "file\_to\_delete".3. Study the materials of the online course of the Cisco Academy “NDG Linux Essentials”:***

***- Chapter 7 - Navigating the Filesystem***

***- Chapter 8 - Managing Files and Directories***

***4. Take the test in the NDG Linux Essentials course on the following topics:***

***- Chapter 07 Exam***

***- Chapter 08 Exam***

***5. Prepare the initial version of the report electronically:***

***- Title page, topic and purpose of the work***

***- Glossary of terms***

***- Answers to items 2.1-2.3 from tasks for preliminary preparation***

***The material was prepared by student Malienko Alina***

***Progress.***

***1. Initial work in CLI mode in Linux OS of the Linux family:***

***1.1. Start the VirtualBox virtual machine, select CentOS and run it. Log in***

***under user: CentOS, password for login: reverse (if you run LR in 401 aud.) and run***

***terminal.***

***1.2. Start the Ubuntu\_PC virtual machine (if you are doing the LR tasks through the netacad academy)***

***1.3. Start your Linux family operating system (if you are working on your own PC and its***

***installed) and launch the terminal.***

***2. Work through all the command examples presented in the labs of the NDG Linux Essentials course***

***- Lab 7: Navigating the Filesystem and Lab 8: Managing Files and Directories. Create a table for***

***description of these commands\*\*\****

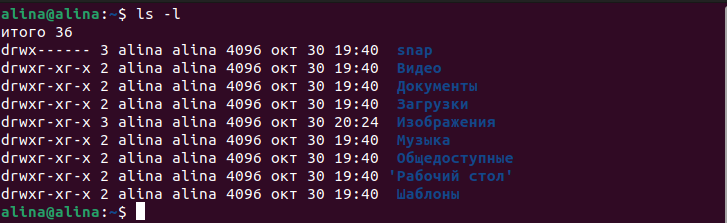
|  |  |
| --- | --- |
| pwd | Determines the user's location in the file system and displays the current working directory (prints the working directory). |
| cd Documents | The cd command performs a transition to the directory specified as its argument. In this case, it is the "Documents" directory. |
| echo $HOME | Prints the environment variable $HOME, which contains the home directory of the current user. |
| cd / | Changes the current directory to the root directory of the system. |
| cd /home | : Changes the current directory to /home, where user home directories are typically stored. |
| cd ~ | Changes the current directory to the home directory of the current user. |
| cd ~root | Changes the current directory to the home directory of the "root" user. |
| cd /usr/bin | Changes the current directory to /usr/bin, where executable files (programs) are typically stored. |
| cd /usr | Changes the current directory to /usr, which is one of the system directories |
| cd /usr/share/doc | Changes the current directory to /usr/share/doc, where documentation for programs is often located. |
| cd bash | Attempts to change the current directory to "bash." This command may work if there is a directory with the name "bash";otherwise, it will produce an error. |
| cd .. | Changes the current directory to the parent directory (moves up one level). |
| ls | Lists the files and directories in the current directory. |
| ls -a | Lists the files and directories in the current directory, including hidden files (those starting with a dot). |
| ls -l /etc/hosts | Displays detailed information about the file /etc/hosts, including permissions, owner, group, size, and more. |
| ls -R /etc/udev | Recursively lists the files and directories in the /etc/udev directory and its subdirectories. |
| ls -d /etc/s\* | Lists the files and directories in the /etc directory that start with "s." |
| ls –d /etc/[abcd]\* | Lists the files and directories in the /etc directory that start with the letters "a," "b," "c," or "d." |
| echo D\* | Prints a list of files or directories in the current directory that start with the letter "D." |
| echo P\* | Prints a list of files or directories in the current directory that start with the letter "P." |
| echo \*s | Prints a list of files or directories in the current directory that have the letter "s" in their name. |
| echo D\*n\*s | Prints a list of files or directories in the current directory with names that contain "D," any character, "n," another character, and "s." |
| echo ?????? | Prints a list of files or directories in the current directory with exactly 6 characters in their name. |
| rm hosts | Deletes the file "hosts" from the current directory. Be cautious, as this command is irreversible and can delete important files without confirmation. |

**3. Working in the terminal (consolidation of practical skills), you must present your screenshots:**

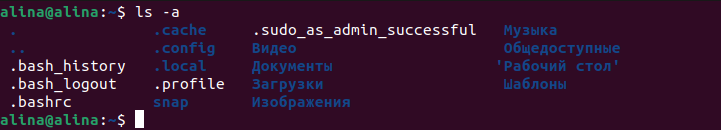
**- Define your current working directory;**

**- Go to the root directory and define your current working directory (two commands);**

**- View the contents of the current directory in long format (use the appropriate key of the ls command);**

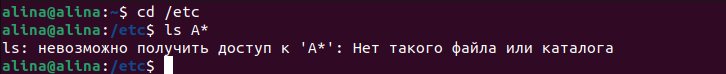
****

**- Go to the /usr/share directory and define your current working directory (two commands)**

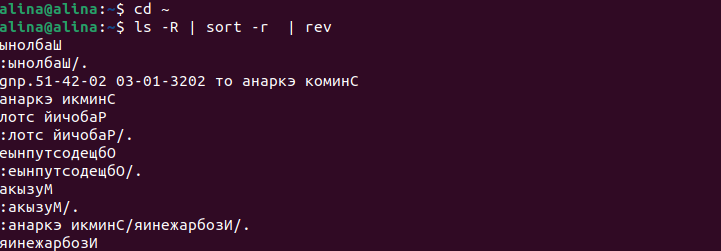
**- View the contents of the current directory, including hidden files (use the appropriate key of the ls command);**

**- Go to the /etc directory;**

**- Browse the contents of a given directory, but only output filenames starting with**

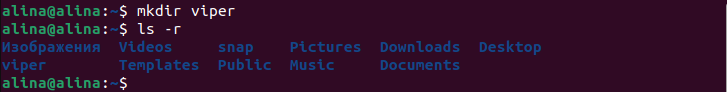
**the letters of your name;**

**- View the contents of this directory, but to display only files whose names consist of 6 letters;**

**- Go to the home directory of the current user and view its contents in recursive (back to alphabetical) format (perform this action through the command pipeline);**

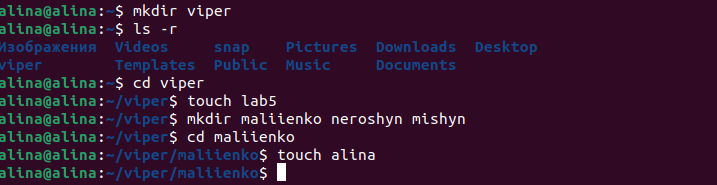
**- В поточній директорії створити директорію з назвою вашої групи;**

**- Переглянути оновлений вміст домашнього каталогу поточного користувача. Скористайтесь ключем -r команди ls, яку інформацію ви отримаєте?**

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**- Go to the directory you created with the name of your group and create an empty lab5 file in it**

**- Create in this directory 3 directories with the surnames of students of your team surname1, surname2, surname3\* (the mkdir command has a multi-argument, so all three directories can be created with one command);**

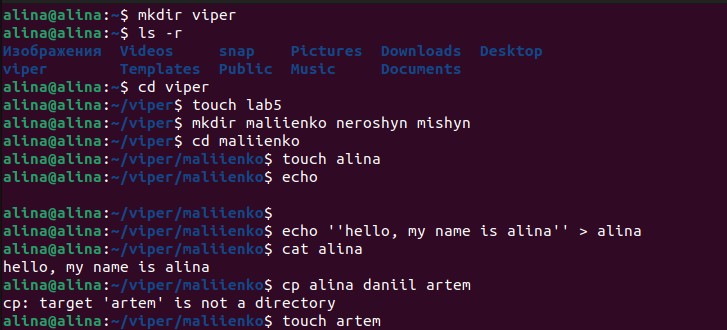
**- Go to the first subdirectory surname1 and create an empty file with the name of the first student name1;**

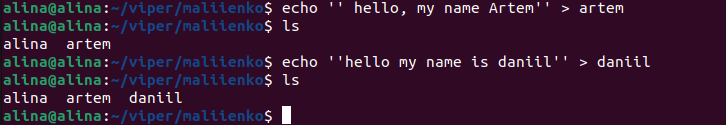
**- Using the command echo ``Hello, my name is Name1'' name1 enter data about**

**student (symbol >; allows the output of the echo command to be redirected immediately to the file name1;**

**- View the contents of file name1 using the command cat name1 (should contain the information you just entered)**

**- Make a copy of the first file name1 and rename it to a file with the second name of the student of your team name2;**

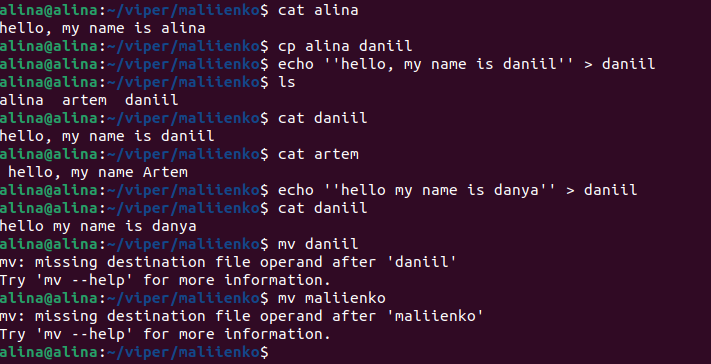
**- View the contents of the directory, both files should appear;**

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**- View the contents of the second file cat name2 (it should contain a complete copy of the contents of file name1 by now)**

**- Replace the contents of the file name2 so that it contains the corresponding name of the second student using the command echo ``Hello, my name is Name2'' > name2**

**- View the contents of the second file cat name2 (it should already contain the updated information)**

**- Move the name2 file to the surname2 directory;**

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**- Make a copy of the first file name1 and rename it to a file with the third name of the student of your team name3;**

**- Move the name3 file to the surname3 directory;**

**- Go to the directory surname3;**

**- View the contents of the third file with the command cat name3 (it should contain data about the second student)**

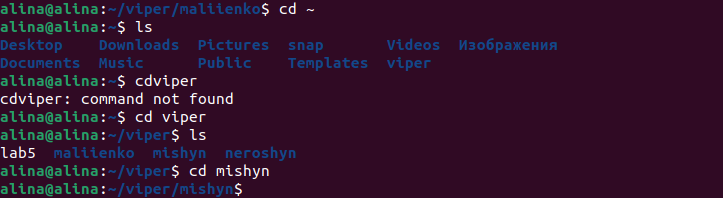
**- Replace the contents of the file name3 so that it contains the corresponding name of the third student using the command echo ''Hello, my name is Name3'' > name3**

**- View the contents of the file using cat name3 (it should already contain the updated information)**

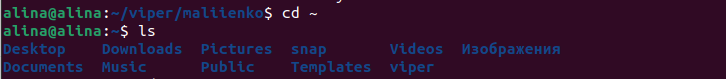
**- Return to the user's home directory;**

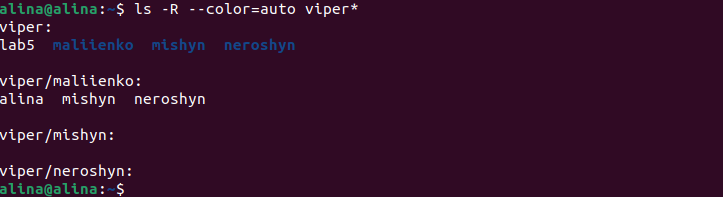
**- View the contents of this directory, but to display only your subdirectory with the name of the group and all its contents (subdirectories surname1, surname2, surname3 and files name1, name2, name3) in addition, files and directories were separated by colors (use the appropriate -R key of the command ls and don't forget to use the custom glob template [directory name]\*)**











***Student A. Mishin prepared the material.***

***Control questions***

***1. How can you view the path to the user's home directory using the echo command? Exist***

***2 ways, give both examples in the terminal (the answer is in the materials of the cisco academy on the website***

***netacad.com)***

***2. Is it possible to view the contents of the root directory while in the user's home directory***

***without going to the root directory? Demonstrate this on the command line.***

***3. How can you add information to an empty file in the terminal?***

***4. How to copy and delete an existing directory? Will there be a difference in commands if the directory is not***

***empty at the same time***

***5. In which of the following examples does a file move occur? renaming it?***

***both actions at the same time?***

***- mv /work/tech/comp.png. /Desktop***

***- mv /work/tech/comp.png. /work/tech/my\_car.png***

***- mv /work/tech/comp.png. /Desktop/computer.png***

***To view the path to the user's home directory using the echo command, you can use the HOME environment variable. Here are two ways:***

***a. echo $HOME***

***b. echo ~***

***Yes, you can view the contents of the root directory while in the user's home directory without going to the root directory. Just type ls / and it will display the contents of the root directory, leaving you in the user's home directory.***

***To add information to an empty file in the terminal, you can use the echo command. Example:***

***echo "More information" >> file.txt***

***This command will add an "Additional Information" line to the end of the file.txt file.***

***To copy and delete an existing directory in Linux, the cp and rm commands are used.***

***To copy an empty directory:***

***cp -r source\_directory destination\_directory***

***To delete an empty directory:***

***rmdir directory***

***If the directory is not empty, you should use the cp and rm commands with the -r flag, which indicates recursive copying and deletion:***

***To copy a directory (with its contents):***

***cp -r source\_directory destination\_directory***

***To delete a directory (with its contents):***

***rm -r directory***

***In the first example (mv /work/tech/comp.png. /Desktop), the comp.png file is moved to the /Desktop directory. In the second example (mv /work/tech/comp.png. /work/tech/my\_car.png), the comp.png file is renamed to my\_car.png in the /work/tech directory. In the third example (mv /work/tech/comp.png. /Desktop/computer.png), the comp.png file is moved to the /Desktop directory and renamed to computer.png.***