**"Kyiv Vocational College of Communication"**

**Cyclic Commission of Computer Engineering**

**EXECUTION REPORT**

**LABORATORY WORK No. 3**

from the discipline: "Operating systems"

**Topic: "Getting to know the basic CLI-mode commands in Linux"**

**Performed by students of the group:**

Погребняк Ілля

**Checked by the teacher**

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**Work of group students КСМ-13Б Team:** **PMC wolf group**

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**The goal of the work:**

**1. Getting to know the basic commands of the CLI mode in Linux.**

**2. Acquaintance with basic text commands in the terminal mode of work in various OS.**

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.

**Progress**

1)

| locate | Швидкий пошук файлів за назвою. |

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| --- | --- | --- | --- |
| **Team name** | **Its purpose and functionality** | | |
| ls | Displays information about directories and files. By default, with no arguments, displays information for the current directory | | |
| ls -l | Using the -l option in the ls command allows you to display information about files located in the current working directory, in long format that provides more extensive additional information | | |
| ls -l /tmp | Using the /tmp argument in combination with the -l option in the ls command allows you to display detailed information about files in the /tmp directory. | | |
| cd | Changes the current directory | | |
| pwd | Returns the full path to the current directory. | | |
| mkdir | Creates a directory | | |
| rmdir | Deletes a directory | | |
| touch | Creates a file. | | |
| rm | Deletes a file. | | |
| mv | Moves or renames a file | | |
| cp | Copies a file | | |
| cat | Outputs the contents of a file | | |
| less | Browses the file by pages | | |
| more | Browses the file by pages | | | |
| man | Displays help from the command | | | |
| whatis | | | Displays a brief description of the command | |
| whereis | | | Outputs the path to a command or man page file | |
| apropos | | | Search for commands by keywords. | |
| updatedb | | | Creates a database of files for use by the locate command | |
| locate | | Quick search for files by name | | |
|  | |  | | |

**Control questions**

1) There are two types of commands in the Bash shell: internal and external. Internal commands are built into the Bash shell and do not require additional programs for their execution. These include commands such as cd, pwd, mkdir, rmdir, echo, cat, grep, sort, uniq, and many others. External commands are ordinary programs that are located in the file system. To execute them, the Bash shell starts a process that executes that program. External commands include programs such as ls, cp, mv, rm, man, vim, gcc, and many others. In addition, commands in the Bash shell can be classified according to their purpose: File management commands are commands that allow you to work with files and directories. These include commands cd, pwd, mkdir, rmdir, ls, cp, mv, rm, and others. Process control commands are commands that allow you to start, stop, redirect data flows, and control the operation of processes. These include commands ps, kill, top, man, vim, gcc, and others. System management commands are commands that allow you to configure the system and perform administrative tasks. These include the commands sudo, apt, yum, rpm, dpkg, and others.

2) Environment variables are variables that are available system-wide and are inherited by all child processes and shells.

They are used to store information that can be useful for various programs and commands. Environment variables can be divided into two types:

Environment variables are variables that are set by the system administrator or the user.

They are stored in the /etc/environment file or in the ~/.bashrc file. Shell variables are variables that are set by the user in the current shell session.

They are stored in the shell's memory. Here are some examples of environment variables:

HOME - the path to the user's home directory.

PATH - a list of directories in which the shell looks for executable files.

PWD is the path to the working directory.

USER - user name.

SHELL - the path to the executable file of the shell.

You can view environment variables in the terminal using the following commands: printenv - prints a list of all environment variables. env - outputs a list of environment variables in a format that can be used on command lines. echo $variable\_name - outputs the value of the environment variable variable\_name.

3) The variable $PS1 is an environment variable that defines the appearance of the shell prompt. The shell prompt is the text that appears before each command that the user types in the terminal.

The value of the $PS1 variable can contain any text, as well as special characters that allow additional information to be added to the prompt, such as the username, the current date and time, or the current

4) The value of the $PS1 variable can be changed using the export command. The export command makes the variable available to all child processes and shells.

To change the value of the $PS1 variable to the current session, you can run the following command:

export PS1='new value'

For example, to change the shell prompt to:

[user@hostname] >

you can run the following command:

export PS1='[user@hostname] >'

This command will change the value of the $PS1 variable to:

[user@hostname] > To change the default value of the $PS1 variable, you need to make changes to the ~/.bashrc file. The ~/.bashrc file is the Bash shell configuration file that is executed when the shell is started.

5) In the Bash shell, quotes are used to quote text so that the shell interprets the text as regular characters rather than as commands or special characters.

There are three types of quotes in the Bash shell:

Double quotes (") are normal quotes used to quote text. Inside double quotes, all special characters are meaningless except $, \, and `.

Single quotes (')) are hard quotes used to quote text. Inside single quotes, all characters are interpreted as normal, including special characters.

Backquotes (```) are backquotes used to complete a command within text.

6) Control statements are used to control the execution of commands in the Bash shell. They allow the user to determine the order in which commands are executed, as well as execute commands depending on the results of other commands.

There are two main types of control instructions:

Boolean statements are statements that allow you to check the values of variables or the results of commands.

Logical constructions are constructions that allow you to execute commands depending on the results of logical operators.

8) The "whereis" and "locate" commands are used to find files on the system.

The whereis command returns information about a file, including its path, type (binary, source, help page), and the directory in which it is located.

The whereis command looks for files in the following directories: /bin /sbin /usr/bin /usr/sbin /usr/local/bin /usr/local/sbin /usr/share/man/man1 /usr/share/man/man2.

The locate command returns a list of files that match the given name. The locate command uses a database that is regularly updated by the system.

The main differences between the whereis and locate commands are:

The whereis command searches for files in specific directories, while the locate command searches for files in the database.

The whereis command returns more detailed information about a file than the locate command.

The whereis command can be slower than the locate command because it searches for files in each directory separately.

**conclusion**

I learned how to use terminals during the lab, but the actual work was a little challenging because I didn't fully comprehend the assignment. Nevertheless, it was generally interesting and I discovered the commands' individual purposes.