“Київський фаховий коледж зв’язку”

Циклова комісія Комп’ютерної інженерії

**ЗВІТ ПО ВИКОНАННЮ**

**ЛАБОРАТОРНОЇ РОБОТИ №3**

з дисципліни: «Операційні системи»

**Тема: “Знайомство з базовими командами CLI-режиму в Linux”**

Виконав ли студенти)

групи КСМ 13А

Команда 1: ВВС

Панчук О.С. Петрик С.С

Перевірив викладач

Сушанова В.С.

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**Мета роботи:**

1. Отримання практичних навиків роботи з середовищами віртуальних машин та операційними системами різних типів та сімейств – їх графічною оболонкою, входом і виходом з системи, ознайомлення зі структурою робочого столу, вивчення основних дій та налаштувань при роботі в системі.

**Матеріальне забезпечення занять**

1. ЕОМ типу IBM PC.

2. ОС сімейства Windows (Windows 7).

3. Віртуальна машина – Virtual Box (Oracle).

4. Операційна система GNU/Linux – CentOS.

**Завдання для попередньої підготовки**

***Готував матеріал студент Панчук О.С.***

1. Прочитайте короткі теоретичні відомості до лабораторної роботи та зробіть невеличкий словник базових англійських термінів з питань класифікації ОС.

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| --- | --- |
| Термін англійською | Термін українською |
| **Operating System** | Операційна система |
| **Arguments** | аргументи |
| Command Line Skills | Навички роботи з командним рядком |
| Inline editing | Редагування на місці |
| Scripting | сценарії |
| The Shell | Командний рядок |
| Bash shell | оболонка Bash |
| Prompt structure | Ім'я користувача |
| Variables | Змінні |
| Aliases | Псевдонім |

1. Прочитавши матеріал з коротких теоретичних відомостей дайте відповіді на наступні питання:

***Готував матеріал студент Панчук О.С.***

* 1. Охарактеризуйте поняття «гіпервізор». Які бувають їх типи?

**Командний інтерпретатор**-this is software that executes commands and instructions entered by the user through a command-line interface or text interface. It is an interactive shell for interacting with the operating system and performing various tasks.

The main functions of a command interpreter include:

1. Command Execution: The interpreter processes and executes commands entered by the user or launched from scripts.
2. Program Execution: Users can run executable files, programs, and services from the command line.
3. File and Directory Operations: The interpreter provides the ability to manage files and directories, such as creating, moving, deleting, and changing access rights.
4. Input/Output Streams: The interpreter manages input (stdin) and output (stdout) streams for user interaction and command execution result processing.
5. Variables and Aliases: Users can define variables and aliases to simplify command invocation and store data.
6. Scripts: The command interpreter can execute scripts that contain sequences of commands and instructions for task automation.

**Оболонка–**(Shell) in programming refers to an interactive interface that allows interacting with the operating system or executing commands and programs through a text-based interface. Shells in programming are used for automating operations, processing data, executing commands, and running scripts.

In the context of a command-line or script, the shell executes commands entered by the user or contained in executable files. The shell interprets and carries out the commands, ensuring their execution in the operating system.

Examples of shells in programming include Bash, PowerShell, Command Prompt, Python shell, and many others. Shells help automate tasks, create scripts, and interact with the operating system through a text-based interface.

**"Сommand**" - instructions or operators that instruct a computer to perform a specific action or operation. Commands in programming are used to carry out specific tasks or control the execution of a program.

Commands can be part of the program code and contain instructions for calculations, data reading and writing, control of program execution flow, and much more. Depending on the programming language, commands may have different syntax and functionality.

Відповіді на запитання

1. The prompt provides basic information for the user, typically displaying the current directory (working directory), user information, system information, instructions, or other contextual information that helps the user interact with the command interpreter.
2. Commands require parameters and arguments to specify the actions they should perform. Parameters provide additional information to modify the behavior of a command, while arguments are the specific inputs or data that a command operates on.
3. The “ls” command in Bash is used to list files and directories in the current directory. It can take various parameters and arguments to customize its behavior. Here are three examples:

* “ls: Lists files and directories in the current directory.
* “ls -l: Lists files and directories in long format, showing detailed information.
* “Is -a /path/to/directory”: Lists all files and directories in the specified directory, including hidden ones.

1. You can use command history by pressing the "Up" arrow key on your keyboard to cycle through previously entered commands. This allows you to quickly access and reuse commands without retyping them. The advantages of using command history include increased efficiency, reduced typing errors, and the ability to recall and repeat complex commands.
2. The “echo” command is used to display messages or text on the terminal. It is often used for printing output, displaying variables, or creating simple scripts. For example, “echo” "Hello, World!" will display "Hello, World!" on the terminal.
3. In the Bash shell, a variable is a symbol that represents a value or text. Bash supports various types of variables, including:

* Scalar variables: Hold single values, such as numbers or strings.
* Array variables: Store multiple values in indexed arrays.
* Associative arrays: Store key-value pairs.
* Environment variables: Used to configure the shell's behavior and provide information to running programs.

1. The “env” command displays the current environment variables, while the “export” command is used to set or modify environment variables. Environment variables are global variables that are accessible to all processes running in the shell session. The “unset” command is used to remove environment variables, effectively unsetting their values. These commands are essential for configuring the shell's behavior and providing information to programs
2. man: The “man” command is used to display the manual pages (documentation) for various commands and system functions. You can use it as follows:

man command\_name

Replace “command\_name” with the name of the command you want to learn more about. You can navigate through the manual pages using arrow keys, and press “q” to exit.

“--help” option: Many command-line utilities and programs support the “—help” option, which provides a brief summary of the command's usage and available options. You can use it like this:

command\_name –help

Replace “command\_name” with the name of the command you want to get help for.

“Help” (for shell built-ins): If you're looking for help on shell built-in commands (commands that are part of the shell itself, such as “cd” or” echo”), you can use the “help” command followed by the built-in command's name. For example:

“help cd”

**Хід роботи**

***Готував матеріал студент Петрик С.С.***

1. Робота в графічному режимі в ОС сімейства Linux:.
   1. Запустіть віртуальну машину VirtualBox, ознайомтесь з її основними можливостями, прочитайте довідку по роботі з нею.

**Наступні пункти ходу роботи**

*Ваші відповіді*

**Відповіді на контрольні запитання**

***Готував матеріал студент Петрик С.С***

1. Розкрийте поняття «GNU GPL», яка його основна концепція??

*GNU GPL розшифровується як …, його основна суть …*

***Готував матеріал студент Petrov.***

1. Наступні контрольні запитання та відповіді на них

**Висновки  
*Готував матеріал студент Панчук О.С***

Getting acquainted with basic CLI (Command Line Interface) commands in Linux is an essential part of working with the Linux operating system. It can be beneficial for various tasks, including administration, configuration, automation, and more.

Key CLI commands in Linux include operations such as viewing files and directories (using the “ls” command), navigating the file system (using the “cd” command), creating directories (with “mkdir”), deleting files and directories (“rm”), renaming and moving files (“mv”), copying files (“cp”), working with text files (“cat”, “”less”, “nano”, etc.), and managing file and directory permissions (“chmod”).

These commands allow users to interact with the operating system, perform tasks, and execute routine operations without the need for a graphical interface. They are a powerful tool for automating tasks, configuring the system, and quickly accessing information while maintaining control over files and directories.

In conclusion, knowledge and proficiency in using basic CLI commands in Linux are crucial for efficiently working with this operating system. They enhance productivity, provide greater flexibility for system configuration and management, and make Linux a more powerful tool for professional administrators, developers, and regular users.