**“Київський фаховий коледж зв’язку”**

**Циклова комісія Комп’ютерної та програмної інженерії**

**ЗВІТ ПО ВИКОНАННЮ**

**ЛАБОРАТОРНОЇ РОБОТИ №6**

з дисципліни: «Операційні системи»

**Тема: “Команди Linux для архівування та стиснення даних. Робота з текстом”**

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**Мета роботи:**

**1. Отримання практичних навиків роботи з командною оболонкою Bash.**

**2. Знайомство з базовими командами для архівування та стиснення даних.**

**3. Знайомство з базовими діями при роботі з текстом у терміналі.**

**Хід роботи**

**Виконав роботу Міньков Ілля**

**1.Comparative characteristics of compression and archiving processes:**

**Compression** is the process of reducing the size of a file by removing unnecessary information or applying algorithms that reduce the amount of data. Compressed files can be decompressed to retrieve the original content.

**Archiving** is the process of combining multiple files or directories into a single archive file, typically for ease of storage and exchange. Archive files can be compressed to reduce data size.

**Виконав роботу Міньков Ілля**

**2.Programs for compressing and archiving files and directories in Linux:**

**gzip** - uses the DEFLATE compression algorithm.

**bzip2** - uses the Burrows-Wheeler Transform compression algorithm.

**xz** - uses the LZMA2 compression algorithm.

**tar** - a program for creating archives that can be compressed using gzip, bzip2, xz, etc.

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**3.Comparison of compression algorithms used in Linux:**

**gzip** uses DEFLATE and typically offers a good balance between speed and compression.

**bzip2** uses Burrows-Wheeler Transform and usually provides better compression but is slower than gzip.

**xz** uses LZMA2 and typically provides the best compression but is the slowest.

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**4.Software tools for compression and archiving on a mobile phone:**

**ZArchiver** (available for Android) - allows compressing and decompressing archives in various formats.

**iZip** (available for iOS) - allows compressing and decompressing ZIP archives on iOS devices.

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**5.Software tools for compression and archiving in the Windows operating system family:**

**7-Zip** - a very popular and open-source archiver that supports various archive formats and has high compression speed.

**WinRAR** - another well-known archiver that supports multiple formats and offers high compression ratios.

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**6.Compression and archiving** of data can be used for data backup. It allows creating a copy of important files and directories while reducing their size and storing this copy on another storage medium or in a cloud storage. System administrators can also use compression to reduce data size on servers and enable faster backups.

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7.**The directory**/file **/dev/null** in Linux and Unix operating systems is a special file that does not store data but always returns a "null" content. This file is used to discard the output of a program or create a "black hole" where excessive data can be redirected and effectively discarded.

**The goal of this work** was to acquire practical skills in working with the Bash command-line shell. It also aimed to introduce basic commands for archiving and compressing data and familiarize with basic text manipulation actions in the terminal.

In the course of this work, I learned how to use various Bash commands for creating archives and compressing files and directories. I gained hands-on experience with commands like tar, gzip, and zip, which are essential for managing data in a Linux environment. Additionally, I learned how to extract and view the contents of archives, demonstrating the versatility and power of command-line tools.

The work also provided me with an understanding of text manipulation in the terminal. I learned how to use commands like echo, cat, and grep to work with text files, search for specific content, and manipulate text data efficiently. These skills are valuable for various tasks, including data analysis and system administration.

In conclusion, this work helped me develop fundamental skills in using the Bash command-line shell for archiving, compressing, and text manipulation. These skills are essential for working with Linux and other Unix-like operating systems, making me more proficient in handling data and text-based tasks in a terminal environment.