“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”

Виконали

студенти

групи РПЗ-03

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**The goal of the work:**

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

2. Acquaintance with basic commands for data archiving and compression.

3. Getting to know the basic actions when working with text in the terminal.

**Material support to occupy:**

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

**Tasks for preliminary preparation.**

1. Read the short theoretical information for the laboratory work and make a small dictionary

basic English terms for command assignments and their parameters.

2. Study the materials of the online course of the Cisco Academy “NDG Linux Essentials”:

- Chapter 09 - Archiving and Compression

- Chapter 10 - Working With Text

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

- Chapter 09 Exam

- Midterm Exam (Modules 1 - 9) will be a separate task in the Google class

- Chapter 10 Exam

4. On the basis of the considered material, answer the following questions:

4.1. What is the purpose of tar, xz, zip, bzip, gzip commands? Make a brief description of each team and highlight

their main parameters. How to install them.

4.2. Give three examples of implementing data archiving and compression using different commands.

4.3. What is the purpose of the commands cat, less, more, head and tail? Make a brief description of each command and

highlight their main parameters. How to install them

4.4. Explain how the command shell works with channels, streams, and filters

4.5. What is the purpose of the grep command?

5. Prepare the initial version of the report electronically:

- Title page, topic and purpose of the work

- Glossary of terms

- Answers to p. 4.1 and p. 4.5 from tasks for preliminary training

**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.

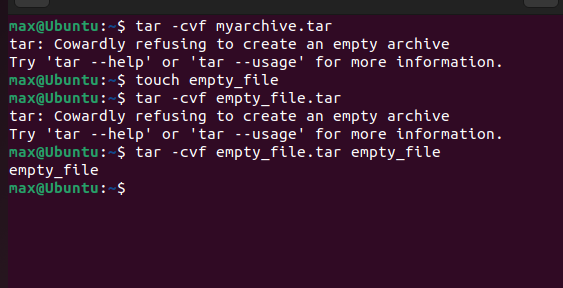
2. Work through all the command examples presented in the labs of the NDG Linux Essentials course -

Lab 9: Archiving and Compression and Lab 10: Working With Text. Create a table to describe these

teams\*\*\*

|  |  |
| --- | --- |
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3. Familiarize yourself with the tar command and use it to perform the following actions in the terminal:

- create a file with the extension .tar; ****

- create a file with the .tar extension consisting of several files and directories at the same time;

****

- viewing the contents of the file; ****

- extract the contents of the tar file;

****

- create a tar archive compressed with bzip; ****

- extract the contents of the tar bzip file; ****

- create an archive tar file compressed with gzip; ****

- extract the contents of the tar gzip file. ****

4. How will the redirection of output streams in bash for subsequent operations with commands (marked as cmd) and files (marked as file):

|  |  |
| --- | --- |
| cmd 1&gt; file |  |
| cmd &gt; file |  |
| cmd 2&gt; file |  |
| cmd &gt;&gt; file |  |
| cmd &amp;&gt; file |  |
| cmd &gt; file 2&gt;&amp;1 |  |
| cmd &gt;&gt; file 2&gt;&amp;1 |  |
| cmd 2 > /dev/null |  |
| cmd 2 > /dev/null |  |
| cmd1 | cmd2 |  |
| cmd1 2>1 | cmd2 |  |

5. Consider the following examples and explain what these commands do and what type of thread redirection they use:

|  |  |
| --- | --- |
| $echo &quot;It is a new story.&quot; &gt; story |  |
| $ date &gt; date.txt |  |
| $ cat file1 file2 file3 &gt; bigfile |  |
| $ls -l &gt;&gt; directory |  |
| $ sort &lt; file1\_unsorted &gt; file2\_sorted |  |
| $ find -name &#39;\*.txt&#39; &gt; file.txt 2&gt; /dev/null |  |
| $ cat file1\_unsorted | sort &gt; file2\_sorted |  |
| $ cat myfile | grep student | wc -l |  |

**Control questions**

1. Give a comparative description of compression and archiving processes.

2. What programs, in addition to those listed in the work, can be used for compression and archiving

files and directories in the Linux OS? Give examples and their brief description.

3. Compare the compression algorithms used in the commands (programs) used in

Linux. Which of the algorithms can be considered the fastest and most efficient?

4. Describe the compression and archiving software tools that might be used in yours

mobile phone.

5. Describe and compare software tools for data compression and (de)archiving in the OS family

Windows.

6. Explain how data compression and archiving can be used for data backup.

In what other system administration tasks can it be used.

7. What is the purpose of the /dev/null file directory?