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## Лабораторная работа No 10. Программирование в командном процессоре ОС UNIX. Командные файлы

### 10.1. Цель работы

Изучить основы программирования в оболочке ОС UNIX/Linux. Научиться писать небольшие командные файлы.

### 10.3. Последовательность выполнения работы

1. Написать скрипт, который при запуске будет делать резервную копию самого себя (то есть файла, в котором содержится его исходный код) в другую директорию backup в вашем домашнем каталоге. При этом файл должен архивироваться одним из архиваторов на выбор zip, bzip2 или tar. Способ использования команд архивации необходимо узнать, изучив справку.

```
TAR(1)                                GNU TAR Manual                                TAR(1)

NAME
    tar - an archiving utility

SYNOPSIS
    Traditional usage
    tar (A|c|d|r|t|u|x)[GnSkUNOmpsMBiajJzZpLRvwo] [ARG...]

    UNIX-style usage
    tar -A [OPTIONS] ARCHIVE ARCHIVE

[parallels@ahmed ~]$ man tar
[parallels@ahmed ~]$ mkdir backup
mkdir: cannot create directory 'backup': File exists
[parallels@ahmed ~]$ ls
abcl  australia  conf.txt  Documents  feathers  fire.txt  gitflow  may  Music  parentdir  play  reports  Templates  Videos
abs  backup    Desktop  Downloads  file.txt  fontconfig  lab06  monthly  my_os  Pictures  Public  ski.places  tutorial  work
[parallels@ahmed ~]$ vi lab101
[parallels@ahmed ~]$ ls -l
total 16
-rw-r--r--. 1 parallels parallels 0 Jun 25 21:59 abcl
drwxrwxr-x. 1 parallels parallels 0 Jun 13 20:41 abs
drwxr--r--. 1 parallels parallels 0 Jun 26 00:08 australia
drwxrwxr-x. 1 parallels parallels 0 Jun 26 18:09 backup
-rw-rw-r--. 1 parallels parallels 1416 Jun 26 13:54 conf.txt
drwxr-xr-x. 1 parallels parallels 106 Jun 25 17:49 Desktop
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Documents
drwxr-xr-x. 1 parallels parallels 190 Jun 19 11:50 Downloads
-rw-rw-r--. 1 parallels parallels 0 Jun 26 00:09 feathers
-rw-rw-r--. 1 parallels parallels 3071 Jun 26 13:52 file.txt
-rw-rw-r--. 1 parallels parallels 2715 Jun 26 13:52 fire.txt
drwxr-xr-x. 1 parallels parallels 3690 Jun 13 21:35 fontconfig
drwxr-xr-x. 1 root root 454 Jun 23 20:27 gitflow
drwxrwxr-x. 1 parallels parallels 34 Jun 14 11:42 lab06
-rw-rw-r--. 1 parallels parallels 50 Jun 26 18:30 lab101
-rw-rw-r--. 1 parallels parallels 0 Jun 25 23:08 may
drwx-wx-x. 1 parallels parallels 24 Jun 25 22:01 monthly
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Music
-r-xr--r--. 1 parallels parallels 0 Jun 26 00:09 my_os
drwxrwxr-x. 1 parallels parallels 30 Jun 13 20:36 parentdir
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Pictures
drwx--x--x. 1 parallels parallels 26 Jun 26 00:48 play
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Public
drwxrwxr-x. 1 parallels parallels 20 Jun 25 22:14 reports
drwxrwxr-x. 1 parallels parallels 28 Jun 26 00:06 ski.places
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Templates
drwxrwxr-x. 1 parallels parallels 8 Jun 23 15:07 tutorial
drwxr-xr-x. 1 parallels parallels 0 Jul 29 2021 Videos
drwxrwxr-x. 1 parallels parallels 10 Jun 24 20:34 work
[parallels@ahmed ~]$ chmod +x lab101
[parallels@ahmed ~]$ ./lab101
[parallels@ahmed ~]$ ls backup
lab101.tar
[parallels@ahmed ~]$
```

2. Написать пример командного файла, обрабатывающего любое произвольное число аргументов командной строки, в том числе *превышающее* десять. Например, скрипт может последовательно распечатывать значения всех p

```
lab101.tar
[parallels@ahmed ~]$ emacs lab102
[parallels@ahmed ~]$ chmod +x lab102
[parallels@ahmed ~]$ ./lab102 33 8 84 20 8 04 02 003 84 0
1: 33
2: 8
3: 84
4: 20
5: 8
6: 04
7: 02
8: 003
9: 84
10: 0
[parallels@ahmed ~]$
```

ереданных аргументов.

3. Написать командный файл—аналог команды `ls` (без использования самой этой команды и команды `dir`). Требуется, чтобы он выдавал информацию о нужном каталоге и выводил информацию о возможностях доступа к файлам этого каталога.

```
[parallels@ahmed ~]$ emacs lab103
[parallels@ahmed ~]$ ./lab103
abclwritable
abs: is a directory
australia: is a directory
backup: is a directory
conf.txtwritable
Desktop: is a directory
Documents: is a directory
Downloads: is a directory
featherswritable
file.txtwritable
fire.txtwritable
fontconfig: is a directory
gitflow: is a directory
lab06: is a directory
lab101writable
lab102writable
lab103writable
lab103~writable
maywritable
monthly: is a directory
Music: is a directory
my_os./lab103: line 7: est: command not found
neither readable nor writable
parentdir: is a directory
Pictures: is a directory
play: is a directory
Public: is a directory
reports: is a directory
ski.places: is a directory
Templates: is a directory
tutorial: is a directory
Videos: is a directory
work: is a directory
[parallels@ahmed ~]$
```

4. Написать командный файл, который получает в качестве аргумента командной строки формат файла (.txt, .doc, .jpg, .pdf и т.д.) и вычисляет количество таких файлов в указанной директории. Путь к директории также передаётся в виде аргумента командной строки.

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```
backup: is a directory
conf.txtwritable
Desktop: is a directory
Documents: is a directory
Downloads: is a directory
featherswritable
file.txtwritable
fire.txtwritable
fontconfig: is a directory
gitflow: is a directory
lab06: is a directory
lab101writable
lab102writable
lab103writable
lab103-writable
maywritable
monthly: is a directory
Music: is a directory
my_os./lab103: line 7: est: command not found
neither readable nor writable
parentdir: is a directory
Pictures: is a directory
play: is a directory
Public: is a directory
reports: is a directory
ski.places: is a directory
Templates: is a directory
tutorial: is a directory
Videos: is a directory
work: is a directory
[parallels@ahmed ~]$ emacs lab104
[parallels@ahmed ~]$ chmod +x lab104
[parallels@ahmed ~]$ ./lab104
Input A directory
^C[parallels@ahmed ~]$ ./lab104
Input A directory
^
Input a file format
.txt
find: '~': No such file or directory
0
[parallels@ahmed ~]$ ./lab104
Input A directory
/home/ahmed
Input a file format
.txt
find: '/home/ahmed': Permission denied
0
[parallels@ahmed ~]$ ls
abc1 australia conf.txt Documents feathers fire.txt gitflow lab101 lab103 lab104 monthly my_os Pictures Public ski.places tutorial work
abs backup Desktop Downloads file.txt fontconfig lab06 lab102 lab103- may Music parentdir play reports Templates Videos
[parallels@ahmed ~]$
lab102writable
lab103writable
lab103-writable
maywritable
monthly: is a directory
Music: is a directory
my_os./lab103: line 7: est: command not found
neither readable nor writable
parentdir: is a directory
Pictures: is a directory
play: is a directory
Public: is a directory
reports: is a directory
ski.places: is a directory
Templates: is a directory
tutorial: is a directory
Videos: is a directory
work: is a directory
[parallels@ahmed ~]$ emacs lab104
[parallels@ahmed ~]$ chmod +x lab104
[parallels@ahmed ~]$ ./lab104
Input A directory
^C[parallels@ahmed ~]$ ./lab104
Input A directory
^
Input a file format
.txt
find: '~': No such file or directory
0
[parallels@ahmed ~]$ ./lab104
Input A directory
/home/ahmed
Input a file format
.txt
find: '/home/ahmed': Permission denied
0
[parallels@ahmed ~]$ ls
abc1 australia conf.txt Documents feathers fire.txt gitflow lab101 lab103 lab104 monthly my_os Pictures Public ski.places tutorial work
abs backup Desktop Downloads file.txt fontconfig lab06 lab102 lab103- may Music parentdir play reports Templates Videos
[parallels@ahmed ~]$ emacs lab104
[parallels@ahmed ~]$ ./lab104
Input A directory
/home/ahmed
Input a file format
.txt
find: '/home/ahmed': Permission denied
0
[parallels@ahmed ~]$ ls
abc1 australia conf.txt Documents feathers fire.txt gitflow lab101 lab103 lab104 may Music parentdir play reports Templates Videos
abs backup Desktop Downloads file.txt fontconfig lab06 lab102 lab103- lab104- monthly my_os Pictures Public ski.places tutorial work
[parallels@ahmed ~]$ emacs lab104
```

emacs@ahmed

File Edit Options Buffers Tools Help

echo Input A directory  
read dir  
echo Input a file format  
read format  
find \$dir -maxdepth 1 -name "\$format" -type f | w

----- lab104 All L1 (Fundamental)

Welcome to GNU Emacs, one component of the GNU/Linux operating system.

[Emacs Tutorial](#)  
[Emacs Guided Tour](#)  
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[Absence of Warranty](#)  
[Copying Conditions](#)  
[Ordering Manuals](#)

Learn basic keystroke commands  
Overview of Emacs features at gr  
View the Emacs manual using Inf  
GNU Emacs comes with ABSOLUT  
Conditions for redistributing and c  
Purchasing printed copies of man  
To quit a partially entered command, type Control-g.

This is GNU Emacs 27.2 (build 1, x86\_64-redhat-linux-gnu, G  
(17.4)  
of 2021-08-07  
Copyright (C) 2021 Free Software Foundation, Inc.

An auto-save file list was found. If an Emacs session crashe  
type M-x recover-session RET to recover the files you were e  
[Dismiss this startup screen](#) ☐ Never show it again.

Usage: GNU Emacs All L3 (Fundamental)

For information about GNU Emacs and the GNU system