

# Операционные системы

Командная оболочка Midnight Commander

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## Цели и задачи работы

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Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

- 1 Изучить возможности Midnight Commander
- 2 Изучить редактор Midnight Commander

## Процесс выполнения лабораторной работы

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# Работа с Midnight Commander

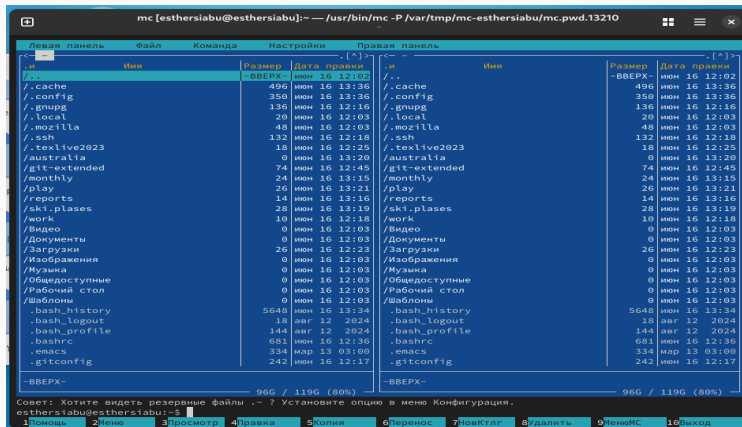


Рис. 1: Запуск mc

# Работа с Midnight Commander

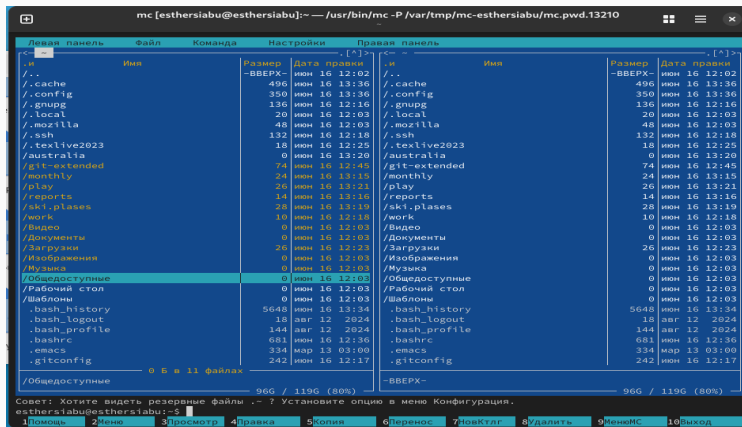


Рис. 2: Выделение

# Работа с Midnight Commander

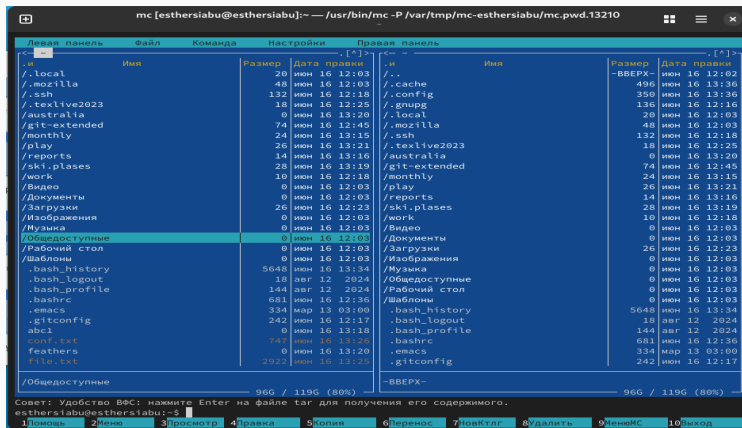


Рис. 3: Отмена



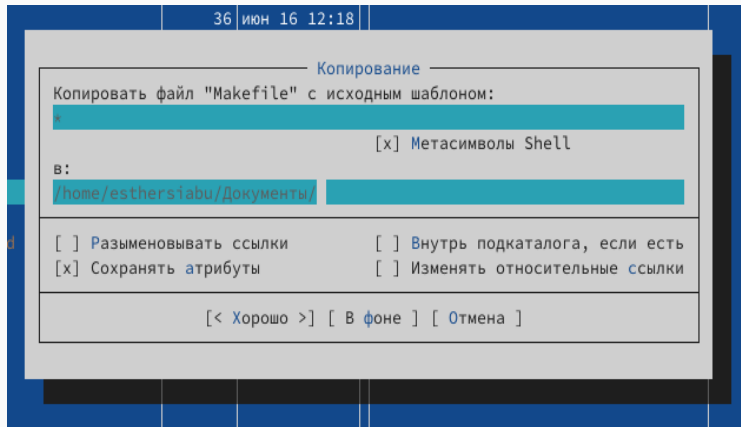


Рис. 4: Копирование

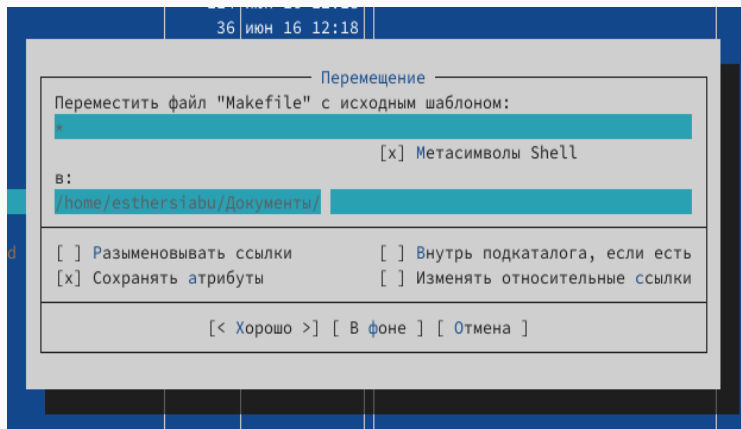


Рис. 5: Перемещение

# Работа с Midnight Commander

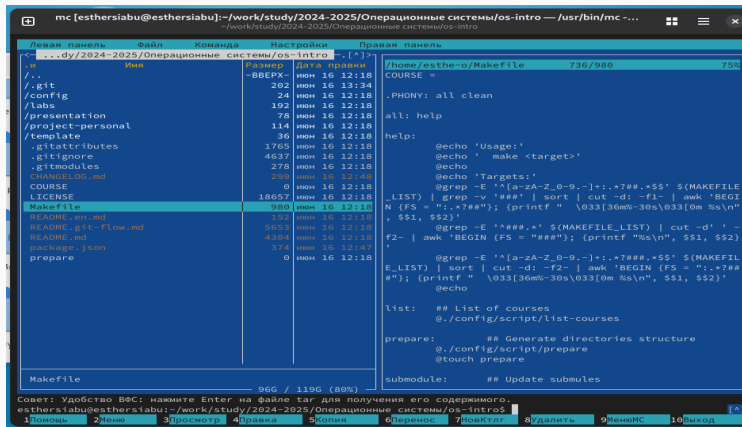


Рис. 6: Информация

# Работа с Midnight Commander

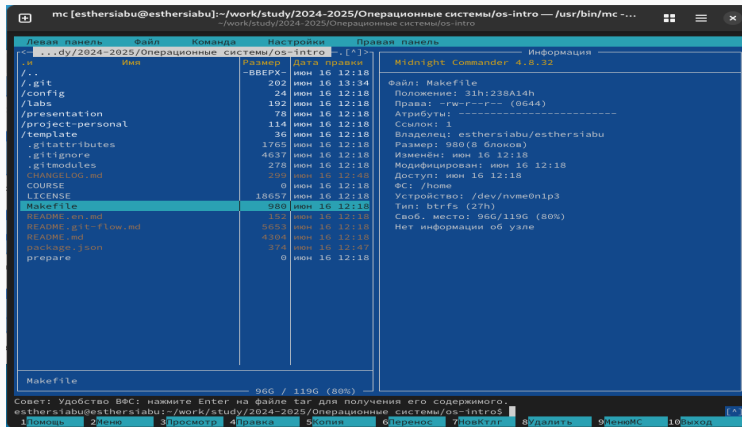


Рис. 7: Быстрый просмотр

# Работа с Midnight Commander

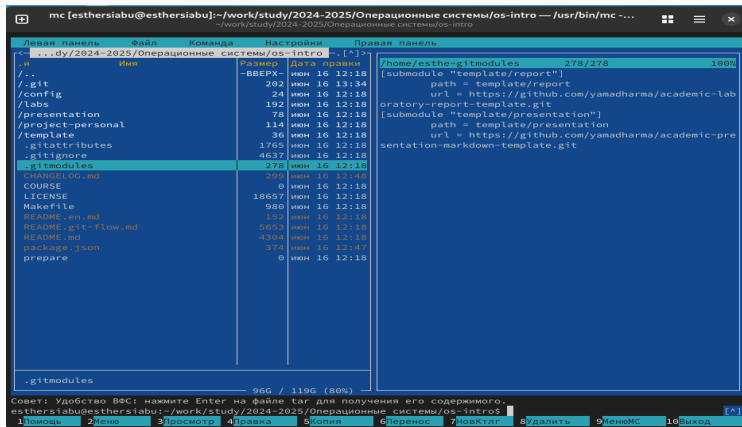


Рис. 8: Информация

# Работа с Midnight Commander

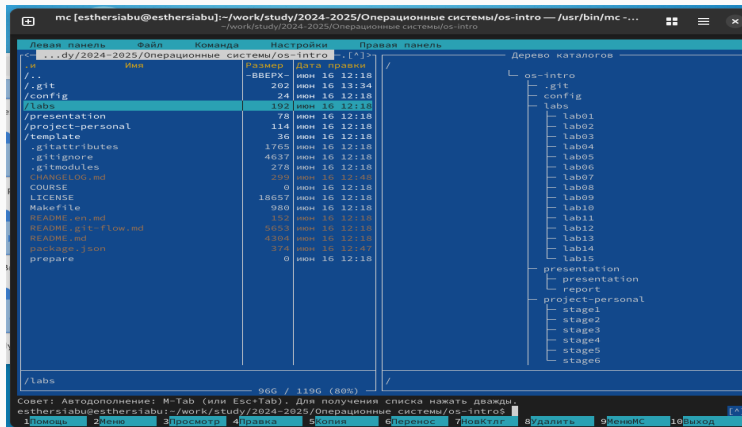
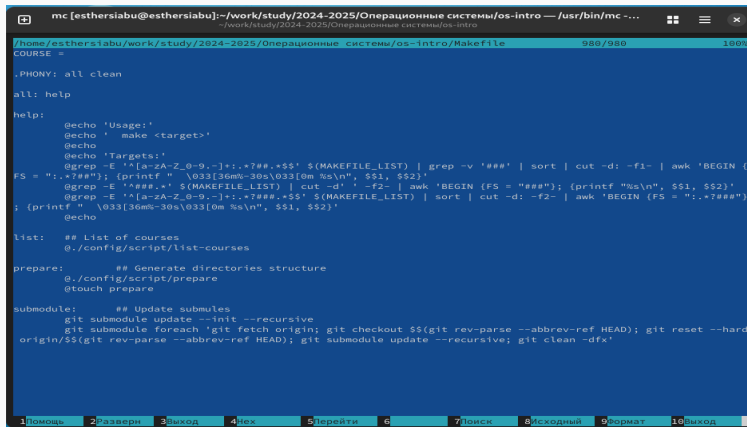


Рис. 9: Дерево каталогов

# Работа с Midnight Commander



The screenshot shows the Midnight Commander (MC) interface. The title bar indicates the user is 'mc [esthersiahu@esthersiahu]:~/work/study/2024-2025/Операционные системы/os-intro'. The main window displays the contents of a file named 'Makefile' located at '/home/esthersiahu/work/study/2024-2025/Операционные системы/os-intro/Makefile'. The file content is as follows:

```
COURSE =

.PHONY: all clean

all: help

help:
    @echo 'Usage:'
    @echo '  make <target>'
    @echo
    @echo 'Targets:'
    @grep -E '^ [a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | grep -v '###' | sort | cut -d: -f1- | awk 'BEGIN {
FS = ".*?##"; {printf " \033[36m%-30s\033[0m %s\n", $$1, $$2}'
    @grep -E '^###.*' $(MAKEFILE_LIST) | cut -d' ' -f2- | awk 'BEGIN {FS = "###"; {printf "%s\n", $$1, $$2}'
    @grep -E '^ [a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | sort | cut -d: -f2- | awk 'BEGIN {FS = ".*?##";
; {printf " \033[36m%-30s\033[0m %s\n", $$1, $$2}'
    @echo

list:  ## List of courses
    @./config/script/list-courses

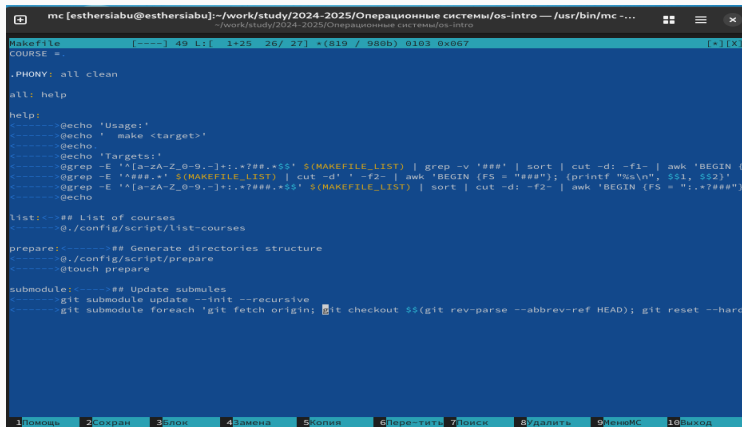
prepare:  ## Generate directories structure
    @./config/script/prepare
    @touch prepare

submodule:  ## Update submodules
    git submodule update --init --recursive
    git submodule foreach 'git fetch origin; git checkout $$ (git rev-parse --abbrev-ref HEAD); git reset --hard
origin/$$(git rev-parse --abbrev-ref HEAD); git submodule update --recursive; git clean -dfx'
```

At the bottom of the window, there is a navigation bar with buttons labeled: 1Помощь, 2Разверн, 3Выход, 4Нех, 5Перейти, 6, 7Поиск, 8Исходный, 9Формат, 10Выход.

Рис. 10: Просмотр содержимого текстового файла

# Работа с Midnight Commander



```
mc [estherslabu@estherslabu]:~/work/study/2024-2025/Операционные системы/os-intro — /usr/bin/mc -...
~/.work/study/2024-2025/Операционные системы/os-intro

Makefile [----] 49 L: [ 1+25 26/ 27] *(819 / 980b) 0103 0x067 [*][X]
COURSE =.

.PHONY: all clean

all: help

help:
----->@echo 'Usage:'
----->@echo ' make <target>'
----->@echo
----->@echo 'Targets:'
----->@grep -E '^[a-zA-Z_0-9.-]+:.*?##.*$$' $(MAKEFILE_LIST) | grep -v '###' | sort | cut -d: -f1- | awk 'BEGIN {
----->@grep -E '###.*' $(MAKEFILE_LIST) | cut -d' ' -f2- | awk 'BEGIN {FS = "###"; {printf "%s\n", $$1, $$2}}'
----->@grep -E '^[a-zA-Z_0-9.-]+:.*?##.*$$' $(MAKEFILE_LIST) | sort | cut -d: -f2- | awk 'BEGIN {FS = ".*?##"}'
----->@echo

list:<--## List of courses
----->@./config/script/list-courses

prepare:<-----## Generate directories structure
----->@./config/script/prepare
----->@touch prepare

submodule:<-----## Update submules
----->git submodule update --init --recursive
----->git submodule foreach 'git fetch origin; git checkout $$ (git rev-parse --abbrev-ref HEAD); git reset --hard
```

1 Помощь 2 Сохран 3 Блок 4 Замена 5 Копия 6 Пере-титл 7 Поиск 8 Удалить 9 МенюМС 10 Выход

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов



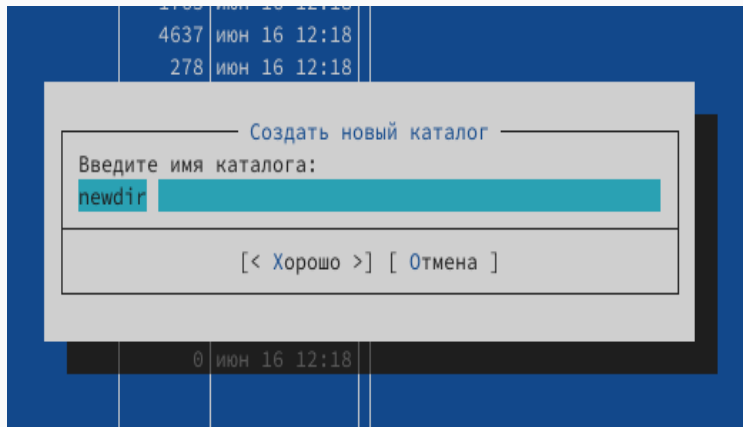


Рис. 12: Создание каталога

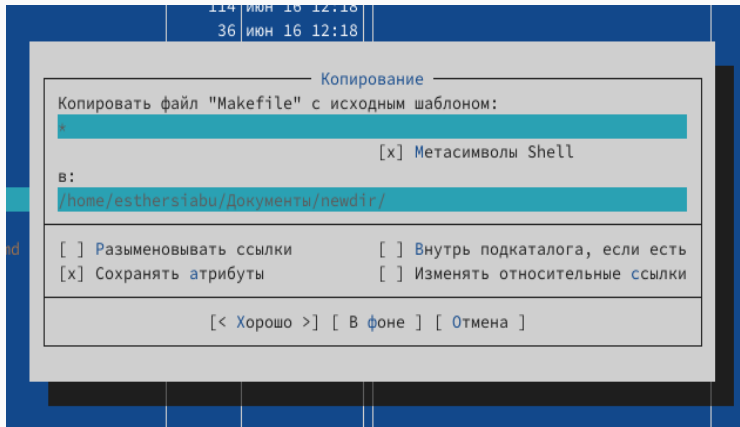


Рис. 13: Копирование в файлов в созданный каталог

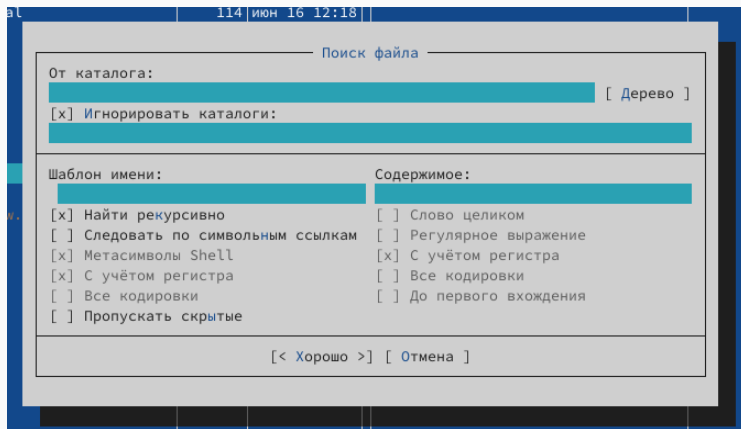


Рис. 14: Поиск файлов

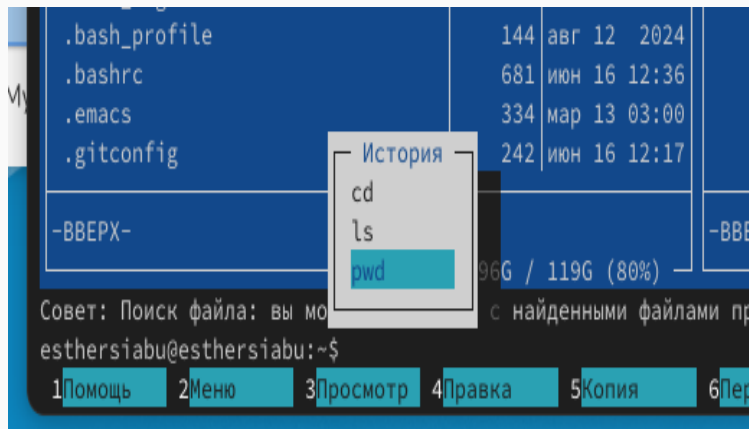


Рис. 15: История команд

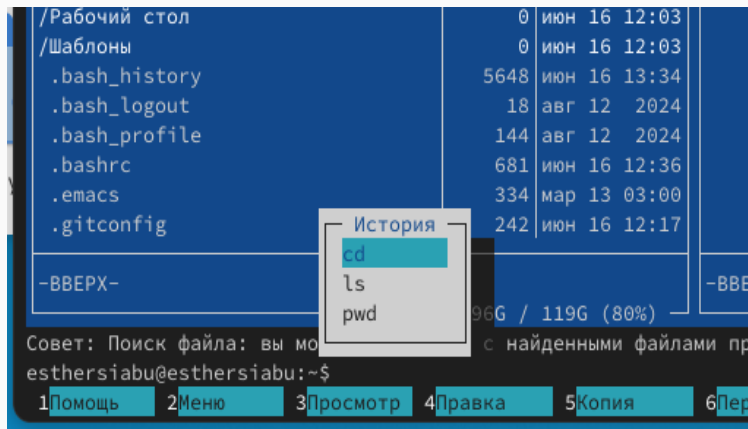


Рис. 16: Переход в домашний каталог



```
mc.ext.ini [----] 0 L:[ 1+ 0 1/1136]*(0 /26909b) 0035 0x023 [*][X]
# Midnight Commander 4.0 extension file

# Warning: The structure of this file has been completely changed with the version 4.0!
#
# All lines starting with # or empty lines are ignored.
#
# IMPORTANT: mc scans this file only upon first use or after editing it using the
# mc "Edit extension file" command (F9-c-e). If you edit this file in any other way
# while mc is running, you will need to press F9-c-e and exit the editor for your
# changes to take effect, or exit mc and start it again.
#
# Section name can be anything with following exceptions:
#   there are two reserved section names:
#       mc.ext.ini
#       Default
#   special name pattern:
#       Include/xxxxx
# See below for more details.
#
# Section [mc.ext.ini] is mandatory. It contains file metadata.
# "Version" parameter is mandatory. It contains the file format version.
#
# Section [Default] is optional. It is applied only if no other match was found.
#
# Sections like [Include/xxxx] can be referenced as "Include=xxxx" from other sections.
# Section [Include/xxxx] can be located as before as after sections that point to it.
#
# Sections are processed from top to bottom, thus the order is important.
# If there are more than one sections with the same name in this file, the first
# section will be used.
#
# [Default] should be a catch-all action and come last.
```

Рис. 17: Просмотр файла расширений

A screenshot of the Midnight Commander file manager's menu system. The window has a title bar with standard Linux window controls and a menu bar with 'File', 'Edit', 'View', 'Goto', 'Tools', 'Options', and 'Help'. The 'File' menu is open, displaying a list of options. At the top, it shows 'shell\_patterns=0'. The menu items include: '#####' (separator), '%%' (The % character), '%f' (The current file), '%p' (The current file), '%d' (The current working directory), '%s' (Selected files), '%t' (Tagged files), '%u' (Tagged files), '%view' (Runs the commands), '%!' (If %view is followed by keywords), '%a' (ascii, hex, nroff and uniform), '%I' (If the format letter is in uppercase), '%n' (With a number followed the % character), '%f' (quote expanded macro), '%!f' (ditto), '%!f' (don't quote expanded macro), '#####' (separator), '+ ! t t' (Do something on the current file), '@' (CMD={Enter command}), '\$CMD %f', '+ t t' (Do something on the tagged files), '@' (CMD={Enter command}), 'for i in %t ; do'. At the bottom, a status bar shows numbered shortcuts: 1.Помощь, 2.Сохранить, 3.Блок, 4.Замена, 5.Копия, 6.Перем-тить, 7.Поиск, 8.Удалить, 9.МенюМС, 10.Выход.

```
menu [=====] 1 L: [ 1*16 17/370] *(732 /11821b) 0010 0x00A [ * ] [ X ]
shell_patterns=0

#####
# %% The % character
# %f The current file (if non-local vfs, file will be copied locally and
# %p The current file
# %d The current working directory
# %s "Selected files"; the tagged files if any, otherwise the current file
# %t Tagged files
# %u Tagged files (and they are untagged on return from expand_format)
# %view Runs the commands and pipes standard output to the view command
# %! If %view is immediately followed by '{', recognize keywords
# %a ascii, hex, nroff and uniform
#
# %I If the format letter is in uppercase, it refers to the other panel
#
# %n With a number followed the % character you can turn quoting on (default)
# and off. For example:
# %f quote expanded macro
# %!f ditto
# %!f don't quote expanded macro
#####

+ ! t t
@ Do something on the current file
  CMD={Enter command}
  $CMD %f

+ t t
@ Do something on the tagged files
  CMD={Enter command}
  for i in %t ; do
```

Рис. 18: Просмотр файла меню



Рис. 19: Конфигурация





Рис. 20: Внешний вид



Рис. 21: Настройки панелей



Рис. 22: Подтверждение

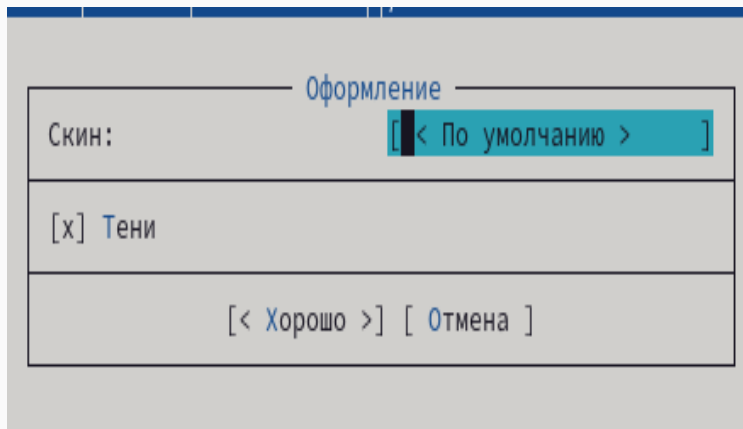


Рис. 23: Оформление



Рис. 24: Кодировка символов



Рис. 25: Распознавание клавиш



```
LICENSE      [----] 46 L:[ 1+18 19/397] *(898 /18657b) 0108 0x06C [*) (X)]
Attribution 4.0 International

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1 Помощь  2 Сохран  3 Блок  4 Замена  5 Копия  6 Пере-ить  7 Поиск  8 Удалить  9 МенюМС 10 Выход
```

Рис. 26: Файл с текстом

# Работа с редактором Midnight Commander



```
LICENSE      [-M--]  0 L:[ 1+16 17/388] *(716 /18143b) 0032 0x020      [*][X]
Attribution 4.0 International

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1Помощь 2Сохран 3Блок 4Замена 5Копия 6Пере-ить 7Поиск 8Удалить 9МенюМС 10Выход

Рис. 27: Файл с текстом



## Работа с редактором Midnight Commander



Рис. 28: Копирование фрагмента

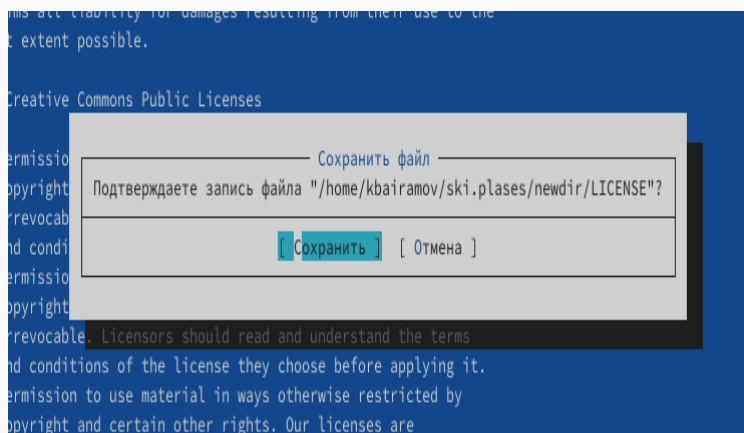
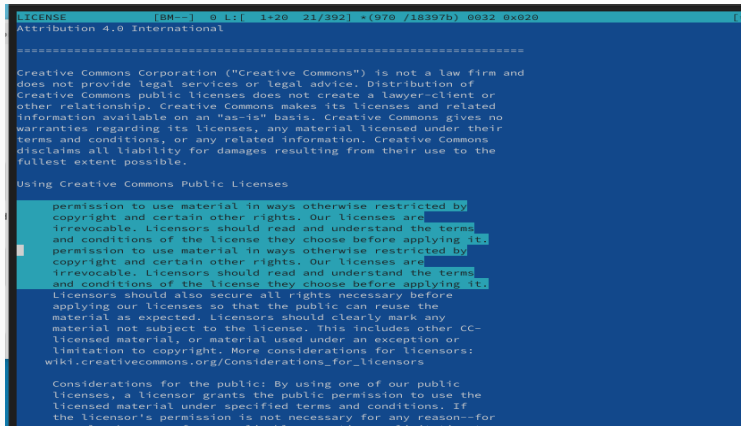


Рис. 29: Сохранение



```
LICENSE      [BM--]  0 L:[ 1+20 21/392] *(970 /18397b) 0032 0x020 [*]
Attribution 4.0 International

=====

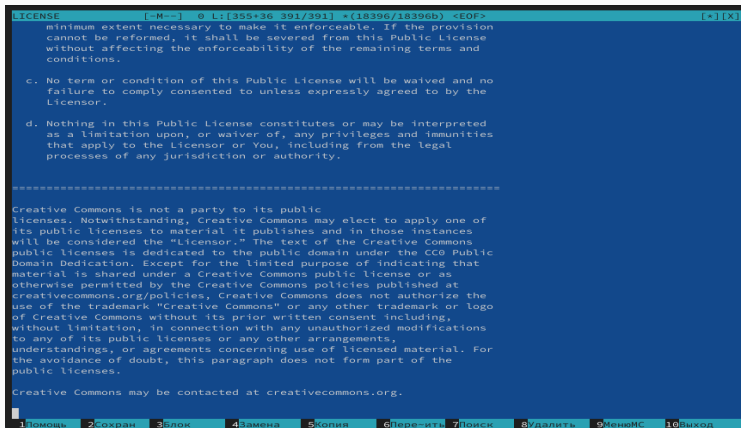
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Рис. 30: Отмена



```
LICENSE      [-M--]  0 L:[355+36 391/391] *(18396/18396b) <EOF>      [*][X]
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1Помощь 2Сохран 3Блок 4Замена 5Копия 6Пере-ить 7Поиск 8Удалить 9МенюМС 10Выход
```

Рис. 31: Переход в конец файла

## Работа с редактором Midnight Commander



```
LICENSE      [-M--] 29 L:[ 1+ 0 1/391] *(29 /18396b) 0010 0x00A      [*] [X]
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1Помощь  2Сохран  3Блок  4Замена  5Копия  6Пере-ить  7Поиск  8Удалить  9МенюМС  10Выход
```

Рис. 32: Переход в начало файла

# Работа с редактором Midnight Commander



```
orc_dump.c      [----]  0 L:[ 13+ 0  13/161] *(272 /3240b) 0105 0x069      [*][X]
1int orc_dump(const char *_objname)
{
    ----->int fd, nr_entries, i, *orc_ip = NULL, orc_size = 0;
    ----->struct orc_entry *orc = NULL;
    ----->char *name;
    ----->size_t nr_sections;
    ----->Elf64_Addr orc_ip_addr = 0;
    ----->size_t shstrtab_idx, strtab_idx = 0;
    ----->Elf *elf;
    ----->Elf_Scn *scn;
    ----->GElf_Shdr sh;
    ----->GElf_Rela rela;
    ----->GElf_Sym sym;
    ----->Elf_Data *data, *symtab = NULL, *rela_orc_ip = NULL;
    ----->struct elf dummy_elf = {};

    ----->objname = _objname;

    ----->elf_version(EV_CURRENT);

    ----->fd = open(objname, O_RDONLY);
    ----->if (fd == -1) {
    -----><----->perror("open");
    -----><----->return -1;
    ----->}

    ----->elf = elf_begin(fd, ELF_C_READ_MMAP, NULL);
    ----->if (!elf) {
    -----><----->WARN_ELF("elf_begin");
    -----><----->return -1;
    ----->}

    ----->if (!elf64_getehdr(elf)) {
    -----><----->WARN_ELF("elf64_getehdr");
    -----><----->return -1;
    ----->}

1Помощь  2Сохран  3Блок  4Замена  5Копия  6Пере-ить  7Поиск  8Удалить  9МенюМС  10Выход
```

Рис. 33: Файл с программой

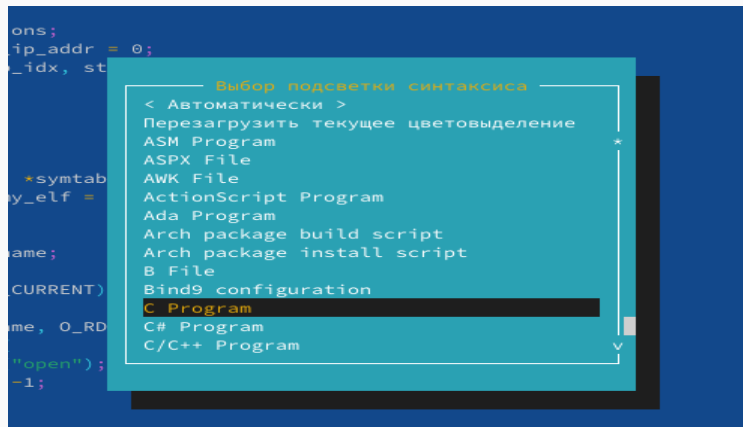


Рис. 34: Цветовыделение синтаксиса

## Выводы по проделанной работе

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В данной работе мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. А также приобрели практические навыки по управлению процессами.