№5. Midnight Commander. NASM. GNU Linux
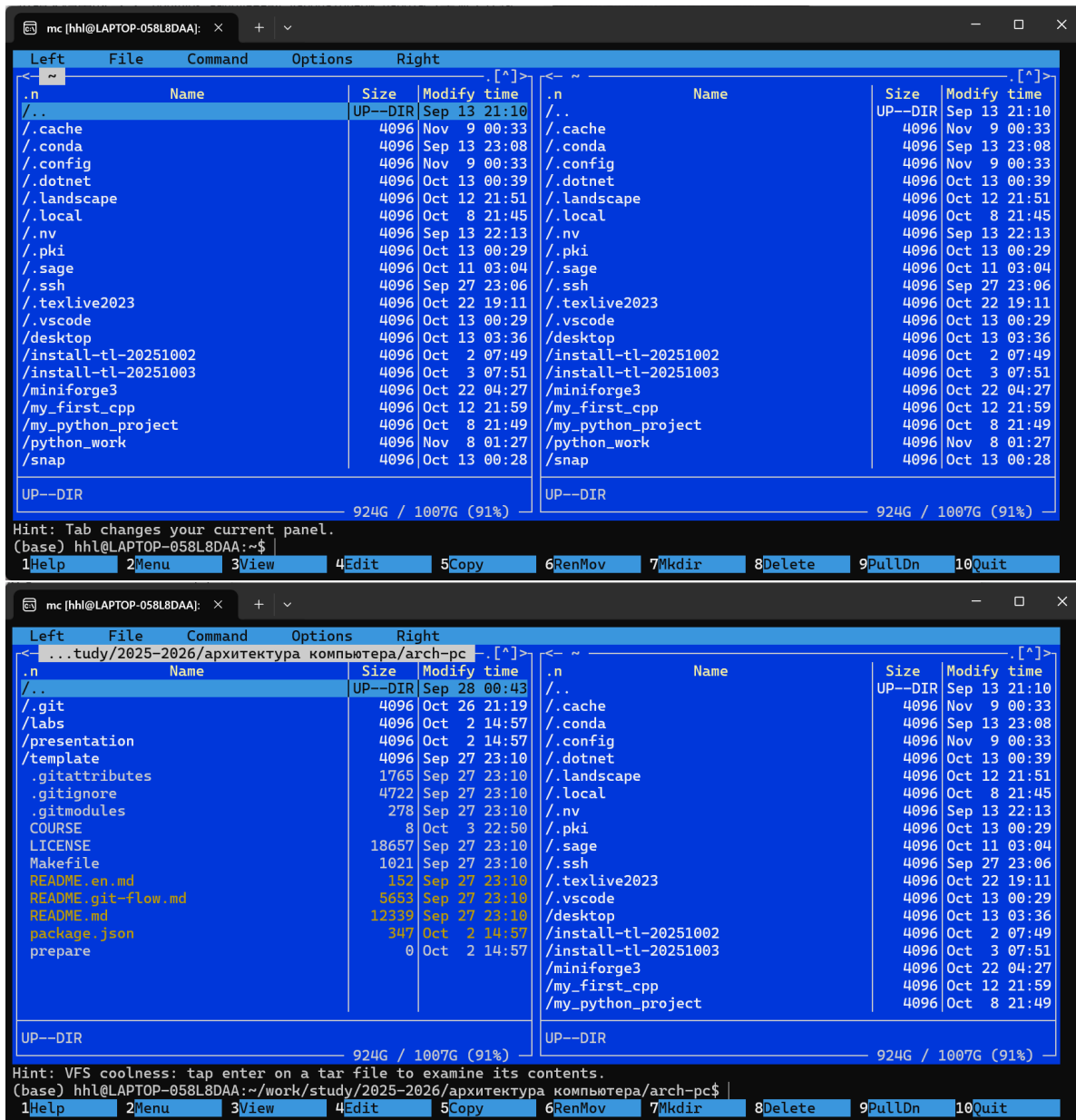
: [   ]

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: 09   2025

1.

- Midnight Commander (mc)
- NASM (`.data`, `.bss`, `.text`)
- `mov` `int`
- Linux   -   (`sys_write`, `sys_read`, `sys_exit`)
- (`in_out.asm`)

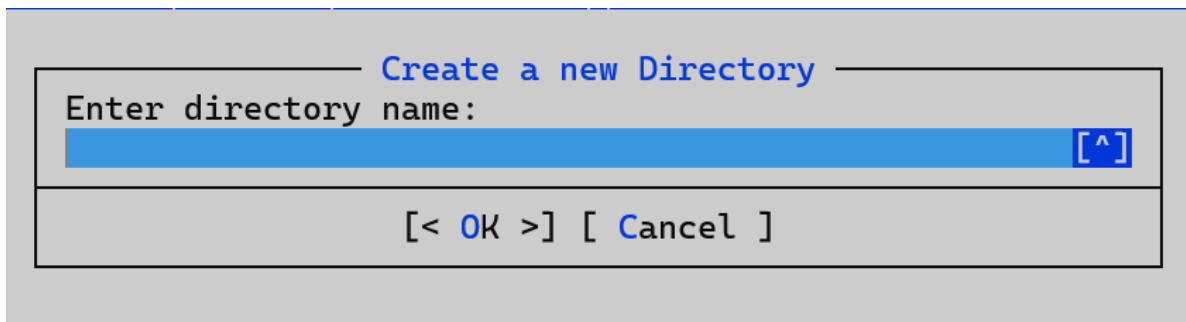# 2.

2.1   1:   MC

*   :   Midnight Commander   ~/work/arch-pc/lab05,   ,
.

2.2   2:   lab05

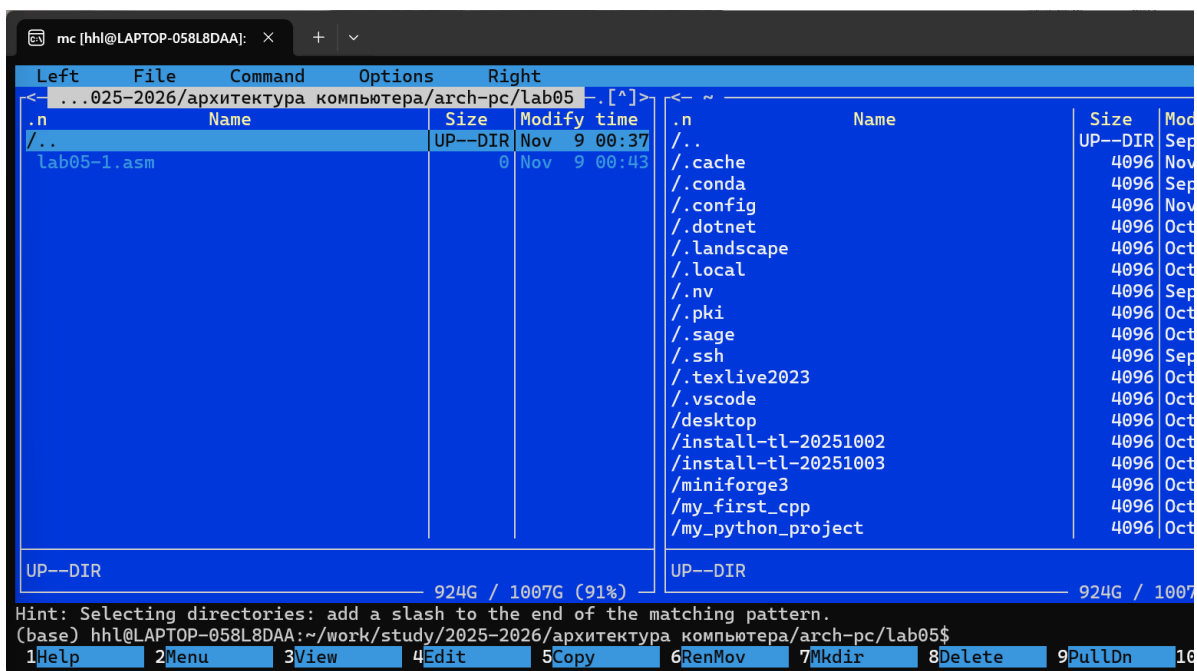*   :   F7   lab05,
      .

2.3   3:   lab05-1.asm

*   :   lab5-1.asm   lab05.

2.4   4:   lab05-1.asm

```
SECTION .data
    msg: DB 'Введите строку:',10
    msgLen: EQU $-msg

SECTION .bss
    buf1: RESB 80

SECTION .text
    GLOBAL _start
_start:

    mov  eax,4
    mov  ebx,1
    mov  ecx,msg
    mov  edx,msgLen
    int  80h

    mov  eax, 3
    mov  ebx, 0
    mov  ecx, buf1
    mov  edx, 80
    int  80h

    mov  eax,1
```
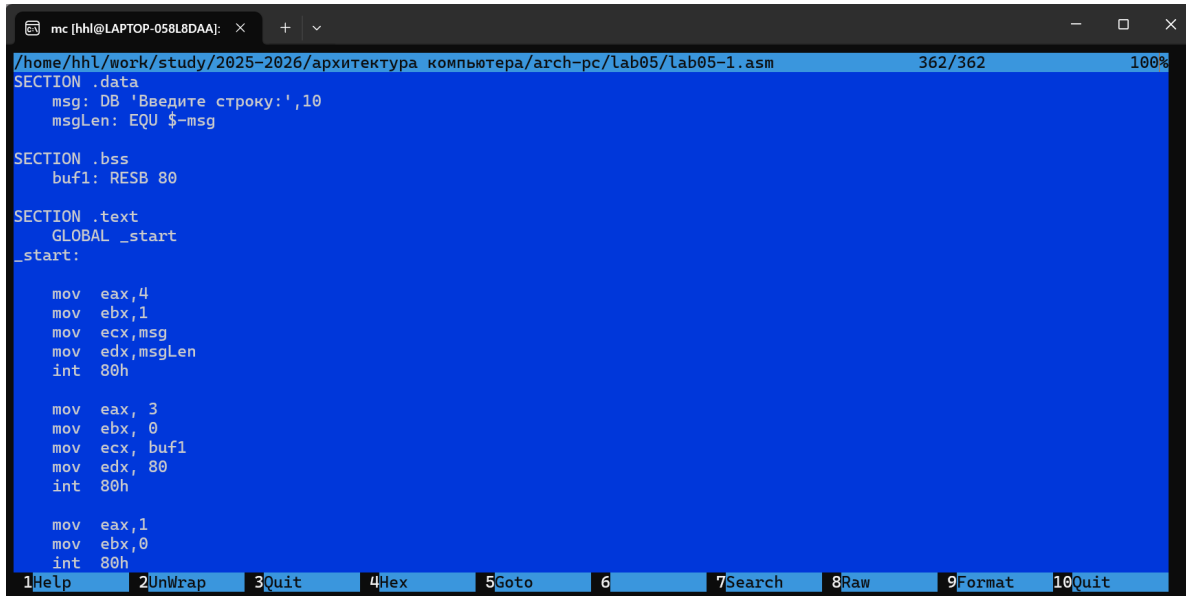
```
^G Help        ^O Write Out    ^W Where Is    ^K Cut      ^T Execute    M-U
^X Exit        ^R Read File    ^\ Replace     ^U Paste    ^J Justify    M-E
                                                          ^C Location
                                                          ^/ Go To Line
```

*   :   F4   ,   5.1,
SECTION.

4

2.5   5:   лаb05-1.asm


```
/home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-1.asm          362/362          100%
SECTION .data
    msg: DB 'Введите строку:',10
    msgLen: EQU $-msg

SECTION .bss
    buf1: RESB 80

SECTION .text
    GLOBAL _start
_start:

    mov  eax,4
    mov  ebx,1
    mov  ecx,msg
    mov  edx,msgLen
    int  80h

    mov  eax, 3
    mov  ebx, 0
    mov  ecx, buf1
    mov  edx, 80
    int  80h

    mov  eax,1
    mov  ebx,0
    int  80h
1Help      2UnWrap    3Quit      4Hex      5Goto      6          7Search    8Raw      9Format    10Quit
```
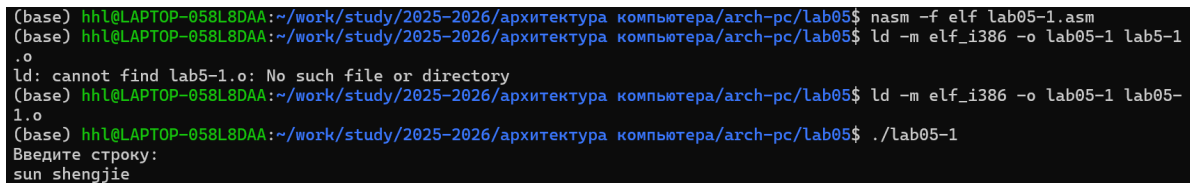
*   :   F3   ,   .
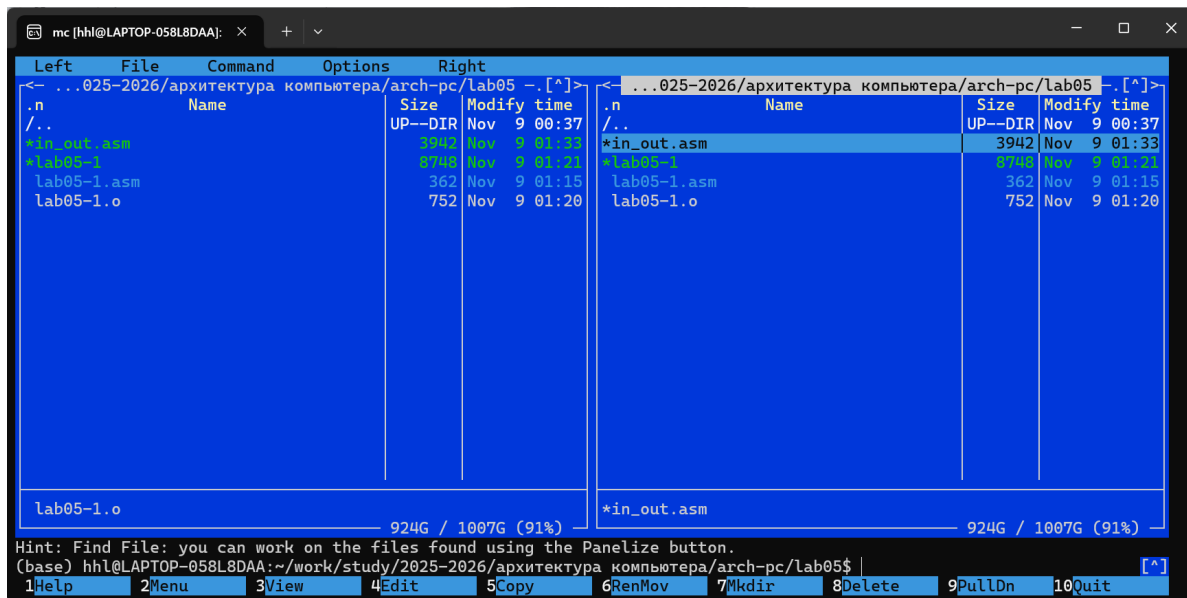
2.6   6:   ,   lab05-1.asm


```
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ nasm -f elf lab05-1.asm
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-1 lab5-1
.o
ld: cannot find lab5-1.o: No such file or directory
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-1 lab05-
1.o
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ./lab05-1
Введите строку:
sun shengjie
```

*   :   nasm -f elf lab5-1.asm, ld -m elf_i386 -o lab5-1 lab5-1.o
  ./lab5-1,   ,   .

2.7 7:   in_out.asm

*   :   Tab   ,   in_out.asm   lab05
      F5.

2.8   8:   lab05-2.asm


```
SECTION .bss
    buf1: RESB 80

SECTION .text
    GLOBAL _start
_start:

    mov eax, msg
    call sprintLF

    mov ecx, buf1
    mov edx, 80
    call sread

    call quit
```

*   :   F6   lab5-2.asm,   %include 'in_out.asm'
        call   .

2.9   9:   lab05-2.asm

```
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ nasm -f elf lab05-2.asm
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-2 lab05-
2.o
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ./lab05-2
Введите строку:
sun shengjie
```

*   :   lab5-2.asm,   .

2.10   10:   sprintLF   sprint

```
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ nasm -f elf lab05-2.asm
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-2 lab05-
2.o
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ./lab05-2
Введите строку:
sun shengjie
```

```
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ nasm -f elf lab05-2.asm
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-2 lab05-
2.o
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ./lab05-2
Введите строку: sun shengjie
```

*   : sprintLF   ,   ; sprint
                    ,   .

3.

3.1   1 & 2:   lab05-1.asm (   )

```
  GNU nano 7.2      /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-1-modified.asm *
SECTION .data
    msg: DB 'Введите строку:',10
    msgLen: EQU $-msg

    echoMsg DB 'Вы ввели: ', 0
    echoLen EQU $-echoMsg

SECTION .bss
    buf1: RESB 80
    inputLen RESD 1

SECTION .text
GLOBAL _start
_start:

    mov eax,4
    mov ebx,1
    mov ecx,msg
    mov edx,msgLen
    int 0x80

    mov eax, 3
    mov ebx, 0
    mov ecx, buf1
```

```
  GNU nano 7.2      /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-1-modified.asm *
    mov eax, 3
    mov ebx, 0
    mov ecx, buf1
    mov edx, 80
    int 0x80

    mov [inputLen], eax

    mov eax, 4
    mov ebx, 1
    mov ecx, echoMsg
    mov edx, echoLen
    int 0x80

    mov eax, 4
    mov ebx, 1
    mov ecx, buf1
    mov edx, [inputLen]
    int 0x80

    mov  eax,1
    mov  ebx,0
    int  0x80
```

```
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ nasm -f elf lab05-1-modified.asm
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ld -m elf_i386 -o lab05-1-modifi
ed lab05-1-modified.o
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$ ./lab05-1-modified
Введите строку:
sun shengjie
Вы ввели: sun shengjie
```

*   :   1,   ,

,   .

3.2   3 & 4:   lab05-2.asm (   )

*   :   2,   `in_out.asm`   ,
                    ,   .

4.

1.   **mc?**
   Midnight Commander (mc) —   ,   Unix-
          ,   (,   ,   ..)   .
                 .

2.   **bash,**   (   ) **mc?**
        .

   -         : Bash: `cp source dest` | MC: ,   F5
   -     /   : Bash: `mv old new` | MC: ,   F6
   -       : Bash: `mkdir dirname` | MC: F7
   -    : Bash: `rm filename` | MC: ,   F8
   -          : Bash: `cat filename`   `less filename` | MC: ,   F3

3.   **NASM?**
   NASM   :

   - `SECTION .data:`   (   )
   - `SECTION .bss:`   (,
)
   - `SECTION .text:`   .   —   `_start:`

4.   **bss**   **data**   **NASM?**

   -    `.data`   ,   ,
             (,   ,   ,   )
   -    `.bss`   ,   ,
           ,   (,   ,
)

5.   **db, dw, dd, dq**   **dt**   **NASM?**
             ,   `.data`   :

   - `db` (Define Byte):   1
   - `dw` (Define Word):   2
   - `dd` (Define Doubleword):   4
   - `dq` (Define Quadword):   8
   - `dt` (Define Ten Bytes):   10

6. **mov eax, esi?**

    32-   (`esi`)   (`eax`).

`eax`   .

7. **int 80h?**

    Linux   `int 0x80`

    Linux (   ).   `eax`,   `ebx, ecx, edx`

   ..,   `int 0x80`,   ,   ,   ,

      .

5.

                           :

1. **Midnight Commander:**   ,

      (F7),   (F4),   (F3),   (F5)   .

2.   **NASM:**   ,

        .

3.   :   `sys_write, sys_read  sys_exit`

     - .

4.   :   `%include`   ,

      .

5.   :   `sread`   `in_out.asm,`

      .

      :   .   mc,   NASM,

           .

        .