

## №5. NASM.

## Midnight Commander. GNU Linux

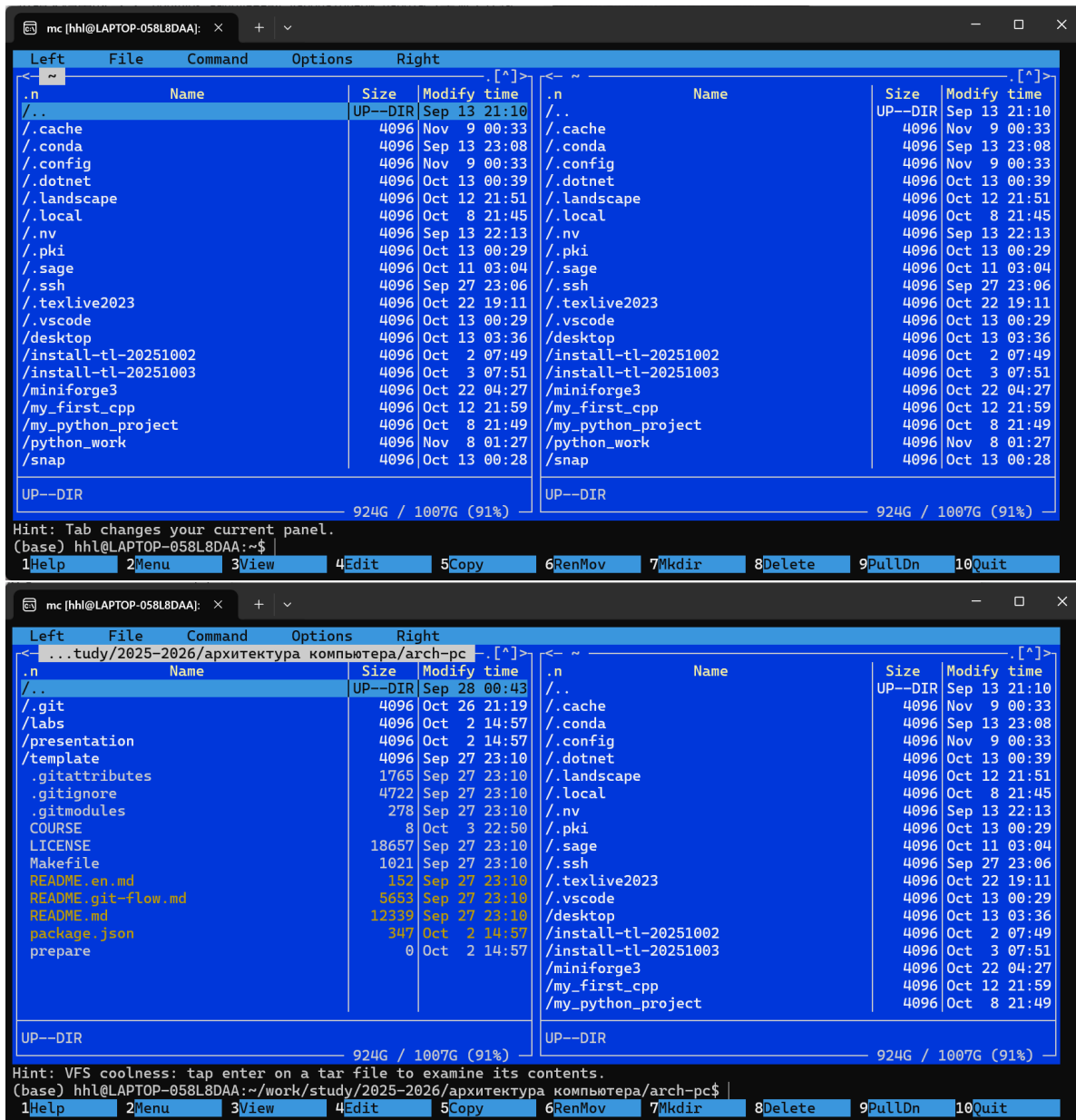
```
: [      ]
      : [1132254527]
: 09      2025
```

### 1.

- Midnight Commander (mc)
- NASM (.data, .bss, .text)
- mov int
- Linux - (sys\_write, sys\_read, sys\_exit)
- (in\_out.asm)

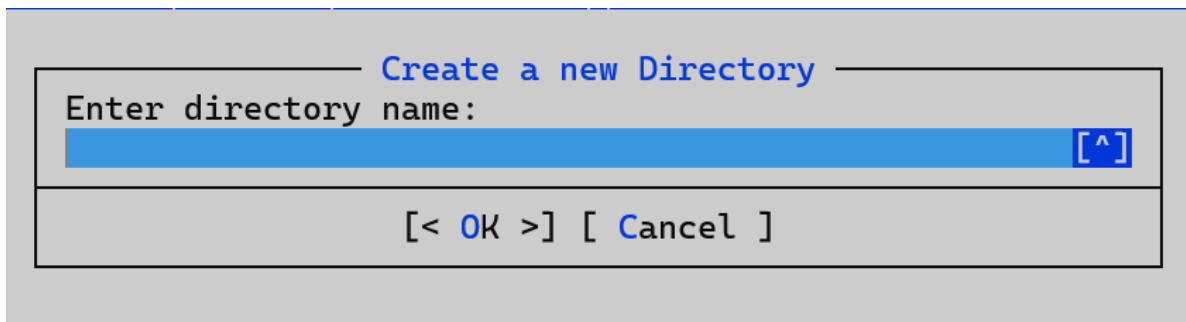
2.

## 2.1 1: MC



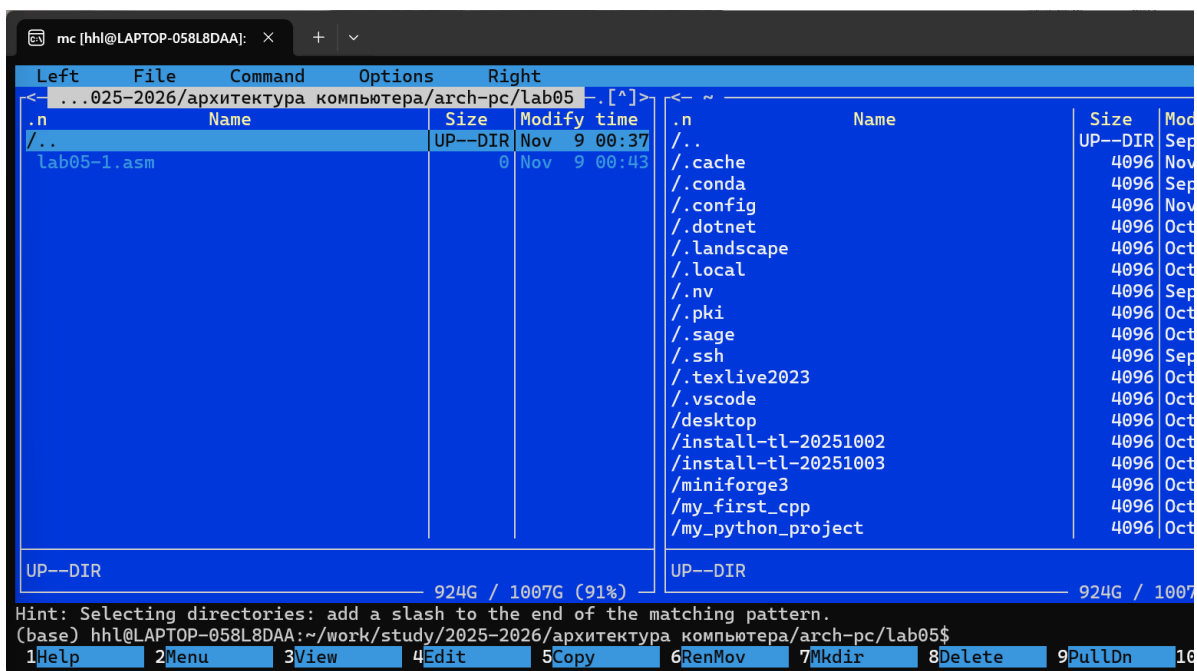
\* : Midnight Commander ~/work/arch-pc/lab05, ,

## 2.2 2: lab05



\* : F7 lab05,

## 2.3 3: lab05-1.asm



\* : lab5-1.asm lab05.

## 2.4 4: lab05-1.asm

```
mc [hhl@LAPTOP-058L8DAA]: × + v
GNU nano 7.2 /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/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

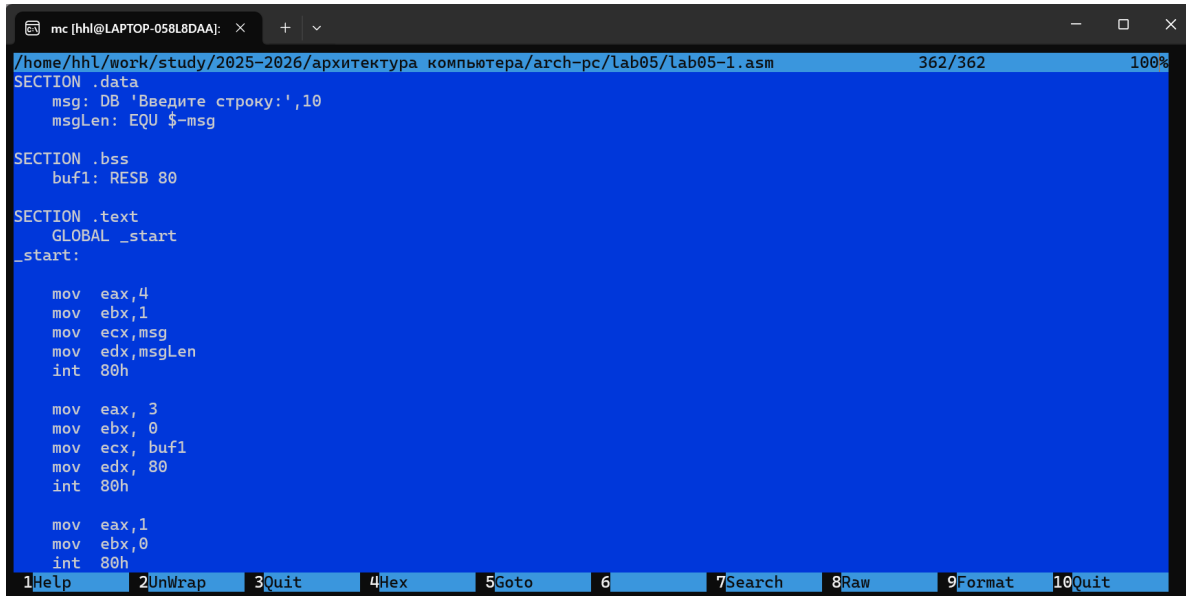
    mov     eax,3
    mov     ebx,0
    mov     ecx,buf1
    mov     edx,80
    int     80h

    mov     eax,1

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

\* : F4 , 5.1,  
SECTION.

## 2.5 5: lab05-1.asm



```
mc [hhl@LAPTOP-058L8DAA]: x + v
/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:

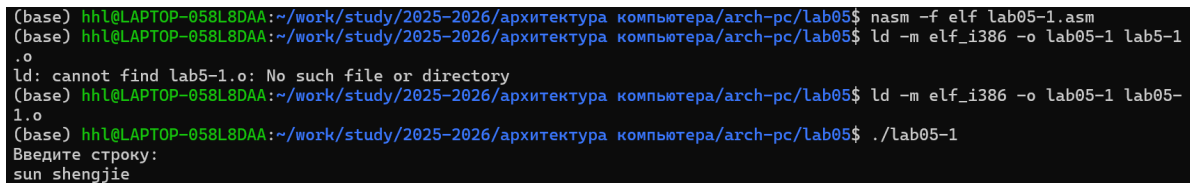
    mov     eax,4
    mov     ebx,1
    mov     ecx,msg
    mov     edx,msgLen
    int     80h

    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 , .

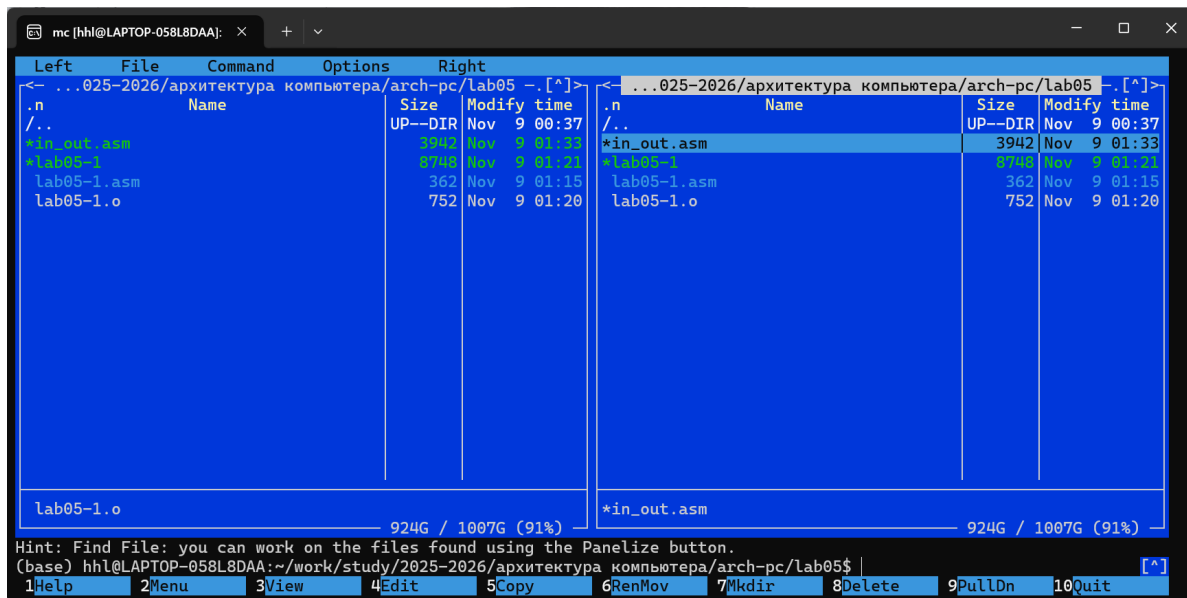
## 2.6 6: , lab05-1.asm



```
(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 lab5-1 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

```

Left      File      Command      Options      Right
<- ...025-2026/архитектура компьютера/arch-pc/lab05 --.[^]> <- ...025-2026/архитектура компьютера/arch-pc/lab05 --.[^]>
.n      Name      Size      Modify time      .n      Name      Size      Modify time
UP--DIR      UP--DIR      UP--DIR      UP--DIR
*in_out.asm      3843      Nov 9 01:37      *in_out.asm      3843      Nov 9 01:37
*lab05-1      8748      Nov 9 01:21      *lab05-1      8748      Nov 9 01:21
lab05-1.asm      362      Nov 9 01:15      lab05-1.asm      362      Nov 9 01:15
lab05-1.o      752      Nov 9 01:20      lab05-1.o      752      Nov 9 01:20
lab05-2.asm      362      Nov 9 01:15      lab05-2.asm      362      Nov 9 01:15

lab05-2.asm      924G / 1007G (91%)      *in_out.asm      924G / 1007G (91%)

Hint: Find File: you can work on the files found using the Panelize button.
(base) hhl@LAPTOP-058L8DAA:~/work/study/2025-2026/архитектура компьютера/arch-pc/lab05$
1Help 2Menu 3View 4Edit 5Copy 6RenMov 7Mkdir 8Delete 9PullDn 10Quit

GNU nano 7.2 /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-2.asm *
SECTION .bss
    buf1: RESB 80

SECTION .text
    GLOBAL _start
_start:

    mov eax, msg
    call sprintf

    mov ecx, buf1
    mov edx, 80
    call sread

    call quit

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^_ Replace    ^U Paste      ^J Justify    ^_ Go To Line M-E Redo     M-G Copy
  
```

```

*      :      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

    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

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^N Replace    ^U Paste       ^J Justify    ^/_ Go To Line M-E Redo     M-G Copy

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-modified 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 ( )

```

mc [hhl@LAPTOP-058L8DAA]: x + v
GNU nano 7.2 /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-2-modified.asm *
#include 'in_out.asm'

SECTION .data
msg: DB 'Введите строку: ', 0
echoMsg DB 'Вы ввели: ', 0

SECTION .bss
buf1: RESB 80

SECTION .text
GLOBAL _start
_start:

    mov eax, msg
    call sprintfLF

    mov ecx, buf1
    mov edx, 80
    call sread

    mov eax, echoMsg
    call sprintf

    mov eax, buf1

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo     M-G Copy

mc [hhl@LAPTOP-058L8DAA]: x + v
GNU nano 7.2 /home/hhl/work/study/2025-2026/архитектура компьютера/arch-pc/lab05/lab05-2-modified.asm *
echoMsg DB 'Вы ввели: ', 0

SECTION .bss
buf1: RESB 80

SECTION .text
GLOBAL _start
_start:

    mov eax, msg
    call sprintfLF

    mov ecx, buf1
    mov edx, 80
    call sread

    mov eax, echoMsg
    call sprintf

    mov eax, buf1
    call sprintfLf

    call quit

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo     M-G Copy

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

```

```
*      :                                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 (    ).
    ..,      int 0x80,      ebx, ecx, edx
           .

```

## 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,
           .

```