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образовательное учреждение
высшего образования
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ОТЧЕТ О ЛАБОРАТОРНОЙ РАБОТЕ

Лабораторная работа No 5. Взаимодействие процессов в ОС GNU/Linux

тема

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Красноярск 2019

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1 Цель работы с постановкой задачи

1.1 Цель работы

Изучение особенностей межпроцессного взаимодействия в ОС GNU/Linux.

1.2 Задача работы

Требуется: разработать две программы: первая реализует серверную часть, вторая — клиентскую часть. Обмен данными между ними организуется посредством механизма Internet-сокетов и протокола TCP либо UDP. Результат выполнения выводится на терминал/консоль. Должен использоваться интерфейс командной строки (CLI). При реализации обязательно использование изученных в лекционном курсе системных вызовов (ОС Linux), предназначенных для работы с сокетами. Программный код, относящийся к пользовательскому интерфейсу, должен быть физически отделен от кода, реализующего межпроцессное взаимодействие, и оба они, в свою очередь, отделены от кода реализации основной логики, например, вычислений. Допускается реализация одной программы в форме Windows-приложения, авторой — в форме Linux-приложения. Далее оговаривается функционал клиентской и серверной частей. Обе части должны быть устойчивы к некорректному пользовательскому вводу. В нечетных вариантах заданий используются потоковые сокеты, в четных — дейтаграммные сокеты.

Вариант 17. Клиент отправляет серверу элементы введенной пользователем квадратной матрицы, а также два введенных им числа – номер столбца и номер строки. Сервер принимает матрицу и номер столбца N и номер строки M, выводит ее на экран, затем «вычеркивает» из матрицы столбец с номером N и

строку с номером M , выводит измененную матрицу на экран, вычисляет и выводит на экран значение ее определителя.

1.3 Описание и пояснение к работе

Используется система сборки Autotools на Linux и CMake на Windows и Linux. Используется интерфейс командной строки. Для сборки, вывода справки клиента и сервера требуется:

```
# linux, autotools, make, gcc
./configure
make
./build/Lab_05_Client -h
./build/Lab_05_Server -h

# linux, autotools, make, clang
./configure CC=clang
make
./build/Lab_05_Client -h
./build/Lab_05_Server -h

# linux, cmake, make, gcc
cd build
cmake ..
make
./Lab_05_Client/Lab_05_Client -h
./Lab_05_Server/Lab_05_Server -h

# linux, cmake, make, clang
cd build
cmake -DCMAKE_C_COMPILER=clang ..
make
./Lab_05_Client/Lab_05_Client -h
./Lab_05_Server/Lab_05_Server -h

# windows, cmake, msbuild, msvc
cd build
cmake ..
msbuild .\ALL_BUILD.vcxproj
.\Lab_05_Client\Debug\Lab_05_Client.exe -h
.\Lab_05_Server\Debug\Lab_05_Server.exe -h

# windows, cmake, mingw32-make, mingw
cd build
cmake -G "MinGW Makefiles" ..
mingw32-make
.\Lab_05_Client\Lab_05_Client.exe -h
.\Lab_05_Server\Lab_05_Server.exe -h

# windows, cmake, mingw32-make, clang
```

```
cd build
cmake -G "MinGW Makefiles" -DCMAKE_C_COMPILER=clang -DCMAKE_CXX_COMPILER=clang++ ..
mingw32-make
.\Lab_05_Client\Lab_05_Client.exe -h
.\Lab_05_Server\Lab_05_Server.exe -h
```

2 Исходные тексты программ (с комментариями в стиле системы doxygen)

Исходные тексты программ предоставлены в архиве.

3 Содержимое скрипта configure

3.1 configure

Предоставлен в архиве.

3.2 configure.ac

```
#                                     -*- Autoconf -*-
# Process this file with autoconf to produce a configure script.

AC_PREREQ([2.69])
AC_INIT([Lab_05], [0.1], [misterptits@yandex.ru])
AC_CONFIG_SRCDIR([Lab_05_Client/main.c])
#AC_CONFIG_HEADERS([config.h])

# Checks for programs.
AC_PROG_CC

# Checks for libraries.

# Checks for header files.
AC_CHECK_HEADERS([arpa/inet.h fcntl.h limits.h malloc.h netinet/in.h stddef.h stdint.h
stdlib.h string.h sys/socket.h unistd.h])

# Checks for typedefs, structures, and compiler characteristics.
AC_CHECK_HEADER_STDBOOL
AC_TYPE_SIZE_T
AC_TYPE_UINT16_T
AC_TYPE_UINT32_T

# Checks for library functions.
AC_FUNC_MALLOC
AC_FUNC_REALLOC
```

```

AC_FUNC_STRERROR_R
AC_CHECK_FUNCS([socket strchr])

AM_INIT_AUTOMAKE
AC_PROG_RANLIB

AC_CONFIG_FILES([build/Makefile
                  Makefile])
AC_OUTPUT

```

3.3 Makefile.am

```
SUBDIRS = build
```

3.4 build/Makefile.am

```

AUTOMAKE_OPTIONS = subdir-objects

noinst_LIBRARIES = libLab_05_Lib.a libLab_05_MatrixLib.a
bin_PROGRAMS = Lab_05_Client Lab_05_Server

libLab_05_MatrixLib_a_SOURCES = \
    ../Lab_05_MatrixLib/Matrix.c

libLab_05_Lib_a_SOURCES = \
    ../Lab_05_Lib/Input.c \
    ../Lab_05_Lib/ParseInt.c \
    ../Lab_05_Lib/ReturnCodes.c \
    ../Lab_05_Lib/LastErrorMessage.c \
    ../Lab_05_Lib/Request.c \
    ../Lab_05_Lib/Socket.c
libLab_05_Lib_a_CFLAGS = -I../Lab_05_MatrixLib
libLab_05_Lib_a_LIBADD = libLab_05_MatrixLib.a

Lab_05_Client_SOURCES = \
    ../Lab_05_Client/Args.c \
    ../Lab_05_Client/Client.c \
    ../Lab_05_Client/main.c
Lab_05_Client_CFLAGS = -I../Lab_05_MatrixLib -I../Lab_05_Lib
Lab_05_Client_LDADD = libLab_05_MatrixLib.a libLab_05_Lib.a

Lab_05_Server_SOURCES = \
    ../Lab_05_Server/Args.c \
    ../Lab_05_Server/Server.c \
    ../Lab_05_Server/main.c
Lab_05_Server_CFLAGS = -I../Lab_05_MatrixLib -I../Lab_05_Lib
Lab_05_Server_LDADD = libLab_05_MatrixLib.a libLab_05_Lib.a

```

4 Примеры работы программ в виде перехватов содержимого экрана

4.1 Запуск №1 (WSL Ubuntu 18.04, GCC)

4.1.1. Сборка с помощью autotools

```
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$  
./configure  
checking for gcc... gcc  
checking whether the C compiler works... yes  
checking for C compiler default output file name... a.out  
checking for suffix of executables...  
checking whether we are cross compiling... no  
checking for suffix of object files... o  
checking whether we are using the GNU C compiler... yes  
checking whether gcc accepts -g... yes  
checking for gcc option to accept ISO C89... none needed  
checking whether gcc understands -c and -o together... yes  
checking how to run the C preprocessor... gcc -E  
checking for grep that handles long lines and -e... /bin/grep  
checking for egrep... /bin/grep -E  
checking for ANSI C header files... yes  
checking for sys/types.h... yes  
checking for sys/stat.h... yes  
checking for stdlib.h... yes  
checking for string.h... yes  
checking for memory.h... yes  
checking for strings.h... yes  
checking for inttypes.h... yes  
checking for stdint.h... yes  
checking for unistd.h... yes  
checking arpa/inet.h usability... yes  
checking arpa/inet.h presence... yes  
checking for arpa/inet.h... yes  
checking fcntl.h usability... yes  
checking fcntl.h presence... yes  
checking for fcntl.h... yes  
checking limits.h usability... yes  
checking limits.h presence... yes  
checking for limits.h... yes  
checking malloc.h usability... yes  
checking malloc.h presence... yes  
checking for malloc.h... yes  
checking netinet/in.h usability... yes  
checking netinet/in.h presence... yes  
checking for netinet/in.h... yes  
checking stddef.h usability... yes  
checking stddef.h presence... yes  
checking for stddef.h... yes  
checking for stdint.h... (cached) yes  
checking for stdlib.h... (cached) yes  
checking for string.h... (cached) yes  
checking sys/socket.h usability... yes  
checking sys/socket.h presence... yes  
checking for sys/socket.h... yes  
checking for unistd.h... (cached) yes  
checking for stdbool.h that conforms to C99... yes
```



```

checking for _Bool... yes
checking for size_t... yes
checking for uint16_t... yes
checking for uint32_t... yes
checking for stdlib.h... (cached) yes
checking for GNU libc compatible malloc... yes
checking for stdlib.h... (cached) yes
checking for GNU libc compatible realloc... yes
checking whether strerror_r is declared... yes
checking for strerror_r... yes
checking whether strerror_r returns char *... no
checking for socket... yes
checking for strchr... yes
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking for style of include used by make... GNU
checking whether make supports nested variables... yes
checking dependency style of gcc... gcc3
checking for ranlib... ranlib
checking that generated files are newer than configure... done
configure: creating ./config.status
config.status: creating build/Makefile
config.status: creating Makefile
config.status: executing depfiles commands
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$ make
Making all in build
make[1]: Entering directory '/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05/build'
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_INET
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-Input.o -MD -MP
-MF ../Lab_05_Lib/.deps/libLab_
05_Lib_a-Input.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-Input.o `test -f '../Lab_05_Lib/Input.c'
|| echo '../Lab_05_Lib/Input
.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Input.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-Input.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_INET
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO

```

```

N="\0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-ParseInt.o -MD -
MP -MF ../Lab_05_Lib/.deps/libL
ab_05_Lib_a-ParseInt.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-ParseInt.o `test -f
'../Lab_05_Lib/ParseInt.c' || echo './'`../Lab_
05_Lib/ParseInt.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-ParseInt.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ParseInt.Po
gcc -DPACKAGE_NAME="\Lab_05\" -DPACKAGE_TARNAME="\lab_05\" -DPACKAGE_VERSION="\0.1\" -
DPACKAGE_STRING="\Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="\misterptits@yandex.ru\" -DPACKAGE_URL="\\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="\lab_05\" -DVERSIO
N="\0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-ReturnCodes.o -
MD -MP -MF ../Lab_05_Lib/.deps/l
ibLab_05_Lib_a-ReturnCodes.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-ReturnCodes.o `test -f
'../Lab_05_Lib/ReturnCodes.c' || echo
'./'`../Lab_05_Lib/ReturnCodes.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-ReturnCodes.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ReturnCodes.Po
gcc -DPACKAGE_NAME="\Lab_05\" -DPACKAGE_TARNAME="\lab_05\" -DPACKAGE_VERSION="\0.1\" -
DPACKAGE_STRING="\Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="\misterptits@yandex.ru\" -DPACKAGE_URL="\\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="\lab_05\" -DVERSIO
N="\0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-
LastErrorMessage.o -MD -MP -MF ../Lab_05_Lib/.d
eps/libLab_05_Lib_a-LastErrorMessage.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-LastErrorMessage.o
`test -f '../Lab_05_Lib/LastErro
rMessage.c' || echo './'`../Lab_05_Lib/LastErrorMessage.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-LastErrorMessage.Tpo
../Lab_05_Lib/.deps/libLab_05_Lib_a-LastErrorMessage.Po
gcc -DPACKAGE_NAME="\Lab_05\" -DPACKAGE_TARNAME="\lab_05\" -DPACKAGE_VERSION="\0.1\" -
DPACKAGE_STRING="\Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="\misterptits@yandex.ru\" -DPACKAGE_URL="\\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="\lab_05\" -DVERSIO
N="\0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-Request.o -MD -
MP -MF ../Lab_05_Lib/.deps/libLa
b_05_Lib_a-Request.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-Request.o `test -f

```

```

'../Lab_05_Lib/Request.c' || echo './'`../Lab_05_L
ib/Request.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Request.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
Request.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT ../Lab_05_Lib/libLab_05_Lib_a-Socket.o -MD -MP
-MF ../Lab_05_Lib/.deps/libLab
_05_Lib_a-Socket.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-Socket.o `test -f
'../Lab_05_Lib/Socket.c' || echo './'`../Lab_05_Lib/S
ocket.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Socket.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
Socket.Po
debase=`echo ../Lab_05_MatrixLib/Matrix.o | sed 's|[/]*$|.deps/&;s|\\.o$||'`;\\
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -g -O2 -MT ../Lab_05_MatrixLib/Matrix.o -MD -MP -MF $debase.Tpo -c -o
../Lab_05_MatrixLib/Matrix.o ../Lab_05_
MatrixLib/Matrix.c &&\\
mv -f $debase.Tpo $debase.Po
rm -f libLab_05_MatrixLib.a
ar cru libLab_05_MatrixLib.a ../Lab_05_MatrixLib/Matrix.o
ar: `u' modifier ignored since `D' is the default (see `U')
ranlib libLab_05_MatrixLib.a
rm -f libLab_05_Lib.a
ar cru libLab_05_Lib.a ../Lab_05_Lib/libLab_05_Lib_a-Input.o ../Lab_05_Lib/libLab_05_Lib_a-
ParseInt.o ../Lab_05_Lib/libLab_05_Li
b_a-ReturnCodes.o ../Lab_05_Lib/libLab_05_Lib_a-LastErrorMessage.o ../Lab_05_Lib/libLab_05_Lib_a-
Request.o ../Lab_05_Lib/libLab_
05_Lib_a-Socket.o libLab_05_MatrixLib.a
ar: `u' modifier ignored since `D' is the default (see `U')
ranlib libLab_05_Lib.a
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD

```

```

LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="lab_05\" -DVERSIO
N="0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Client/Lab_05_Client-
Args.o -MD -MP -MF ../Lab_05_Cl
ient/.deps/Lab_05_Client-Args.Tpo -c -o ../Lab_05_Client/Lab_05_Client-Args.o `test -f
'../Lab_05_Client/Args.c' || echo './'`..
/Lab_05_Client/Args.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-Args.Tpo ../Lab_05_Client/.deps/Lab_05_Client-Args.Po
gcc -DPACKAGE_NAME="Lab_05\" -DPACKAGE_TARNAME="lab_05\" -DPACKAGE_VERSION="0.1\" -
DPACKAGE_STRING="Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="misterptits@yandex.ru\" -DPACKAGE_URL="" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="lab_05\" -DVERSIO
N="0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Client/Lab_05_Client-
Client.o -MD -MP -MF ../Lab_05_
Client/.deps/Lab_05_Client-Client.Tpo -c -o ../Lab_05_Client/Lab_05_Client-Client.o `test -f
'../Lab_05_Client/Client.c' || echo
'./'`../Lab_05_Client/Client.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-Client.Tpo ../Lab_05_Client/.deps/Lab_05_Client-
Client.Po
gcc -DPACKAGE_NAME="Lab_05\" -DPACKAGE_TARNAME="lab_05\" -DPACKAGE_VERSION="0.1\" -
DPACKAGE_STRING="Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="misterptits@yandex.ru\" -DPACKAGE_URL="" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE="lab_05\" -DVERSIO
N="0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Client/Lab_05_Client-
main.o -MD -MP -MF ../Lab_05_Cl
ient/.deps/Lab_05_Client-main.Tpo -c -o ../Lab_05_Client/Lab_05_Client-main.o `test -f
'../Lab_05_Client/main.c' || echo './'`..
/Lab_05_Client/main.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-main.Tpo ../Lab_05_Client/.deps/Lab_05_Client-main.Po
gcc -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -o Lab_05_Client
../Lab_05_Client/Lab_05_Client-Args.o ../Lab_05_Client/Lab_0
5_Client-Client.o ../Lab_05_Client/Lab_05_Client-main.o libLab_05_MatrixLib.a libLab_05_Lib.a
gcc -DPACKAGE_NAME="Lab_05\" -DPACKAGE_TARNAME="lab_05\" -DPACKAGE_VERSION="0.1\" -
DPACKAGE_STRING="Lab_05\ 0.1\" -DPACKAGE_
BUGREPORT="misterptits@yandex.ru\" -DPACKAGE_URL="" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB

```

```

_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Server/Lab_05_Server-
Args.o -MD -MP -MF ../Lab_05_Se
rver/.deps/Lab_05_Server-Args.Tpo -c -o ../Lab_05_Server/Lab_05_Server-Args.o `test -f
'../Lab_05_Server/Args.c' || echo './'`..
/Lab_05_Server/Args.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-Args.Tpo ../Lab_05_Server/.deps/Lab_05_Server-Args.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Server/Lab_05_Server-
Server.o -MD -MP -MF ../Lab_05_
Server/.deps/Lab_05_Server-Server.Tpo -c -o ../Lab_05_Server/Lab_05_Server-Server.o `test -f
'../Lab_05_Server/Server.c' || echo
'./'`../Lab_05_Server/Server.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-Server.Tpo ../Lab_05_Server/.deps/Lab_05_Server-
Server.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_
BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\" -DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -
DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H
=1 -DHAVE_STRING_H=1 -DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -
DHAVE_UNISTD_H=1 -DHAVE_ARPA_IN
ET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STD
LIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -
DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB
_H=1 -DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -
DHAVE_STRCHR=1 -DPACKAGE=\"lab_05\" -DVERSIO
N=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT ../Lab_05_Server/Lab_05_Server-
main.o -MD -MP -MF ../Lab_05_Se
rver/.deps/Lab_05_Server-main.Tpo -c -o ../Lab_05_Server/Lab_05_Server-main.o `test -f
'../Lab_05_Server/main.c' || echo './'`..
/Lab_05_Server/main.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-main.Tpo ../Lab_05_Server/.deps/Lab_05_Server-main.Po
gcc -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -o Lab_05_Server
../Lab_05_Server/Lab_05_Server-Args.o ../Lab_05_Server/Lab_0
5_Server-Server.o ../Lab_05_Server/Lab_05_Server-main.o libLab_05_MatrixLib.a libLab_05_Lib.a
make[1]: Leaving directory '/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05/build'
make[1]: Entering directory '/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05'
make[1]: Nothing to be done for 'all-am'.
make[1]: Leaving directory '/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05'
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$

```

4.1.2. Запуск клиента без запущенного сервера

```
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$ ./build/Lab_05_Client
Степень матрицы натуральное число.
Введите степень матрицы: 2
Индексы не менее 0 и не более 1.
Введите номер строки M (первый индекс matrix[M][N]): 1
Введите номер столбца N (второй индекс matrix[M][N]): 0
Введите элемент матрицы m[0][0]: 1
Введите элемент матрицы m[0][1]: 2
Введите элемент матрицы m[1][0]: 3
Введите элемент матрицы m[1][1]: 4
Ошибка
Connection refused
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$
```

Рисунок 1 – Ошибка если сервер не запущен

4.1.3. Запуск сервера

```
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05
vladislav@DESKTOP-ODR692H:/mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$ ./build/Lab_05_Server
```

Рисунок 2 – Сервер ожидает подключения от клиента

4.1.4. Запуск клиента


```
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$ ./build/Lab_05_Client
Степень матрицы натуральное число.
Введите степень матрицы: 4
Индексы не менее 0 и не более 3.
Введите номер строки M (первый индекс matrix[M][N]): 1
Введите номер столбца N (второй индекс matrix[M][N]): 3
Введите элемент матрицы m[0][0]: 1
Введите элемент матрицы m[0][1]: 2
Введите элемент матрицы m[0][2]: 3
Введите элемент матрицы m[0][3]: 4
Введите элемент матрицы m[1][0]: 5
Введите элемент матрицы m[1][1]: 6
Введите элемент матрицы m[1][2]: 7
Введите элемент матрицы m[1][3]: 8
Введите элемент матрицы m[2][0]: 9
Введите элемент матрицы m[2][1]: 10
Введите элемент матрицы m[2][2]: 11
Введите элемент матрицы m[2][3]: 12
Введите элемент матрицы m[3][0]: 13
Введите элемент матрицы m[3][1]: 14
Введите элемент матрицы m[3][2]: 15
Введите элемент матрицы m[3][3]: 16
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$
```

Рисунок 3 – Клиент считал данные, передал и успешно завершился

4.1.5. Результат работы сервера

```
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$ ./build/Lab_05_Server
1 2 3
9 10 11
13 14 15
Определитель: 0
Введите элемент матрицы m[1][3]: 8
Введите элемент матрицы m[2][0]: 9
Введите элемент матрицы m[2][1]: 10
Введите элемент матрицы m[2][2]: 11
Введите элемент матрицы m[2][3]: 12
Введите элемент матрицы m[3][0]: 13
Введите элемент матрицы m[3][1]: 14
Введите элемент матрицы m[3][2]: 15
Введите элемент матрицы m[3][3]: 16
vladislav@DESKTOP-ODR692H: /mnt/c/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05$
```

Рисунок 4 – Сервер принял, вычислил, вывел результат и успешно завершился

4.2 Запуск №2 (Клиент – Windows, MSVC; удалённый сервер – Ubuntu 16.04, GCC)

4.2.1. Сборка с помощью autotools на удалённом сервере

```
vladislav@MySandbox:~/Projects/SystemProgramming/0x0A/Lab_05$ ./configure
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc understands -c and -o together... yes
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /bin/grep
checking for egrep... /bin/grep -E
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for unistd.h... yes
checking arpa/inet.h usability... yes
checking arpa/inet.h presence... yes
checking for arpa/inet.h... yes
checking fcntl.h usability... yes
checking fcntl.h presence... yes
checking for fcntl.h... yes
checking limits.h usability... yes
checking limits.h presence... yes
checking for limits.h... yes
checking malloc.h usability... yes
checking malloc.h presence... yes
checking for malloc.h... yes
checking netinet/in.h usability... yes
checking netinet/in.h presence... yes
checking for netinet/in.h... yes
checking stddef.h usability... yes
checking stddef.h presence... yes
checking for stddef.h... yes
checking for stdint.h... (cached) yes
checking for stdlib.h... (cached) yes
checking for string.h... (cached) yes
checking sys/socket.h usability... yes
checking sys/socket.h presence... yes
checking for sys/socket.h... yes
checking for unistd.h... (cached) yes
checking for stdbool.h that conforms to C99... yes
checking for _Bool... yes
checking for size_t... yes
checking for uint16_t... yes
checking for uint32_t... yes
checking for stdlib.h... (cached) yes
checking for GNU libc compatible malloc... yes
```



```

checking for stdlib.h... (cached) yes
checking for GNU libc compatible realloc... yes
checking whether strerror_r is declared... yes
checking for strerror_r... yes
checking whether strerror_r returns char *... no
checking for socket... yes
checking for strchr... yes
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /bin/mkdir -p
checking for gawk... no
checking for mawk... mawk
checking whether make sets $(MAKE)... yes
checking for style of include used by make... GNU
checking whether make supports nested variables... yes
checking dependency style of gcc... gcc3
checking for ranlib... ranlib
checking that generated files are newer than configure... done
configure: creating ./config.status
config.status: creating build/Makefile
config.status: creating Makefile
config.status: executing depfiles commands
vladislav@MySandbox:~/Projects/SystemProgramming/0x0A/Lab_05$ make
Making all in build
make[1]: Entering directory '/home/vladislav/Projects/SystemProgramming/0x0A/Lab_05/build'
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-Input.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-Input.Tpo -
c -o ../Lab_05_Lib/libLab_05_Lib_a-Input.o `test -f '../Lab_05_Lib/Input.c' || echo
'./'` ../Lab_05_Lib/Input.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Input.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-Input.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-ParseInt.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ParseInt.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-ParseInt.o `test -f '../Lab_05_Lib/ParseInt.c'
|| echo './'` ../Lab_05_Lib/ParseInt.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-ParseInt.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ParseInt.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -

```

```

DPackage="lab_05\" -DVERSION="0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-ReturnCodes.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ReturnCodes.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-ReturnCodes.o `test -f
'../Lab_05_Lib/ReturnCodes.c' || echo './'`../Lab_05_Lib/ReturnCodes.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-ReturnCodes.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
ReturnCodes.Po
gcc -DPackage_NAME="Lab_05\" -DPackage_TARNAME="lab_05\" -DPackage_VERSION="0.1\" -
DPackage_STRING="Lab_05\ 0.1\" -DPackage_BUGREPORT="misterptits@yandex.ru\" -DPackage_URL=""
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPackage="lab_05\" -DVERSION="0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-LastErrorMessage.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-
LastErrorMessage.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-LastErrorMessage.o `test -f
'../Lab_05_Lib/LastErrorMessage.c' || echo './'`../Lab_05_Lib/LastErrorMessage.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-LastErrorMessage.Tpo
../Lab_05_Lib/.deps/libLab_05_Lib_a-LastErrorMessage.Po
gcc -DPackage_NAME="Lab_05\" -DPackage_TARNAME="lab_05\" -DPackage_VERSION="0.1\" -
DPackage_STRING="Lab_05\ 0.1\" -DPackage_BUGREPORT="misterptits@yandex.ru\" -DPackage_URL=""
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPackage="lab_05\" -DVERSION="0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-Request.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-
Request.Tpo -c -o ../Lab_05_Lib/libLab_05_Lib_a-Request.o `test -f ' ../Lab_05_Lib/Request.c' ||
echo './'`../Lab_05_Lib/Request.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Request.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
Request.Po
gcc -DPackage_NAME="Lab_05\" -DPackage_TARNAME="lab_05\" -DPackage_VERSION="0.1\" -
DPackage_STRING="Lab_05\ 0.1\" -DPackage_BUGREPORT="misterptits@yandex.ru\" -DPackage_URL=""
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPackage="lab_05\" -DVERSION="0.1\" -I. -I../Lab_05_MatrixLib -g -O2 -MT
../Lab_05_Lib/libLab_05_Lib_a-Socket.o -MD -MP -MF ../Lab_05_Lib/.deps/libLab_05_Lib_a-Socket.Tpo
-c -o ../Lab_05_Lib/libLab_05_Lib_a-Socket.o `test -f ' ../Lab_05_Lib/Socket.c' || echo
'./'`../Lab_05_Lib/Socket.c
mv -f ../Lab_05_Lib/.deps/libLab_05_Lib_a-Socket.Tpo ../Lab_05_Lib/.deps/libLab_05_Lib_a-
Socket.Po
debase=`echo ../Lab_05_MatrixLib/Matrix.o | sed 's|[^/]*$|.deps/&;s|\.o$||'`;
gcc -DPackage_NAME="Lab_05\" -DPackage_TARNAME="lab_05\" -DPackage_VERSION="0.1\" -
DPackage_STRING="Lab_05\ 0.1\" -DPackage_BUGREPORT="misterptits@yandex.ru\" -DPackage_URL=""
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPackage="lab_05\" -DVERSION="0.1\" -I. -g -O2 -MT ../Lab_05_MatrixLib/Matrix.o -MD -MP -MF
$debase.Tpo -c -o ../Lab_05_MatrixLib/Matrix.o ../Lab_05_MatrixLib/Matrix.c &&
mv -f $debase.Tpo $debase.Po

```

```

rm -f libLab_05_MatrixLib.a
ar cru libLab_05_MatrixLib.a ../Lab_05_MatrixLib/Matrix.o
ar: `u' modifier ignored since `D' is the default (see `U')
ranlib libLab_05_MatrixLib.a
rm -f libLab_05_Lib.a
ar cru libLab_05_Lib.a ../Lab_05_Lib/libLab_05_Lib_a-Input.o ../Lab_05_Lib/libLab_05_Lib_a-
ParseInt.o ../Lab_05_Lib/libLab_05_Lib_a-ReturnCodes.o ../Lab_05_Lib/libLab_05_Lib_a-
LastErrorMessage.o ../Lab_05_Lib/libLab_05_Lib_a-Request.o ../Lab_05_Lib/libLab_05_Lib_a-Socket.o
libLab_05_MatrixLib.a
ar: `u' modifier ignored since `D' is the default (see `U')
ranlib libLab_05_Lib.a
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Client/Lab_05_Client-Args.o -MD -MP -MF ../Lab_05_Client/.deps/Lab_05_Client-Args.Tpo -
c -o ../Lab_05_Client/Lab_05_Client-Args.o `test -f '../Lab_05_Client/Args.c' || echo
'./'`../Lab_05_Client/Args.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-Args.Tpo ../Lab_05_Client/.deps/Lab_05_Client-Args.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Client/Lab_05_Client-Client.o -MD -MP -MF ../Lab_05_Client/.deps/Lab_05_Client-
Client.Tpo -c -o ../Lab_05_Client/Lab_05_Client-Client.o `test -f '../Lab_05_Client/Client.c' ||
echo './'`../Lab_05_Client/Client.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-Client.Tpo ../Lab_05_Client/.deps/Lab_05_Client-
Client.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Client/Lab_05_Client-main.o -MD -MP -MF ../Lab_05_Client/.deps/Lab_05_Client-main.Tpo -
c -o ../Lab_05_Client/Lab_05_Client-main.o `test -f '../Lab_05_Client/main.c' || echo
'./'`../Lab_05_Client/main.c
mv -f ../Lab_05_Client/.deps/Lab_05_Client-main.Tpo ../Lab_05_Client/.deps/Lab_05_Client-main.Po
gcc -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -o Lab_05_Client
../Lab_05_Client/Lab_05_Client-Args.o ../Lab_05_Client/Lab_05_Client-Client.o
../Lab_05_Client/Lab_05_Client-main.o libLab_05_MatrixLib.a libLab_05_Lib.a
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -

```

```

DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Server/Lab_05_Server-Args.o -MD -MP -MF ../Lab_05_Server/.deps/Lab_05_Server-Args.Tpo -
c -o ../Lab_05_Server/Lab_05_Server-Args.o `test -f '../Lab_05_Server/Args.c' || echo
'./'` ../Lab_05_Server/Args.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-Args.Tpo ../Lab_05_Server/.deps/Lab_05_Server-Args.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Server/Lab_05_Server-Server.o -MD -MP -MF ../Lab_05_Server/.deps/Lab_05_Server-
Server.Tpo -c -o ../Lab_05_Server/Lab_05_Server-Server.o `test -f '../Lab_05_Server/Server.c' ||
echo './'` ../Lab_05_Server/Server.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-Server.Tpo ../Lab_05_Server/.deps/Lab_05_Server-
Server.Po
gcc -DPACKAGE_NAME=\"Lab_05\" -DPACKAGE_TARNAME=\"lab_05\" -DPACKAGE_VERSION=\"0.1\" -
DPACKAGE_STRING=\"Lab_05\\ 0.1\" -DPACKAGE_BUGREPORT=\"misterptits@yandex.ru\" -DPACKAGE_URL=\"\"
-DSTDC_HEADERS=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -
DHAVE_MEMORY_H=1 -DHAVE_STRINGS_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_UNISTD_H=1 -
DHAVE_ARPA_INET_H=1 -DHAVE_FCNTL_H=1 -DHAVE_LIMITS_H=1 -DHAVE_MALLOC_H=1 -DHAVE_NETINET_IN_H=1 -
DHAVE_STDDEF_H=1 -DHAVE_STDINT_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_SYS_SOCKET_H=1 -
DHAVE_UNISTD_H=1 -DHAVE__BOOL=1 -DHAVE_STDLIB_H=1 -DHAVE_MALLOC=1 -DHAVE_STDLIB_H=1 -
DHAVE_REALLOC=1 -DHAVE_DECL_STRERROR_R=1 -DHAVE_STRERROR_R=1 -DHAVE_SOCKET=1 -DHAVE_STRCHR=1 -
DPACKAGE=\"lab_05\" -DVERSION=\"0.1\" -I. -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -MT
../Lab_05_Server/Lab_05_Server-main.o -MD -MP -MF ../Lab_05_Server/.deps/Lab_05_Server-main.Tpo -
c -o ../Lab_05_Server/Lab_05_Server-main.o `test -f '../Lab_05_Server/main.c' || echo
'./'` ../Lab_05_Server/main.c
mv -f ../Lab_05_Server/.deps/Lab_05_Server-main.Tpo ../Lab_05_Server/.deps/Lab_05_Server-main.Po
gcc -I../Lab_05_MatrixLib -I../Lab_05_Lib -g -O2 -o Lab_05_Server
../Lab_05_Server/Lab_05_Server-Args.o ../Lab_05_Server/Lab_05_Server-Server.o
../Lab_05_Server/Lab_05_Server-main.o libLab_05_MatrixLib.a libLab_05_Lib.a
make[1]: Leaving directory '/home/vladislav/Projects/SystemProgramming/0x0A/Lab_05/build'
make[1]: Entering directory '/home/vladislav/Projects/SystemProgramming/0x0A/Lab_05'
make[1]: Nothing to be done for 'all-am'.
make[1]: Leaving directory '/home/vladislav/Projects/SystemProgramming/0x0A/Lab_05'

```

4.2.2. Сборка на клиенте с помощью CMake и msbuild

```

PS C:\Users\vladislav\Projects\SystemProgramming\0x0A\Lab_05\build> cmake ..
-- Building for: Visual Studio 16 2019
-- Selecting Windows SDK version 10.0.18362.0 to target Windows 10.0.18363.
-- The C compiler identification is MSVC 19.24.28207.0
-- The CXX compiler identification is MSVC 19.24.28207.0
-- Check for working C compiler: C:/Program Files (x86)/Microsoft Visual
Studio/2019/Preview/VC/Tools/MSVC/14.24.28207/bin/Hostx64/x64/cl.exe
-- Check for working C compiler: C:/Program Files (x86)/Microsoft Visual
Studio/2019/Preview/VC/Tools/MSVC/14.24.28207/bin/Hostx64/x64/cl.exe -- works
-- Detecting C compiler ABI info
-- Detecting C compiler ABI info - done
-- Detecting C compile features

```

```
-- Detecting C compile features - done
-- Check for working CXX compiler: C:/Program Files (x86)/Microsoft Visual
Studio/2019/Preview/VC/Tools/MSVC/14.24.28207/bin/Hostx64/x64/cl.exe
-- Check for working CXX compiler: C:/Program Files (x86)/Microsoft Visual
Studio/2019/Preview/VC/Tools/MSVC/14.24.28207/bin/Hostx64/x64/cl.exe -- works
-- Detecting CXX compiler ABI info
-- Detecting CXX compiler ABI info - done
-- Detecting CXX compile features
-- Detecting CXX compile features - done
-- Configuring done
-- Generating done
-- Build files have been written to:
C:/Users/vladislav/Projects/SystemProgramming/0x0A/Lab_05/build
PS C:\Users\vladislav\Projects\SystemProgramming\0x0A\Lab_05\build> msbuild .\ALL_BUILD.vcxproj
Microsoft (R) Build Engine version 16.4.0-preview-19502-03+3af680463 for .NET Framework
Copyright (C) Microsoft Corporation. All rights reserved.
```

Build started 19.11.2019 21:50:58.

Пропущена работа msbuild

```
20 Warning(s)
0 Error(s)
```

Time Elapsed 00:00:06.55

4.2.3. Запуск клиента без запущенного сервера

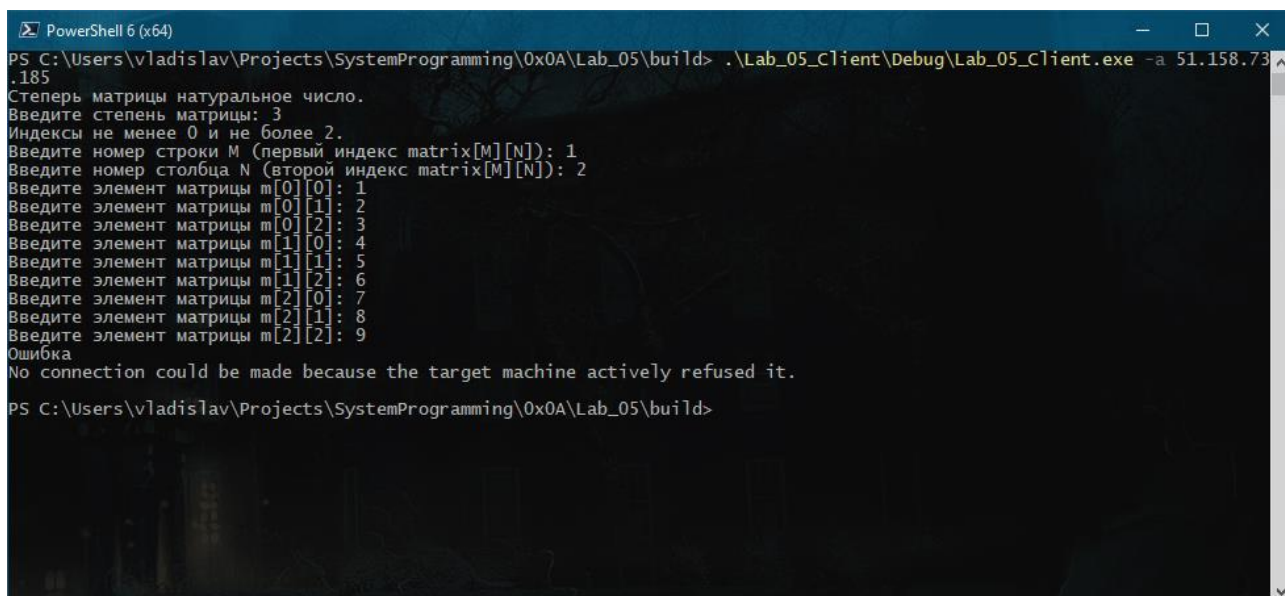


Рисунок 5 – Ошибка если сервер не запущен

4.2.4. Запуск сервера

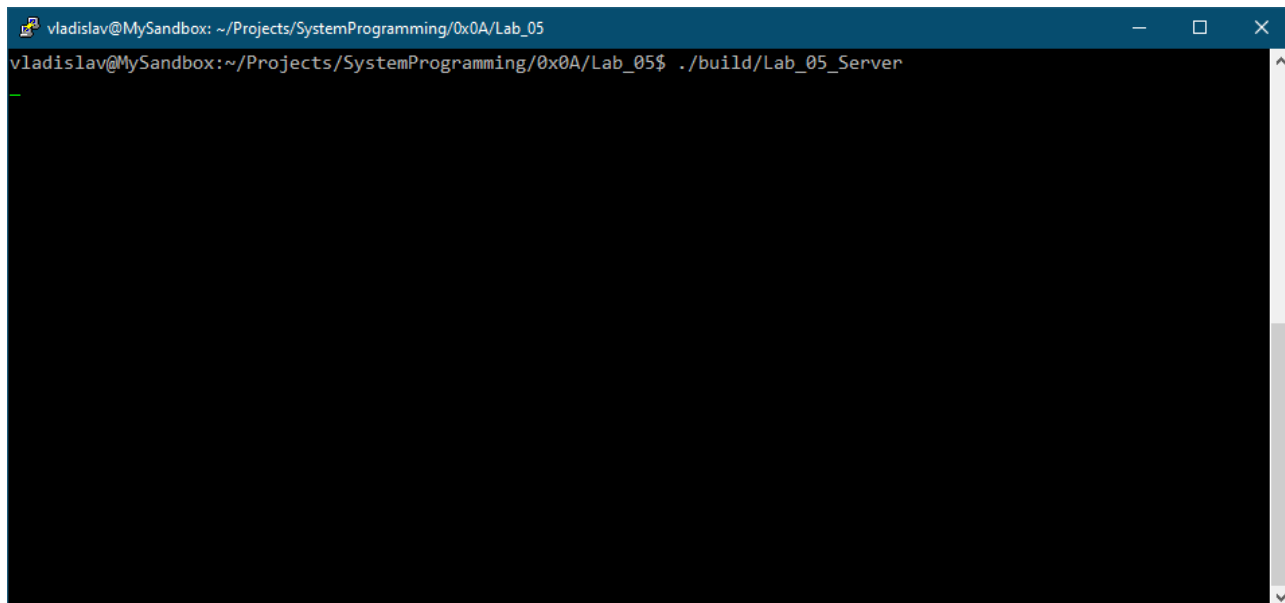


Рисунок 6 – Сервер ожидает подключения от клиента

4.2.5. Запуск клиента

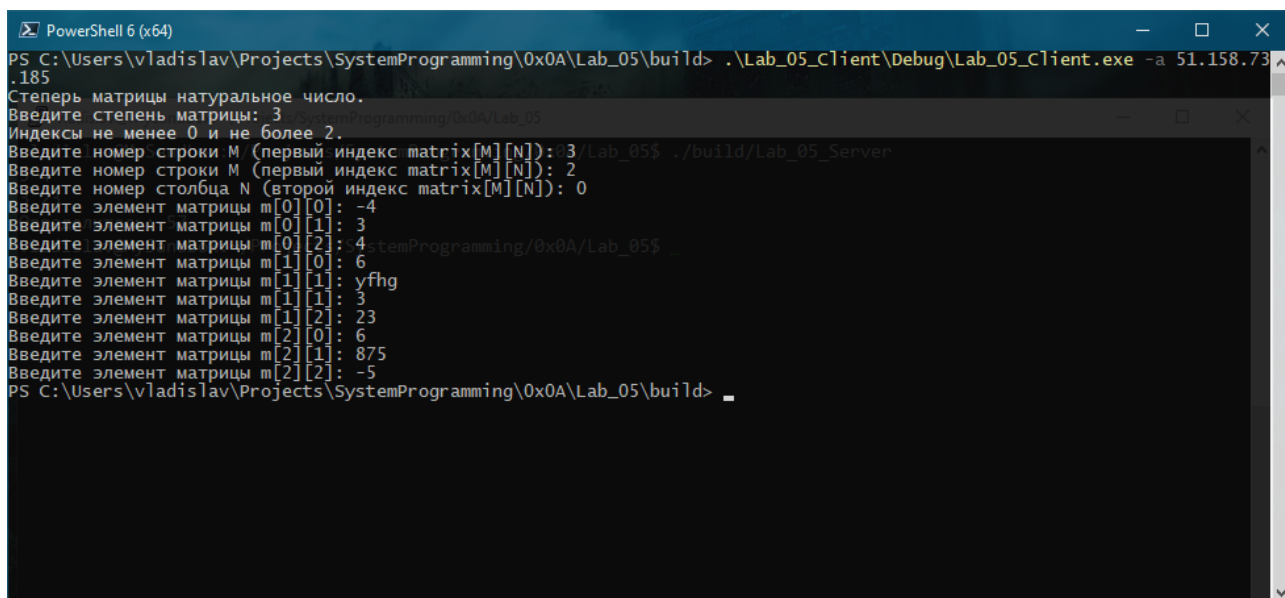
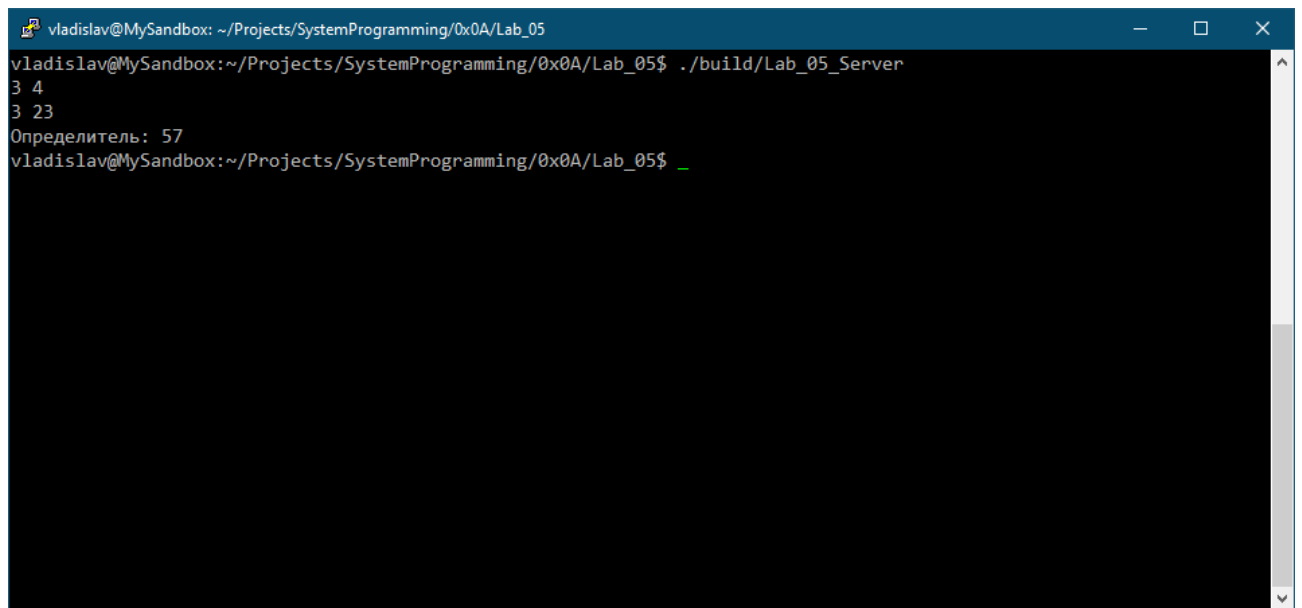


Рисунок 7 – Клиент считал данные, передал и успешно завершился

4.2.6. Результат работы сервера

A terminal window with a blue title bar. The title bar text is 'vladislav@MySandbox: ~/Projects/SystemProgramming/0x0A/Lab_05'. The terminal content shows the command './build/Lab_05_Server' being executed. The output consists of three lines: '3 4', '3 23', and 'Определитель: 57'. The prompt 'vladislav@MySandbox:~/Projects/SystemProgramming/0x0A/Lab_05\$' is visible at the bottom.

```
vladislav@MySandbox: ~/Projects/SystemProgramming/0x0A/Lab_05
vladislav@MySandbox:~/Projects/SystemProgramming/0x0A/Lab_05$ ./build/Lab_05_Server
3 4
3 23
Определитель: 57
vladislav@MySandbox:~/Projects/SystemProgramming/0x0A/Lab_05$ _
```

Рисунок 8 – Сервер принял, вычислил, вывел результат и успешно завершился