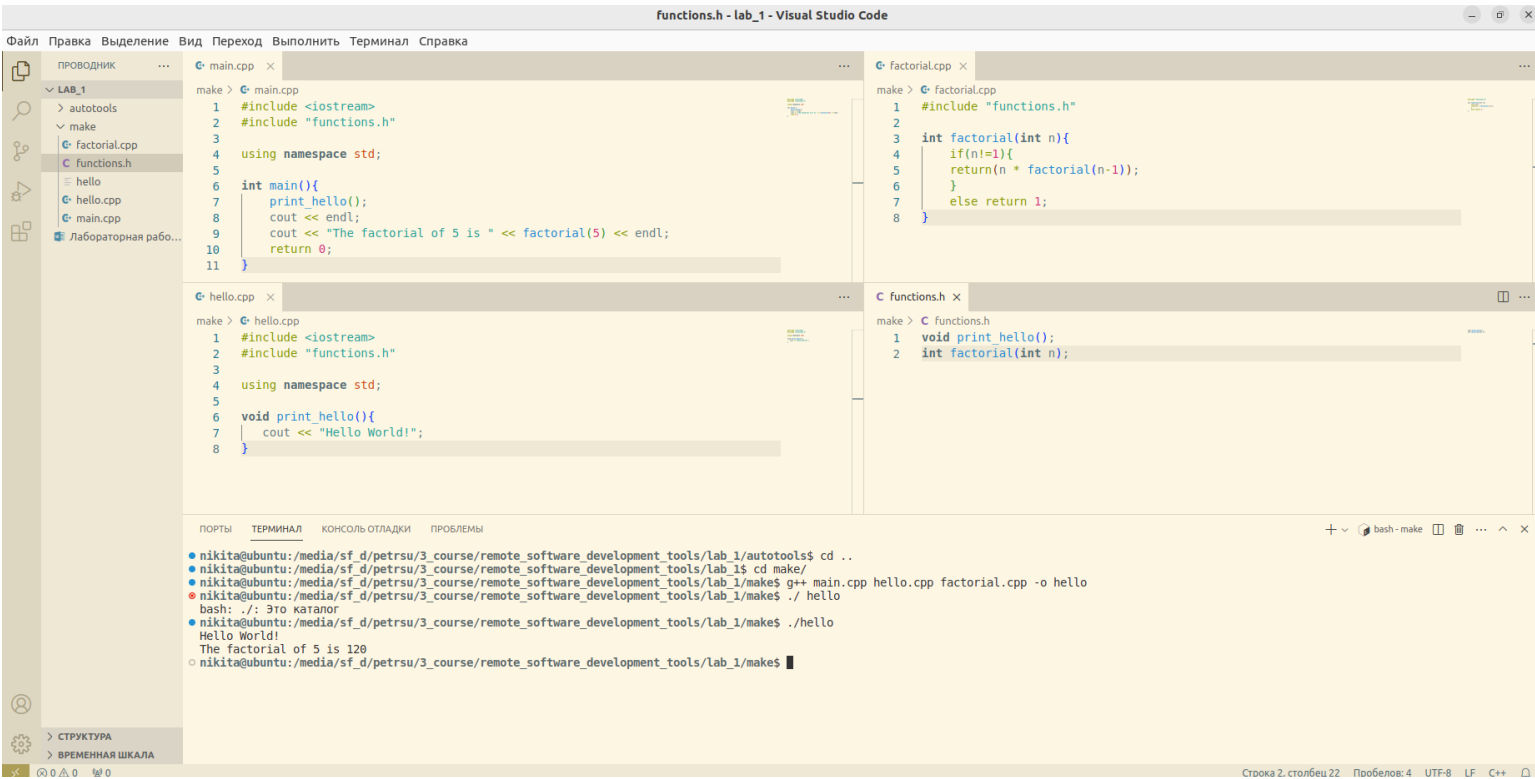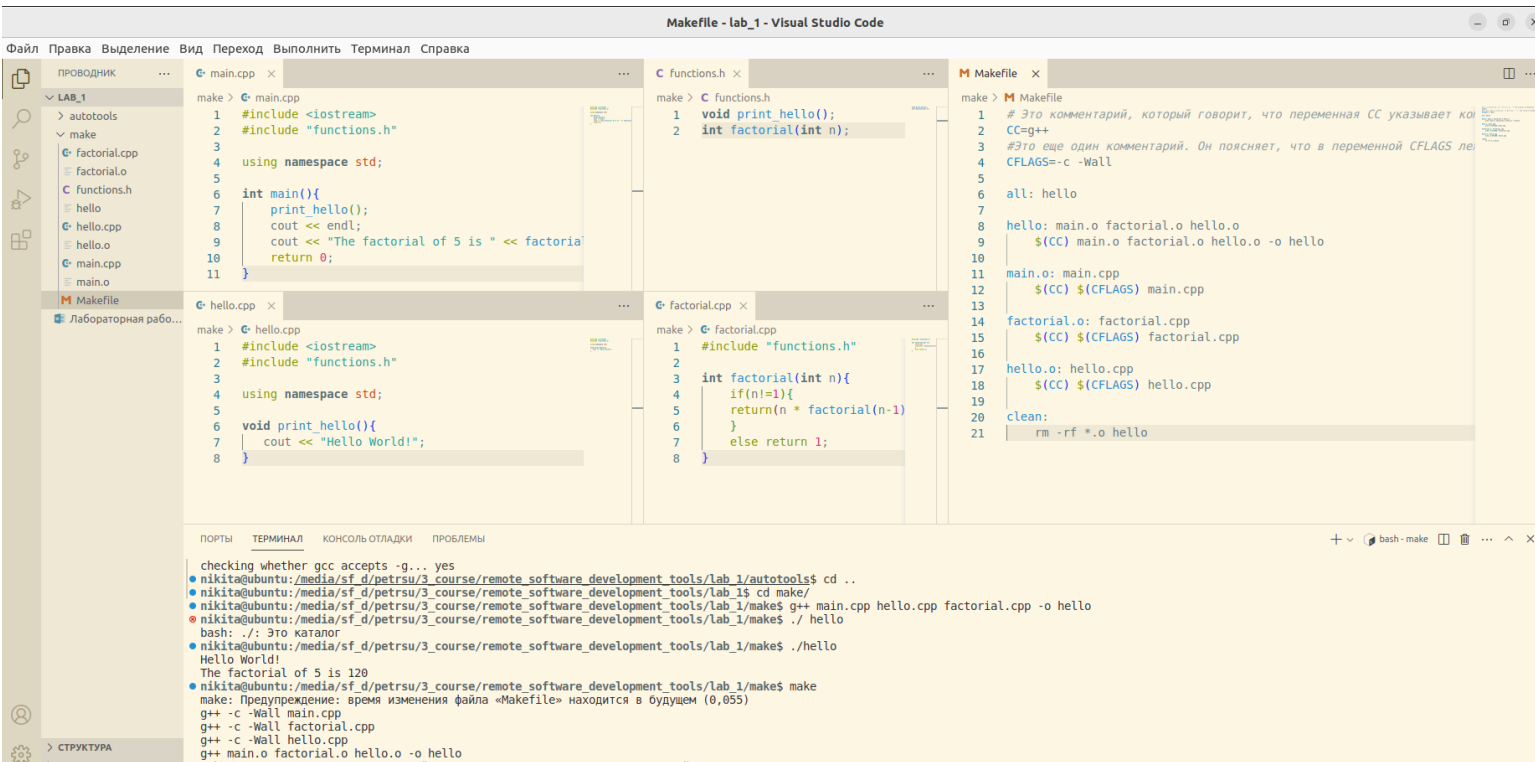# Make

1. Взял hello world проект
2. Скомпилировал вручную

1. Создал Makefile
2. Скомпилировал через make

Autotools

Взял hello world проект
Скомпилировал вручную

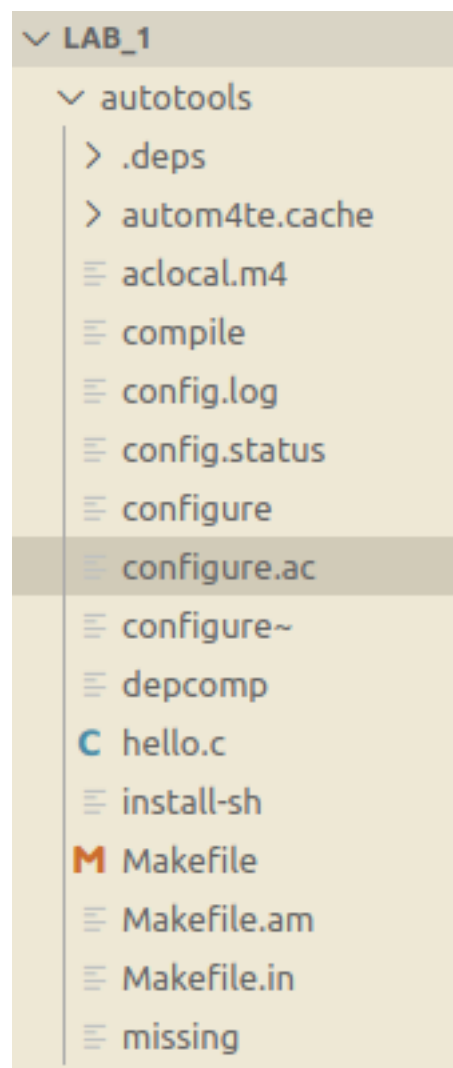преобразовал configure.ac в configure скрипт

```
configure.ac -> |autoconf| -> configure  -> |             |
                                             |./configure| -> Makefile
 Makefile.am -> |automake| -> Makefile.in -> |             |
```

```
nikita@ubuntu:/media/sf_d/petrsu/3_course/remote_software_development_tools/lab_1/autotools$ autoreconf -vfi
autoreconf: export WARNINGS=
autoreconf: Entering directory '.'
autoreconf: configure.ac: not using Gettext
autoreconf: running: aclocal --force
autoreconf: configure.ac: tracing
autoreconf: configure.ac: not using Libtool
autoreconf: configure.ac: not using Intltool
autoreconf: configure.ac: not using Gtkdoc
autoreconf: running: /usr/bin/autoconf --force
autoreconf: configure.ac: not using Autoheader
autoreconf: running: automake --add-missing --copy --force-missing
configure.ac:4: installing './compile'
configure.ac:2: installing './install-sh'
configure.ac:2: installing './missing'
Makefile.am: installing './depcomp'
autoreconf: Leaving directory '.'
```

запустить созданный ./configure скрипт

```
nikita@ubuntu:/media/sf_d/petrsu/3_course/remote_software_development_tools/lab_1/autotools$ ./configure
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a race-free mkdir -p... /usr/bin/mkdir -p
checking for gawk... no
checking for mawk... mawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether gcc understands -c and -o together... yes
checking whether make supports the include directive... yes (GNU style)
checking dependency style of gcc... gcc3
checking that generated files are newer than configure... done
configure: creating ./config.status
config.status: creating Makefile
config.status: executing depfiles commands
nikita@ubuntu:/media/sf_d/petrsu/3_course/remote_software_development_tools/lab_1/autotools$
```
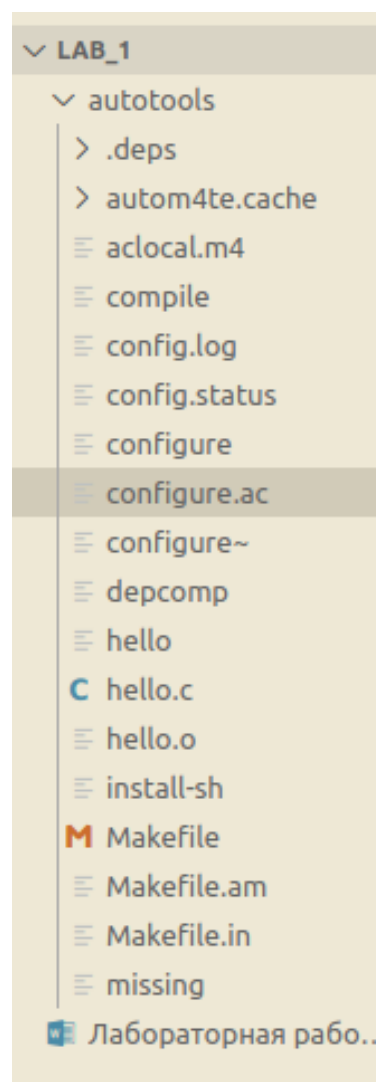
структура проекта

запустить созданный Makefile

```
nikita@ubuntu:/media/sf_d/petrsu/3_course/remote_software_development_tools/lab_1/autotools$ make
gcc -DPACKAGE_NAME=\"hello-world\" -DPACKAGE_TARNAME=\"hello-world\" -DPACKAGE_VERSION=\"1.0\" -DPACKA
d\" -DVERSION=\"1.0\" -I.      -g -O2 -MT hello.o -MD -MP -MF .deps/hello.Tpo -c -o hello.o hello.c
mv -f .deps/hello.Tpo .deps/hello.Po
gcc  -g -O2   -o hello hello.o
```

запустить созданный ./hello скрипт

```
nikita@ubuntu:/media/sf_d/petrsu/3_course/remote_software_development_tools/lab_1/autotools$ ./hello
Hello world!
```

структура проекта

```
∨ LAB_1
  ∨ autotools
    > .deps
    > autom4te.cache
    ≡ aclocal.m4
    ≡ compile
    ≡ config.log
    ≡ config.status
    ≡ configure
    ≡ configure.ac
    ≡ configure~
    ≡ depcomp
    ≡ hello
    C hello.c
    ≡ hello.o
    ≡ install-sh
    M Makefile
    ≡ Makefile.am
    ≡ Makefile.in
    ≡ missing
    Лабораторная рабо..
```

Материалы
- https://czarnota.github.io/2019/02/10/hello-world-with-autotools.html
- https://habr.com/ru/articles/155201/