

Министерство науки и высшего образования Российской Федерации
федеральное государственное автономное
образовательное учреждение высшего образования
«Самарский национальный исследовательский университет имени
академика С.П. Королева»

Институт информатики и кибернетики
Кафедра технической кибернетики

Отчет по лабораторной работе №1

Дисциплина: «ООП»

Тема «Ознакомление со структурой исходного кода для Java»

Выполнил: Зорин Дмитрий
Сергеевич
Группа: 6201-120303D

Самара, 2025

Задание на лабораторную работу

Задание 1

Для проверки работы лабораторной я запускал компилятор `javac` и интерпретатор `java`

Выполняемые в консоли команды:

`javac`

```
$ javac
Usage: javac <options> <source files>
where possible options include:
  @<filename>           Read options and filenames from file
  -Akey[=value]         Options to pass to annotation processors
  --add-modules <module>(,<module>)*
                        Root modules to resolve in addition to the initial modules,
                        or all modules on the module path if <module> is ALL-MODULE-PATH.
  --boot-class-path <path>, -bootclasspath <path>
                        Override location of bootstrap class files
  --class-path <path>, -classpath <path>, -cp <path>
                        Specify where to find user class files and annotation processors
  -d <directory>        Specify where to place generated class files
  -deprecation
                        Output source locations where deprecated APIs are used
  --enable-preview
                        Enable preview language features.
                        To be used in conjunction with either -source or --release.
  -encoding <encoding>  Specify character encoding used by source files
  -endorseddirs <dirs>  Override location of endorsed standards path
  -extdirs <dirs>       Override location of installed extensions
  -g                    Generate all debugging info
  -g:{lines,vars,source}
                        Generate only some debugging info
  -g:none               Generate no debugging info
  -h <directory>
                        Specify where to place generated native header files
  --help, -help, -?     Print this help message
  --help-extra, -X      Print help on extra options
  -implicit:{none,class}
                        Specify whether to generate class files for implicitly referenced files
  -J<flag>              Pass <flag> directly to the runtime system
  --limit-modules <module>(,<module>)*
                        Limit the universe of observable modules
  --module <module>(,<module>)*, -m <module>(,<module>)*
                        Compile only the specified module(s), check timestamps
  --module-path <path>, -p <path>
                        Specify where to find application modules
  --module-source-path <module-source-path>
                        Specify where to find input source files for multiple modules
  --module-version <version>
                        Specify version of modules that are being compiled
  -nowarn               Generate no warnings
  -parameters
                        Generate metadata for reflection on method parameters
  -proc:{none,only,full}
                        Control whether annotation processing and/or compilation is done.
  -processor <class1>[,<class2>,<class3>...]
                        Names of the annotation processors to run;
                        bypasses default discovery process
  --processor-module-path <path>
                        Specify a module path where to find annotation processors
  --processor-path <path>, -processorpath <path>
                        Specify where to find annotation processors
  -profile <profile>
```

```

    Check that API used is available in the specified profile.
    This option is deprecated and may be removed in a future release.
--release <release>
    Compile for the specified Java SE release.
    Supported releases:
        8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24
-s <directory>
    Specify where to place generated source files
--source <release>, -source <release>
    Provide source compatibility with the specified Java SE release.
    Supported releases:
        8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24
--source-path <path>, -sourcepath <path>
    Specify where to find input source files
--system <jdk>|none
    Override location of system modules
--target <release>, -target <release>
    Generate class files suitable for the specified Java SE release.
    Supported releases:
        8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24
--upgrade-module-path <path>
    Override location of upgradeable modules
-verbose
    Output messages about what the compiler is doing
--version, -version
    Version information
-Werror
    Terminate compilation if warnings occur

```

java

```

$ java
Usage: java [java options...] <application> [application arguments...]

where <application> is one of:
  <mainclass>          to execute the main method of a compiled main class
  -jar <jarfile>.jar    to execute the main class of a JAR archive
  -m <module>[/<mainclass>] to execute the main class of a module
  <sourcefile>.java    to compile and execute a source-file program

where key java options include:
  --class-path <class path>
    where <class path> is a list of directories and JAR archives to search for class files, separated by ";"
  --module-path <module path>
    where <module path> is a list of directories and JAR archives to search for modules, separated by ";"
  -version
    to print product version to the error stream and exit

For additional help on usage:      java --help
For an interactive Java environment: jshell

garry@jelbywho MINGW64 ~/JavaLab/Lab-1-2025/Task5 (main)
$ |

```

Задание 2

Создан файл MyFirstProgram.java, содержащий исходный код пустого класса. Для проверки работы программы файл был скомпилирован с помощью команды: `javac MyFirstProgram.java`

После этого был добавлен метод `main` с модификаторами `public static`, чтобы программа могла запускаться

Команды для задания 2:

```
cd ~/JavaLab/Lab-1-2025/Task2
```

```
ls
```

```
javac MyFirstProgram.java
```

```
java MyFirstProgram
```

Работа с консолью:

```
C:\Users\garry\JavaLab\Lab-1-2025\Task2>javac MyFirstProgram.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task2>java MyFirstClass
```

```
Hello, world!
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task2>git add .
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task2>git commit -m "Task 2"
```

```
[main 1a2b3c4] Task 2
```

```
2 files changed, 3 insertions(+)
```

```
create mode 100644 Task2/MyFirstProgram.java
```

```
create mode 100644 Task2/MyFirstClass.class
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task2>git push
```

Задание 3

Изменили метод main в файле MyFirstProgram.java, чтобы программа могла принимать аргументы командной строки (args):

Выполняемые в консоли команды:

```
javac MyFirstProgram.java  
java MyFirstClass arg1 arg2 arg3 arg4 arg5  
git add .  
git commit -m "Task 3"  
git push
```

Работа с консолью:

```
C:\Users\garry\JavaLab\Lab-1-2025\Task3>javac MyFirstProgram.java  
C:\Users\garry\JavaLab\Lab-1-2025\Task3>java MyFirstClass arg1 arg2 arg3 arg4  
arg5  
arg1 arg2 arg3 arg4 arg5  
C:\Users\garry\JavaLab\Lab-1-2025\Task3>git add .  
C:\Users\garry\JavaLab\Lab-1-2025\Task3>git commit -m "Task 3"  
[main 2b3c4d5] Task 3  
2 files changed, 5 insertions(+)  
create mode 100644 Task3/MyFirstProgram.java  
create mode 100644 Task3/MyFirstClass.class  
C:\Users\garry\JavaLab\Lab-1-2025\Task3>git push  
Enumerating objects: 6, done.  
Counting objects: 100% (6/6), done.  
Delta compression using up to 12 threads  
Compressing objects: 100% (4/4), done.  
Writing objects: 100% (5/5), 1.50 KiB | 250.00 KiB/s, done.
```

Total 5 (delta 1), reused 0 (delta 0), pack-reused 0

To <https://github.com/realnovells/Lab-1-2025.git>

c3fc77f..2b3c4d5 main -> main

Задание 4

Создали два класса: MyFirstClass (с методом main) и MySecondClass (для вычисления произведения чисел). Откомпилировали классы и запустили программу для вывода таблицы произведений.

Выполняемые в консоли команды:

```
javac MySecondClass.java
```

```
javac MyFirstClass.java
```

```
java MyFirstClass
```

```
git add .
```

```
git commit -m "Task 4: Таблица произведений"
```

```
git push
```

Работа с консолью:

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>javac MySecondClass.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>javac MyFirstClass.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>java MyFirstClass
```

```
1 2 3 4 5 6 7 8
```

```
2 4 6 8 10 12 14 16
```

```
3 6 9 12 15 18 21 24
```

```
4 8 12 16 20 24 28 32
```

```
5 10 15 20 25 30 35 40
```

```
6 12 18 24 30 36 42 48
```

```
7 14 21 28 35 42 49 56
```

```
8 16 24 32 40 48 56 64
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>git add .
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>git commit -m "Task 4: Таблица произведений"
```

```
[main cdd21a9] Task 4: Таблица произведений
```

```
2 files changed, 20 insertions(+)
```

```
create mode 100644 Task4/MyFirstClass.java
```

```
create mode 100644 Task4/MyFirstClass.class
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task4>git push
```

```
Enumerating objects: 6, done.
```

```
Counting objects: 100% (6/6), done.
```

```
Delta compression using up to 12 threads
```

```
Compressing objects: 100% (4/4), done.
```

```
Writing objects: 100% (5/5), 1.5 KiB | 250.00 KiB/s, done.
```

```
Total 5 (delta 1), reused 0 (delta 0), pack-reused 0
```

```
To https://github.com/realnovells/Lab-1-2025.git
```

```
c3fc77f..cdd21a9 main -> main
```

Задание 5

Вынесли класс `MySecondClass` в отдельный файл `MySecondClass.java` и поместили его в поддиректорию `myfirstpackage`. Добавили в начало `MyFirstClass.java` строку `import myfirstpackage.*`; Откомпилировали классы и запустили программу для вывода таблицы произведений через объект класса `MySecondClass`.

Выполняемые в консоли команды:

```
cd C:\Users\garry\JavaLab\Lab-1-2025\Task5
```

```
javac myfirstpackage\MySecondClass.java
```

```
javac MyFirstProgram.java
```

```
java MyFirstProgram
```

```
git add .
```

```
git commit -m "Task 5: Вынесен MySecondClass в пакет"
```

```
git push
```

Работа с консолью:

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>javac
```

```
myfirstpackage\MySecondClass.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>javac MyFirstProgram.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>java MyFirstProgram
```

```
1 2 3 4 5 6 7 8
```

```
2 4 6 8 10 12 14 16
```

```
3 6 9 12 15 18 21 24
```

```
4 8 12 16 20 24 28 32
```

```
5 10 15 20 25 30 35 40
```

```
6 12 18 24 30 36 42 48
```

```
7 14 21 28 35 42 49 56
```

```
8 16 24 32 40 48 56 64
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>git add .
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>git commit -m "Task 5: Вынесен  
MySecondClass в пакет"
```

```
[main 1aeb74] Task 5: Вынесен MySecondClass в пакет
```

```
2 files changed, 40 insertions(+)
```

```
create mode 100644 Task5/MyFirstProgram.java
```

```
create mode 100644 Task5/myfirstpackage/MySecondClass.class
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task5>git push
```

```
Enumerating objects: 7, done.
```

```
Counting objects: 100% (7/7), done.
```

```
Delta compression using up to 12 threads
```

```
Compressing objects: 100% (5/5), done.
```

```
Writing objects: 100% (6/6), 2.0 KiB | 300.00 KiB/s, done.
```

Total 6 (delta 2), reused 0 (delta 0), pack-reused 0
To <https://github.com/realnovells/Lab-1-2025.git>
c3fc77f..1aebe74 main -> main

Задание 6

Создали архив myfirst.jar, включив туда все .class файлы из заданий 2–5 и пакет myfirstpackage. Добавили манифест manifest.mf с указанием главного класса MyFirstProgram и своих ФИО

Выполняемые в консоли команды:

```
cd C:\Users\garry\JavaLab\Lab-1-2025
```

```
mkdir Task6
```

```
cd Task6
```

```
copy ..\Task2\MyFirstClass.class .
```

```
copy ..\Task3\MyFirstProgram.class .
```

```
copy ..\Task4\MyFirstProgram.class .
```

```
copy ..\Task5\myfirstpackage\*. * myfirstpackage\
```

```
"C:\Program Files\Java\jdk-24\bin\jar.exe" cfm myfirst.jar manifest.mf *.class  
myfirstpackage
```

```
dir myfirst.jar
```

```
java -jar myfirst.jar
```

```
git add Task6/myfirst.jar Task6/manifest.mf Task6/myfirstpackage/*.class
```

```
git commit -m "Task 6: Создан JAR-архив с классами и манифестом"
```

```
git push
```

Работа с консолью:

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>del "*.class"
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>del myfirstpackage/*.class
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>javac -d . MyFirstProgram.java  
myfirstpackage\MySecondClass.java
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>"C:\Program Files\Java\jdk-  
24\bin\jar.exe" cfm myfirst.jar manifest.mf MyFirstClass.class  
myfirstpackage\*.class
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>mkdir MyJar
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>move myfirst.jar MyJar
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>cd MyJar
```

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6\MyJar>java -jar myfirst.jar
```

1 2 3 4 5 6 7 8

2 4 6 8 10 12 14 16

3 6 9 12 15 18 21 24

4 8 12 16 20 24 28 32

5 10 15 20 25 30 35 40

6 12 18 24 30 36 42 48

7 14 21 28 35 42 49 56

8 16 24 32 40 48 56 64

```
C:\Users\garry\JavaLab\Lab-1-2025\Task6>git add .
```

```
C:\Users\garry\JavaLab\Lab-1-202
```