

# Лабораторная работа №1

Научное программирование

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## Прагматика выполнения

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- Освоение Git для выполнения лабораторных работ.
- Первичная настройка конфигурации git

Цель

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Изучение идеологии и применения средств контроля версий. Освоение умений по работе с git.

## Задачи

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1. Овладение инструментарием системы контроля версий git.
2. Настройка первичной конфигурации git.
3. Создание ключей SSH и PGP для подписи.
4. Создание рабочего пространства для дальнейшей работы.

## Выполнение работы

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# Настройка git 1

```
User@DESKTOP-S7MGIL2 MINGW64 ~
$ git config --global core.quotePath false

User@DESKTOP-S7MGIL2 MINGW64 ~
$ git config --global init.defaultBranch master

User@DESKTOP-S7MGIL2 MINGW64 ~
$ git config --global core.autocrlf input

User@DESKTOP-S7MGIL2 MINGW64 ~
$ git config --global core.safecrlf warn

User@DESKTOP-S7MGIL2 MINGW64 ~
$ gpg --full-generate-key
gpg (GnuPG) 2.2.29-unknown; Copyright (C) 2021 Free Software Foundation, Inc.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

gpg: directory '/c/Users/User/.gnupg' created
gpg: keybox '/c/Users/User/.gnupg/pubring.kbx' created
Please select what kind of key you want:
  (1) RSA and RSA (default)
  (2) DSA and Elgamal
  (3) DSA (sign only)
  (4) RSA (sign only)
  (14) Existing key from card
Your selection?
RSA keys may be between 1024 and 4096 bits long.
What keysize do you want? (3072) 4096
Requested keysize is 4096 bits
Please specify how long the key should be valid.
    0 = key does not expire
    <n> = key expires in n days
    <n>w = key expires in n weeks
    <n>m = key expires in n months
    <n>y = key expires in n years
Key is valid for? (0) 0
Key does not expire at all
Is this correct? (y/N) y

GnuPG needs to construct a user ID to identify your key.

Real name: Dmitry
Email address: nikolaev-di@rudn.ru
Comment:
You selected this USER-ID:
    "Dmitry <nikolaev-di@rudn.ru>"

Change (N)ame, (C)omment, (E)mail or (O)kay/(Q)uit?
Change (N)ame, (C)omment, (E)mail or (O)kay/(Q)uit? o
```

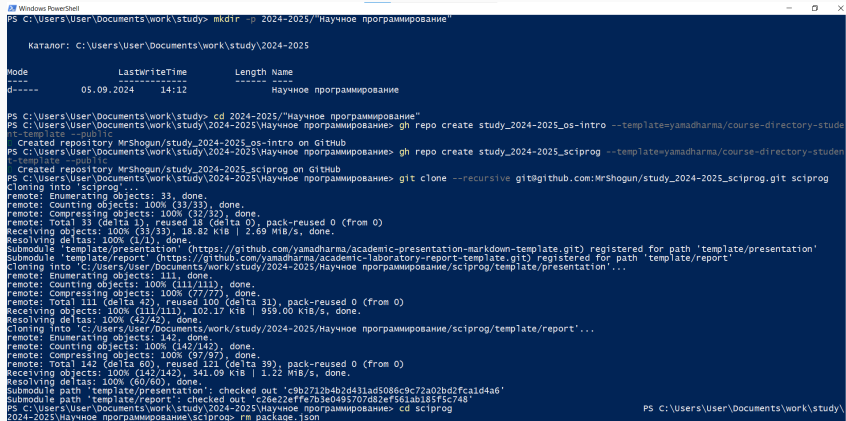
## Настройка git 2

```
gpg: revocation certificate stored as '/c:/users/user/.gnupg/openpgp-rev-  
D1939AA93B93CD60F9F7A2F37B2A2E95CD9DA.rev'  
public and secret key created and signed.  
  
pub   rsa4096 2024-09-05 [SC]  
      212D1939AA93B93CD60F9F7A2F37B2A2E95CD9DA  
uid           Dmitry <nikolaev-di@rudn.ru>  
sub   rsa4096 2024-09-05 [E]  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ gpg --list-secret-keys --keyid-format LONG  
gpg: checking the trustdb  
gpg: marginals needed: 3 completes needed: 1 trust model: pgp  
gpg: depth: 0 valid: 1 signed: 0 trust: 0-, 0q, 0n, 0m, 0f, 1u  
/c/Users/User/.gnupg/pubring.kbx  
-----  
sec   rsa4096/2F37B2A2E95CD9DA 2024-09-05 [SC]  
      212D1939AA93B93CD60F9F7A2F37B2A2E95CD9DA  
uid           [ultimate] Dmitry <nikolaev-di@rudn.ru>  
ssb   rsa4096/580320738BFADB25 2024-09-05 [E]  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ gpg --armor --export <PGP Fingerprint> | xclip -sel clip^C  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ gpg --armor --export 2F37B2A2E95CD9DA | xclip -sel clip  
bash: xclip: command not found  
gpg: [stdout]: write error: Broken pipe  
gpg: filter_flush failed on close: Broken pipe  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ gpg --armor --export 2F37B2A2E95CD9DA  
-----BEGIN PGP PUBLIC KEY BLOCK-----  
  
mQINBgbZj58BEADLO45OCYCKyd43U1rMLRxjvukMdh7qpraguuCetGFkQ/aj1RGx  
3RvchvOgG5o0rYZvD1e6df4FGtnhbWVS78SaN2zWqm2p1Wp3A7bH/qdpSf0rIBI1  
PnqPrTXwi05dqNHetiAVk3g/C6FgSEJSM1+scZbv5iy90iJw70sY/8qm+617yAsn  
HAIAejD7V8GMWleatbHA7sIsnLweFDvJ6jmmdzUYKxkg7YsMJxo7hQDz50ks8z5e  
FoCj6mQdfCwHu7qXfWLVTuXvaLBAXOknSEUzjiEHjrBs6naaqOIOWppGcvGD8XRN
```

```
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ git config --global user.signingkey 2F37B2A2E95CD9DA  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ git config --global commit.gpgsign true  
  
User@DESKTOP-S7MGIL2 MINGW64 ~  
$ git config --global gpg.program $(which gpg2)
```

Рис. 3: Настройка подписи git

# Создание репозитория 1



```
PS C:\Users\User\Documents\work\study> mkdir -p 2024-2025/"Научное программирование"

Каталог: C:\Users\User\Documents\work\study\2024-2025

Mode                LastWriteTime         Length Name
----                -
d-----          05.09.2024   14:12             Научное программирование

PS C:\Users\User\Documents\work\study> cd 2024-2025/"Научное программирование"
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование> gh repo create study_2024-2025_os-intro --template=yamadharma/course-directory-student-template --public
Created repository MrShogun/study_2024-2025_os-intro on GitHub
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование> gh repo create study_2024-2025_sciprog --template=yamadharma/course-directory-student-template --public
Created repository MrShogun/study_2024-2025_sciprog on GitHub
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование> git clone --recursive git@github.com:MrShogun/study_2024-2025_sciprog.git sciprog
Cloning into 'sciprog'...
remote: Enumerating objects: 33, done.
remote: Counting objects: 100% (33/33), done.
remote: Compressing objects: 100% (32/32), done.
remote: Total 33 (delta 1), reused 18 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (33/33), 18.82 KiB | 2.69 MiB/s, done.
Resolving deltas: 100% (1/1), done.
Submodule 'template/presentation' (https://github.com/yamadharma/academic-presentation-markdown-template.git) registered for path 'template/presentation'
Submodule 'template/report' (https://github.com/yamadharma/academic-laboratory-report-template.git) registered for path 'template/report'
Cloning into 'C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciprog\template\presentation'...
remote: Enumerating objects: 111, done.
remote: Counting objects: 100% (111/111), done.
remote: Compressing objects: 100% (77/77), done.
remote: Total 111 (delta 42), reused 100 (delta 31), pack-reused 0 (from 0)
Receiving objects: 100% (111/111), 102.17 KiB | 959.00 KiB/s, done.
Resolving deltas: 100% (42/42), done.
Cloning into 'C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciprog\template\report'...
remote: Enumerating objects: 142, done.
remote: Counting objects: 100% (142/142), done.
remote: Compressing objects: 100% (97/97), done.
remote: Total 142 (delta 60), reused 121 (delta 39), pack-reused 0 (from 0)
Receiving objects: 100% (142/142), 341.09 KiB | 1.22 MiB/s, done.
Resolving deltas: 100% (60/60), done.
Submodule path 'template/presentation': checked out 'c9b2712b4b2d431ad5086c9c72a02bd2fca1d4a6'
Submodule path 'template/report': checked out 'c26e22effe7b3e0495707d82ef561ab185f5c748'
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciprog> rm package.json
PS C:\Users\User\Documents\work\study\
```

Рис. 4: Создание репозитория курса на основе шаблона 1

```
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciproг> git commit -am 'feat(main): make course structure'
>>
[master 2058601] feat(main): make course structure
515 files changed, 59217 insertions(+), 14 deletions(-)
create mode 100644 labs/lab01/presentation/.gitattributes
create mode 100644 labs/lab01/presentation/.gitignore
```

Рис. 5: Создание репозитория курса на основе шаблона 2

## Создание репозитория 3

```
delete mode 100644 package.json
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciprog> git push
Enumerating objects: 263, done.
Counting objects: 100% (263/263), done.
Delta compression using up to 8 threads
Compressing objects: 100% (251/251), done.
Writing objects: 100% (262/262), 35.49 MiB | 1.23 MiB/s, done.
Total 262 (delta 44), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (44/44), completed with 1 local object.
To github.com:MrShogun/study_2024-2025_sciprog.git
   ceacd39..2058601 master -> master
PS C:\Users\User\Documents\work\study\2024-2025\Научное программирование\sciprog> _
```

Рис. 6: Создание репозитория курса на основе шаблона 3

## Создание репозитория 4

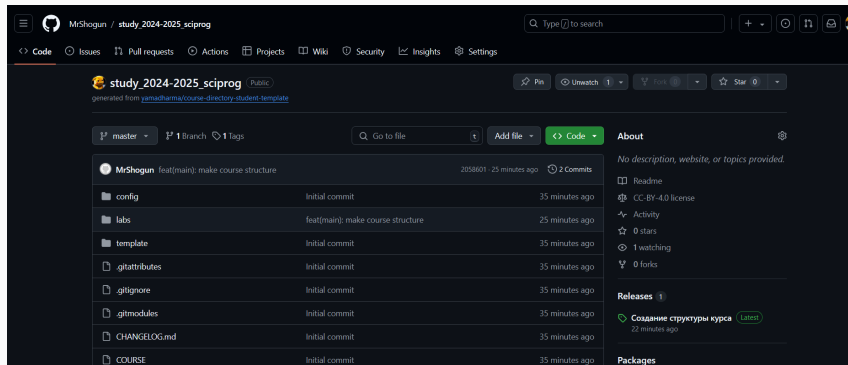


Рис. 7: Репозиторий на сайте GitHub

## Результаты

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В ходе работы я освоил основные принципы и команды Git, а также совершил первичную настройку git с созданием ключей подписи.