

Лабораторная работа №1

Системы контроля версий

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Информация

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Вводная часть

- Изучить идеологию и применение средств контроля версий.
- Освоить умения по работе с git.

- Создать базовую конфигурацию для работы с git.
- Создать ключ SSH.
- Создать ключ PGP.
- Настроить подписи git.
- Зарегистрироваться на Github.
- Создать локальный каталог для выполнения заданий по предмету.

Теоретическое введение

- Системы контроля версий (Version Control System, VCS).
- Обычно основное дерево проекта хранится в локальном или удалённом репозитории.
- При внесении изменений в содержание проекта система контроля версий позволяет их фиксировать.
- Git представляет собой набор программ командной строки.
- Git является распределённой системой контроля версий

Выполнение лабораторной работы

Профиль на github

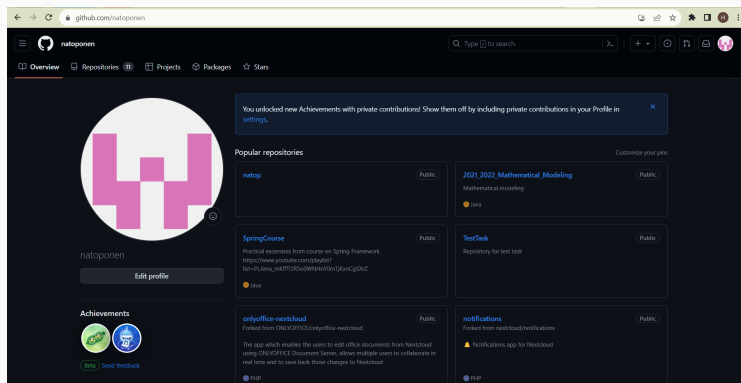
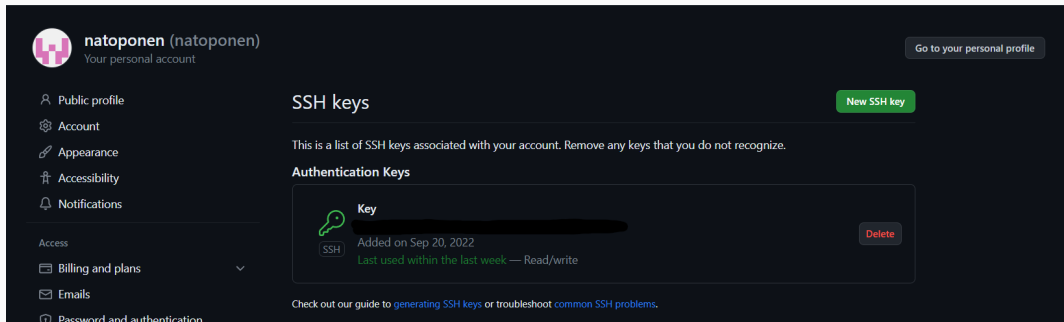


Рис. 1: Профиль на github



The screenshot shows the GitHub account settings page for user 'natoponen'. The left sidebar contains navigation links: Public profile, Account, Appearance, Accessibility, Notifications, Access, Billing and plans, Emails, and Password and authentication. The main content area is titled 'SSH keys' and includes a 'New SSH key' button. Below the title, a message states: 'This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.' Under the 'Authentication Keys' section, a single key is listed with a green key icon, the label 'Key', and a redacted key name. It shows 'Added on Sep 20, 2022' and 'Last used within the last week — Read/write'. A 'Delete' button is present next to the key. At the bottom, a link points to a guide for generating SSH keys or troubleshooting common SSH problems.

natoponen (natoponen)
Your personal account

Go to your personal profile

Public profile
Account
Appearance
Accessibility
Notifications


Access
Billing and plans
Emails
Password and authentication

SSH keys

New SSH key

This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.

Authentication Keys

Key	Added on	Last used	Permissions	Action
 Key [redacted]	Sep 20, 2022	within the last week	Read/write	Delete

Check out our guide to [generating SSH keys](#) or [troubleshoot common SSH problems](#).

Рис. 2: SSH ключ на github

```
C:\Windows\System32>gh auth login
? What account do you want to log into? GitHub.com
? What is your preferred protocol for Git operations? SSH
? Upload your SSH public key to your GitHub account? C:\Users\Toponen\.ssh\id_rsa.pub
? Title for your SSH key: (GitHub CLI)

? Title for your SSH key: GitHub CLI
? How would you like to authenticate GitHub CLI? Login with a web browser

! First copy your one-time code: ADA2-1092
Press Enter to open github.com in your browser...
✓ Authentication complete.
- gh config set -h github.com git_protocol ssh
✓ Configured git protocol
✓ SSH key already existed on your GitHub account: C:\Users\Toponen\.ssh\id_rsa.pub
✓ Logged in as natoponen
```

Рис. 3: Настройка gh

Создание репозитория с помощью gh

```
PS C:\Users\Toponen\Desktop\other\Study\mara\2023-2024\Научное программирование> gh repo create study_2023-2024_info-sec --template=yamadharma/course-directory-student-template --public
✓ Created repository natoponen/study_2023-2024_info-sec on GitHub
PS C:\Users\Toponen\Desktop\other\Study\mara\2023-2024\Научное программирование> git clone --recursive git@github.com:natoponen/study_2023-2024_info-sec.git info-sec
Cloning into 'info-sec'...
remote: Enumerating objects: 27, done.
remote: Counting objects: 100% (27/27), done.
remote: Compressing objects: 100% (26/26), done.
Receiving objects: 100% (27/27), 16.93 KiB | 8.46 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/Toponen/Desktop/other/Study/mara/2023-2024/Научное программирование/info-sec/template/presentation'...
remote: Enumerating objects: 82, done.
remote: Counting objects: 100% (82/82), done.
remote: Compressing objects: 100% (57/57), done.
remote: Total 82 (delta 28), reused 77 (delta 23), pack-reused 0
Receiving objects: 100% (82/82), 92.90 KiB | 1022.00 KiB/s, done.
Resolving deltas: 100% (28/28), done.
Cloning into 'C:/Users/Toponen/Desktop/other/Study/mara/2023-2024/Научное программирование/info-sec/template/report'...
remote: Enumerating objects: 101, done.
remote: Counting objects: 100% (101/101), done.
remote: Compressing objects: 100% (70/70), done.
remote: Total 101 (delta 40), reused 88 (delta 27), pack-reused 0
Receiving objects: 100% (101/101), 327.25 KiB | 2.34 MiB/s, done.
Resolving deltas: 100% (40/40), done.
Submodule path 'template/presentation': checked out 'b1be3800ee91f5809264cb755d316174540b753e'
Submodule path 'template/report': checked out '1d1b61dcac9c287a83917b82e3aef11a33b1e3b2'
```

Рис. 4: Создание репозитория на основе шаблона

Создание репозитория с помощью gh

```
toponen@BPM-TOPONEN: /mnt/c/Users/Toponen/Desktop/other/Study/mara/2023-2024/Научное программирование/mathsec$ make COURSE=mathsec
seq: invalid floating point argument: '8\r'
Try 'seq --help' for more information.
./config/script/functions: line 37: labs/README.md: No such file or directory
./config/script/functions: line 38: labs/README.ru.md: No such file or directory
seq: invalid floating point argument: '\r'
Try 'seq --help' for more information.
./config/script/functions: line 63: project-personal/README.md: No such file or directory
./config/script/functions: line 64: project-personal/README.ru.md: No such file or directory
seq: invalid floating point argument: '\r'
Try 'seq --help' for more information.
./config/script/functions: line 50: project-group/README.md: No such file or directory
./config/script/functions: line 51: project-group/README.ru.md: No such file or directory
```

Рис. 5: Результат выполнения команды make

Отправка в удаленный репозиторий

```
toponen@BPM-TOPONEN:/mnt/c/Users/Toponen/Desktop/other/Study/mara/2023-2024/Научное программирование/mathsec$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   config/script/functions
        modified:   config/script/list-courses
        modified:   config/script/prepare
        deleted:    package.json

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        prepare
        presentation/

no changes added to commit (use "git add" and/or "git commit -a")
toponen@BPM-TOPONEN:/mnt/c/Users/Toponen/Desktop/other/Study/mara/2023-2024/Научное программирование/mathsec$ git add .
```

Рис. 6: Добавление файлов в индекс

Отправка в удаленный репозиторий

```
PS C:\Users\Toponen\Desktop\other\Study\wara\2023-2024\Научное программирование\mathsec> git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        deleted:    package.json
        new file:   prepare
        new file:   presentation/README.md
        new file:   presentation/README.ru.md
        new file:   presentation/presentation/Makefile
        new file:   presentation/presentation/image/kulyahov.jpg
        new file:   presentation/presentation/presentation.md
        new file:   presentation/report/Makefile
        new file:   presentation/report/bib/cite.bib
        new file:   presentation/report/image/placing_800_600_tech.jpg
        new file:   presentation/report/pandoc/csl/gost-r-7-8-5-2008-numeric.csl
        new file:   presentation/report/pandoc/filters/pandoc_eqnos.py
        new file:   presentation/report/pandoc/filters/pandoc_fignos.py
        new file:   presentation/report/pandoc/filters/pandoc_schemes.py
        new file:   presentation/report/pandoc/filters/pandoc_tablenos.py
        new file:   presentation/report/pandoc/filters/pandocxsnos/_init_.py
        new file:   presentation/report/pandoc/filters/pandocxsnos/core.py
        new file:   presentation/report/pandoc/filters/pandocxsnos/main.py
        new file:   presentation/report/pandoc/filters/pandocxsnos/pandocattributes.py
        new file:   presentation/report/report.md

PS C:\Users\Toponen\Desktop\other\Study\wara\2023-2024\Научное программирование\mathsec> git commit -m 'feat(main): make course structure'
[master 3f87f8d] feat(main): make course structure
 20 files changed, 4562 insertions(+), 14 deletions(-)
delete mode 100644 package.json
create mode 100644 prepare
create mode 100644 presentation/README.md
create mode 100644 presentation/README.ru.md
create mode 100644 presentation/presentation/Makefile
create mode 100644 presentation/presentation/image/kulyahov.jpg
create mode 100644 presentation/presentation/presentation.md
create mode 100644 presentation/report/Makefile
create mode 100644 presentation/report/bib/cite.bib
create mode 100644 presentation/report/image/placing_800_600_tech.jpg
create mode 100644 presentation/report/pandoc/csl/gost-r-7-8-5-2008-numeric.csl
create mode 100644 presentation/report/pandoc/filters/pandoc_eqnos.py
create mode 100644 presentation/report/pandoc/filters/pandoc_fignos.py
create mode 100644 presentation/report/pandoc/filters/pandoc_schemes.py
create mode 100644 presentation/report/pandoc/filters/pandoc_tablenos.py
create mode 100644 presentation/report/pandoc/filters/pandocxsnos/_init_.py
create mode 100644 presentation/report/pandoc/filters/pandocxsnos/core.py
create mode 100644 presentation/report/pandoc/filters/pandocxsnos/main.py
create mode 100644 presentation/report/pandoc/filters/pandocxsnos/pandocattributes.py
create mode 100644 presentation/report/report.md
PS C:\Users\Toponen\Desktop\other\Study\wara\2023-2024\Научное программирование\mathsec> git push origin master
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 12 threads
Compressing objects: 100% (27/27), done.
Writing objects: 100% (30/30), 341.88 KiB | 2.83 MiB/s, done.
Total 30 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4), completed with 1 local object.
To github.com:natoponen/study_2023-2024_info-sec.git
 e1596ad..3f87f8d  master -> master
```

Рис. 7: Коммит и отправка в удаленный репозиторий

- Познакомился с системой контроля версий git.
- Создал репозиторий курса с помощью утилиты gh.
- Отправил данные в удаленный репозиторий.