

Презентация по лабораторной работе №1

Подготовка рабочего пространства

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Цели и задачи

- Настроить рабочее пространство для лабораторной работы
- Изучить систему контроля версий Git и язык разметки Markdown.

Цель работы

Настроить рабочее пространство для лабораторной работы. Изучить систему контроля версий Git и язык разметки Markdown.

Задание

- создать репозиторий
- настроить связь между своим компьютером и GitHub по SSH-ключу
- при помощи Makefile сконвертировать из файла .md файлы отчетов в форматах docx и pdf
- запустить все готовые отчеты на Github.

Установка пакетного менеджера chocolatey

```
PS C:\Windows\system32> Set-ExecutionPolicy Bypass -Scope Process -Force; [System.Net.ServicePointManager]::SecurityProtocol = [System.Net.ServicePointManager]::SecurityProtocol -bor 3072; Invoke-Expression (& { curl -s https://community.chocolatey.org/install.ps1 })
Forcing web requests to allow TLS v1.2 (Required for requests to Chocolatey.org)
Getting latest version of the Chocolatey package for download.
Not using proxy.
Getting Chocolatey from https://community.chocolatey.org/api/v2/package/chocolatey/2.2.2.
Downloading https://community.chocolatey.org/api/v2/package/chocolatey/2.2.2 to C:\Users\xusai\AppData\Local\Temp\chocolatey\chocoInstall\chocolatey.zip
Not using proxy.
Extracting C:\Users\xusai\AppData\Local\Temp\chocolatey\chocoInstall\chocolatey.zip to C:\Users\xusai\AppData\Local\Temp\chocolatey\chocoInstall
Installing Chocolatey on the local machine
Creating ChocolateyInstall as an environment variable (targeting 'Machine')
Setting ChocolateyInstall to 'C:\ProgramData\chocolatey'
```

Рис. 1: Установка chocolatey

Установка pandoc

```
PS C:\Windows\system32> choco install pandoc
Chocolatey v2.2.2
Installing the following packages:
pandoc
By installing, you accept licenses for the packages.
Progress: Downloading chocolatey-compatibility.extension 1.0.0... 100%

chocolatey-compatibility.extension v1.0.0 [Approved]
chocolatey-compatibility.extension package files install completed. Performing other installation steps.
  Installed/updated chocolatey-compatibility extensions.
  The install of chocolatey-compatibility.extension was successful.
  Software installed to 'C:\ProgramData\chocolatey\extensions\chocolatey-compatibility'
Progress: Downloading chocolatey-core.extension 1.4.0... 100%

chocolatey-core.extension v1.4.0 [Approved]
chocolatey-core.extension package files install completed. Performing other installation steps.
  Installed/updated chocolatey-core extensions.
  The install of chocolatey-core.extension was successful.
  Software installed to 'C:\ProgramData\chocolatey\extensions\chocolatey-core'
Progress: Downloading pandoc 3.1.11.1... 100%

pandoc v3.1.11.1 [Approved]
pandoc package files install completed. Performing other installation steps.
The package pandoc wants to run 'chocolateyInstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Installing 64-bit pandoc...
pandoc has been installed.
pandoc installed to 'C:\Users\xusai\AppData\Local\Pandoc'
Added C:\ProgramData\chocolatey\bin\pandoc.exe shim pointed to 'c:\users\xusai\appdata\local\pandoc\pandoc.exe'.
Added C:\ProgramData\chocolatey\bin\pandoc-citeproc.exe shim pointed to 'c:\users\xusai\appdata\local\pandoc\pandoc-citeproc.exe'.
  pandoc may be able to be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type `refreshenv`).
The install of pandoc was successful.
  Software installed to 'C:\Users\xusai\AppData\Local\Pandoc\'

Chocolatey installed 3/3 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
```

Создание рабочего пространства по предмету следующей иерархии.

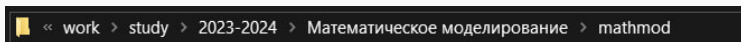


Рис. 3: Рабочее пространство

Установка make.

```
PS C:\Windows\system32> choco install make
Chocolatey v2.2.2
Installing the following packages:
make
By installing, you accept licenses for the packages.
Progress: Downloading make 4.4.1... 100%

make v4.4.1 [Approved]
make package files install completed. Performing other installation steps.
ShimGen has successfully created a shim for make.exe
The install of make was successful.
Software installed to 'C:\ProgramData\chocolatey\lib\make'

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
PS C:\Windows\system32> ■
```

Рис. 4: Установка make

Установка git.

```
PS C:\Windows\system32> choco install git
Chocolatey v2.2.2
Installing the following packages:
git
By installing, you accept licenses for the packages.
Progress: Downloading git.install 2.43.0... 100%

git.install v2.43.0 [Approved]
git.install package files install completed. Performing other installation steps.
The package git.install wants to run 'chocolateyInstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Using Git LFS
Installing 64-bit git.install...
git.install has been installed.
git.install installed to 'C:\Program Files\Git'
git.install can be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type 'refreshenv').
The install of git.install was successful.
Software installed to 'C:\Program Files\Git\'
Progress: Downloading git 2.43.0... 100%

git v2.43.0 [Approved]
git package files install completed. Performing other installation steps.
The install of git was successful.
Software installed to 'C:\ProgramData\chocolatey\lib\git'

Chocolatey installed 2/2 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

Enjoy using Chocolatey? Explore more amazing features to take your
experience to the next level at
https://chocolatey.org/compare
PS C:\Windows\system32>
```

Установка gh (рис. [-@fig:006]).

```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> choco install gh
Chocolatey v2.2.2
Installing the following packages:
gh
By installing, you accept licenses for the packages.
Progress: Downloading gh 2.43.1... 100%

gh v2.43.1 [Approved]
gh package files install completed. Performing other installation steps.
The package gh wants to run 'chocolateyInstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Installing 64-bit gh...
gh has been installed.
gh may be able to be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type `refreshenv`).
The install of gh was successful.
Software installed as 'MSI', install location is likely default.

Chocolatey installed 1/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> █
```

Рис. 6: Установка gh


Создание репозитория курса с помощью утилит

```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> gh repo create study_2023-2024_mathmod --template=yamadharma/course-directory-student-template --public
To get started with GitHub CLI, please run: gh auth login
Alternatively, populate the GH_TOKEN environment variable with a GitHub API authentication token.
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование>
```

Рис. 7: Создание репозитория

Ввод кода (рис. [-@fig:008]).

Device Activation

 Signed in as **dinara-khusainova**

Enter the code displayed on your device

A D 9 7 - 8 7 9 7

Continue

GitHub staff will never ask you to enter your code on this page.

Создание репозитория курса с помощью gh repo create

```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> gh repo create study_2023-2024_mathmod --template-yamadharma/course-directory-student-template --public
To get started with GitHub CLI, please run: gh auth login
Alternatively, populate the GH_TOKEN environment variable with a GitHub API authentication token.
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> gh auth login
? What account do you want to log into? GitHub.com
? What is your preferred protocol for Git operations on this host? SSH
? Upload your SSH public key to your GitHub account? C:\Users\xusai\.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: AD97-8797
Press Enter to open github.com in your browser...
_
```

Рис. 9: gh auth login

Создание репозитория курса с помощью gh repo create

```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> gh repo create study_2023-2024_mathmod --template=yamadharma/course-directory-student-template --public
Created repository dinara-khusainova/study_2023-2024_mathmod on GitHub
https://github.com/dinara-khusainova/study_2023-2024_mathmod
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование>
```

Рис. 10: gh repo create

git clone

```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> git clone --recursive
git@github.com:dinara-khusainova/study_2023-2024_mathmod.git mathmod
Cloning into 'mathmod'...
remote: Enumerating objects: 31, done.
remote: Counting objects: 100% (31/31), done.
remote: Compressing objects: 100% (30/30), done.
remote: Total 31 (delta 1), reused 16 (delta 0), pack-reused 0
Receiving objects: 100% (31/31), 18.38 KiB | 9.19 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\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование\mathmod\temp
late/presentation'...
remote: Enumerating objects: 95, done.
remote: Counting objects: 100% (95/95), done.
remote: Compressing objects: 100% (67/67), done.
remote: Total 95 (delta 34), reused 87 (delta 26), pack-reused 0
Receiving objects: 100% (95/95), 96.99 KiB | 509.00 KiB/s, done.
Resolving deltas: 100% (34/34), done.
Cloning into 'C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование\mathmod\temp
late/report'...
remote: Enumerating objects: 126, done.
remote: Counting objects: 100% (126/126), done.
remote: Compressing objects: 100% (87/87), done.
remote: Total 126 (delta 52), reused 108 (delta 34), pack-reused 0
Receiving objects: 100% (126/126), 335.80 KiB | 574.00 KiB/s, done.
Resolving deltas: 100% (52/52), done.
Submodule path 'template/presentation': checked out '40a1761813e197d00e8443ff1ca72c60a304f24c'
Submodule path 'template/report': checked out '7c31ab8e5dfa8cdb2d67caeb8a19ef8028ced88e'
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование> █
```

Рис. 11: git clone

Результат создания на Github

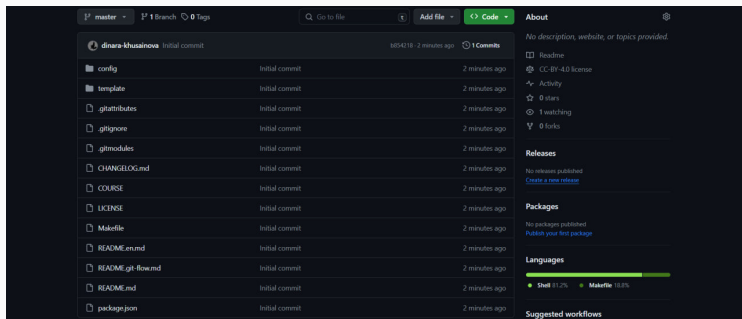


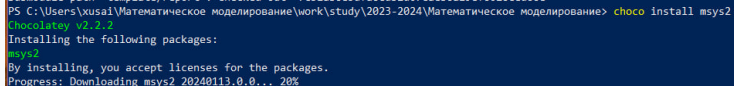
Рис. 12: Репозиторий

Папки на локальном компьютере

| Имя | Дата изменения | Тип | Размер |
|-----------------|------------------|--------------------|--------|
| config | 09.02.2024 14:17 | Папка с файлами | |
| template | 09.02.2024 14:17 | Папка с файлами | |
| .gitattributes | 09.02.2024 14:17 | Текстовый докум... | 2 КБ |
| .gitignore | 09.02.2024 14:17 | Текстовый докум... | 5 КБ |
| .gitmodules | 09.02.2024 14:17 | Текстовый докум... | 1 КБ |
| CHANGELOG | 09.02.2024 14:17 | Файл "MD" | 5 КБ |
| COURSE | 09.02.2024 14:17 | Файл | 0 КБ |
| LICENSE | 09.02.2024 14:17 | Файл | 19 КБ |
| Makefile | 09.02.2024 14:17 | Файл | 1 КБ |
| package | 09.02.2024 14:17 | JSON File | 1 КБ |
| README.en | 09.02.2024 14:17 | Файл "MD" | 1 КБ |
| README.git-flow | 09.02.2024 14:17 | Файл "MD" | 6 КБ |
| README | 09.02.2024 14:17 | Файл "MD" | 5 КБ |

Рис. 13: Папки на локальном компьютере

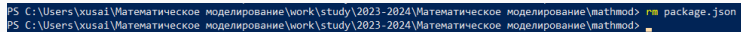
Установка msys2



```
PS C:\Users\xusa1\Математическое моделирование\work\study\2023-2024\Математическое моделирование> choco install msys2
Chocolatey v2.2.2
Installing the following packages:
msys2
By installing, you accept licenses for the packages.
Progress: Downloading msys2 20240113.0.0... 20%
```

Рис. 14: msys2

Удаление ненужных файлов



```
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование\mathmod> rm package.json
PS C:\Users\xusai\Математическое моделирование\work\study\2023-2024\Математическое моделирование\mathmod>
```

Рис. 15: Удаление

Заходим в msys2 и переходим в папку mathmod

```
xusai@DESKTOP-U18757J MSYS /c/users  
# cd c:/users/xusai/MATHMOD/work/study/2023-2024/mathmod
```

Рис. 16: Вход в msys2

Через растап скачивание make

```
xusai@DESKTOP-U18757J MSYS /c/users/xusai/MATHMOD/work/study/2023-2024/mathmod
# pacman -S make
resolving dependencies...
looking for conflicting packages...

Packages (1) make-4.4.1-1

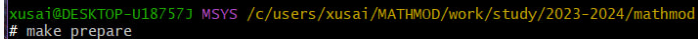
Total Download Size: 0.49 MiB
Total Installed Size: 1.61 MiB

:: Proceed with installation? [Y/n] Y
:: Retrieving packages...
  make-4.4.1-1-x86_64           505.9 KiB   507 KiB/s 00:01 [#####] 100%
(1/1) checking keys in keyring [#####] 100%
(1/1) checking package integrity [#####] 100%
(1/1) loading package files [#####] 100%
(1/1) checking for file conflicts [#####] 100%
(1/1) checking available disk space [#####] 100%
:: Processing package changes...
(1/1) installing make [#####] 100%
:: Running post-transaction hooks...
(1/1) Updating the info directory file...

xusai@DESKTOP-U18757J MSYS /c/users/xusai/MATHMOD/work/study/2023-2024/mathmod
# l
```

Рис. 17: Скачивание make

Выполняем make prepare



```
xusai@DESKTOP-U18757J MSYS /c/users/xusai/MATHMOD/work/study/2023-2024/mathmod  
# make prepare
```

Рис. 18: make prepare

Отправление изменений на github

```
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod> git add .
warning: in the working copy of 'COURSE', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'labs/README.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'labs/README.ru.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'presentation/README.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'presentation/README.ru.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'project-group/README.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'project-group/README.ru.md', LF will be replaced by CRLF the next time Git touches it
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod> git commit -am 'feat(main): make course structure'
[master 1177ca1] feat(main): make course structure
217 files changed, 58156 insertions(+), 14 deletions(-)
create mode 100644 labs/README.md
create mode 100644 labs/README.ru.md
create mode 100644 labs/lab1/presentation/Makefile
create mode 100644 labs/lab1/presentation/image/kulyabov.jpg
create mode 100644 labs/lab1/presentation/presentation.md
create mode 100644 labs/lab1/report/Makefile
create mode 100644 labs/lab1/report/bib/cite.bib
create mode 100644 labs/lab1/report/image/placeimg_800_600_tech.jpg
create mode 100644 labs/lab1/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create mode 100644 labs/lab1/report/pandoc/filters/pandoc_eqnos.py
create mode 100644 labs/lab1/report/pandoc/filters/pandoc_fignos.py
create mode 100644 labs/lab1/report/pandoc/filters/pandoc_secnos.py
```

Рис. 19: git add dit commit

```
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod> git push
Enumerating objects: 40, done.
Counting objects: 100% (40/40), done.
Delta compression using up to 16 threads
Compressing objects: 100% (30/30), done.
Writing objects: 100% (38/38), 341.43 KiB | 1.49 MiB/s, done.
Total 38 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4), completed with 1 local object.
```

Обзор изменений на github







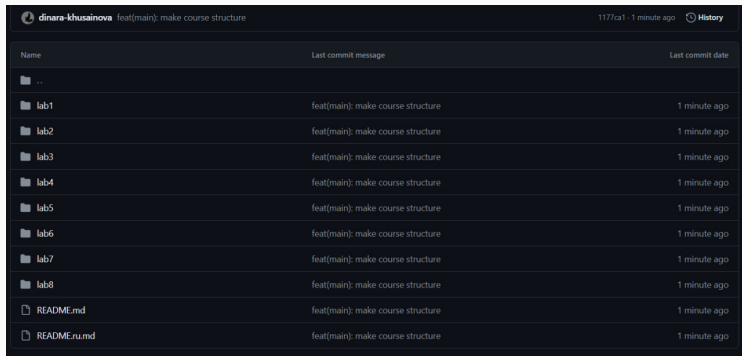
| | | | |
|--|-----------------------------------|------------------------|--|
|  dinara-khusainova | feat(main): make course structure | 1177ca1 · 1 minute ago |  2 Commits |
|  config | Initial commit | | 1 hour ago |
|  labs | feat(main): make course structure | | 1 minute ago |
|  presentation | feat(main): make course structure | | 1 minute ago |
|  project-group | feat(main): make course structure | | 1 minute ago |
|  template | Initial commit | | 1 hour ago |

Рис. 21: Репозиторий на GitHub

Обзор изменений на github



| dinara-khusainova feat(main): make course structure 1177ca1 · 1 minute ago History | | |
|--|-----------------------------------|------------------|
| Name | Last commit message | Last commit date |
| .. | | |
| lab1 | feat(main): make course structure | 1 minute ago |
| lab2 | feat(main): make course structure | 1 minute ago |
| lab3 | feat(main): make course structure | 1 minute ago |
| lab4 | feat(main): make course structure | 1 minute ago |
| lab5 | feat(main): make course structure | 1 minute ago |
| lab6 | feat(main): make course structure | 1 minute ago |
| lab7 | feat(main): make course structure | 1 minute ago |
| lab8 | feat(main): make course structure | 1 minute ago |
| README.md | feat(main): make course structure | 1 minute ago |
| README.ru.md | feat(main): make course structure | 1 minute ago |

Рис. 22: Репозиторий на GitHub

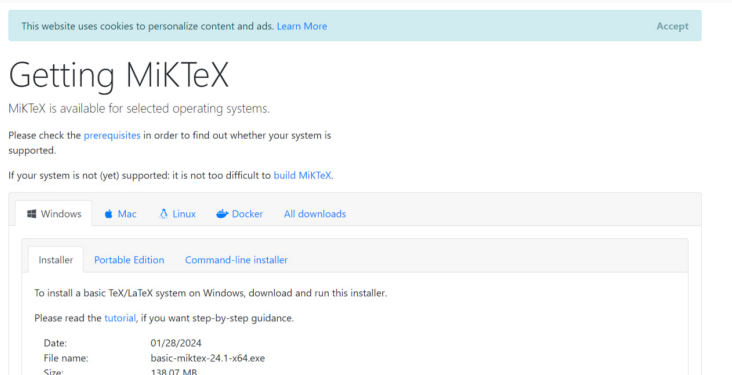


Рис. 23: Скачивание MiKTeX

Конвертация в pdf

```
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod\labs\lab1\report> pandoc report.md -  
o report.pdf --pdf-engine=lualatex -V mainfont="Times New Roman" -V sansfont="DejaVu Sans" -V monofont="DejaVu Sans Mono"  
"lualatex: security risk: running with elevated privileges  
lualatex: major issue: So far, you have not checked for MiKTeX updates.  
lualatex: security risk: running with elevated privileges  
lualatex: major issue: So far, you have not checked for MiKTeX updates.  
[WARNING] (makePDF) LaTeX Warning: Empty bibliography on input line 454.  
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod\labs\lab1\report>
```

Рис. 24: Конвертация в pdf

Конвертация в docx

```
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod\labs\lab1\report> pandoc report.md -  
o report.docx --pdf-engine=lualatex -V mainfont="Times New Roman" -V sansfont="DejaVu Sans" -V monofont="DejaVu Sans Mon  
o"  
PS C:\Users\xusai\MATHMOD\work\study\2023-2024\Математическое моделирование\mathmod\labs\lab1\report>
```

Рис. 25: Конвертация в docx

Готовые файлы в папке report








| Имя | Дата изменения | Тип | Размер |
|--|------------------|---------------------|----------|
|  bib | 09.02.2024 15:11 | Папка с файлами | |
|  image | 09.02.2024 16:51 | Папка с файлами | |
|  pandoc | 09.02.2024 15:11 | Папка с файлами | |
|  Makefile | 09.02.2024 15:11 | Файл | 2 КБ |
|  report | 09.02.2024 16:56 | Документ Microso... | 2 023 КБ |
|  report | 09.02.2024 16:56 | Файл "MD" | 8 КБ |
|  report | 09.02.2024 16:50 | Документ Adobe ... | 2 300 КБ |

Рис. 26: Папка report

Настроили рабочее пространство для лабораторной работы. Изучили систему контроля версий Git и язык разметки Markdown.