



VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS
ELEKTRONIKOS FAKULTETAS
ELEKTRONINIŲ SISTEMŲ KATEDRA

Atvirojo kodo įranga mokslui, verslui ir valdymui
Laboratorinis darbas Nr. 3
Ataskaita

Atliko: AKSfm-16 grupės studentas

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Tikrino: doc. dr. Raimond Laptik

Įvertinimas:

(pažymys, dėstytojo parašas)

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Renkantis tarp Gitlab ir Github – asmeniniams tikslams turbūt rinkčiausi Gitlab, nes jame nemokami tiek vieši, tiek privatūs projektai, tačiau vartotoju gausa ir jų kuriamais projektais stipriai pirmauja Github, todėl mokomaisiais tikslais pasirinkta būtent ši platforma.

Prisiregistravus Github svetainėje (profilis: TomasStep) joje sukuriau L3 repozitoriją bei prie jo pridedu bendraautorių (TSteps) – su kuriuo bus atliekamas laboratorinis darbas.

Grįžtų į virtualų serverį ir sukuriau naują aplanką lab3, jį inicijuojau kai git aplanką ir susieju su internetinėje aplinkoje sukurtu aplanku (url. <https://github.com/TomasStep/L3>)

```
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas@tomas-VirtualBox:~$ cd git
tomas@tomas-VirtualBox:~/git$ dir
3 Client Client2 L3 LD3 Server
tomas@tomas-VirtualBox:~/git$ mkdir lab3
tomas@tomas-VirtualBox:~/git$ cd lab3
tomas@tomas-VirtualBox:~/git/lab3$ git init
Initialized empty Git repository in /home/tomas/git/lab3/.git/
tomas@tomas-VirtualBox:~/git/lab3$ ls
tomas@tomas-VirtualBox:~/git/lab3$ mkdir Server
tomas@tomas-VirtualBox:~/git/lab3$ cd Server
tomas@tomas-VirtualBox:~/git/lab3/Server$ git init
Initialized empty Git repository in /home/tomas/git/lab3/Server/.git/
```

1 pav. Aplanko sukūrimas

```
tomas@tomas-VirtualBox: ~/git/lab3/Server
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas@tomas-VirtualBox:~/git/lab3/Server$ git remote add origin http://github.com/TomasStep/L3.git
tomas@tomas-VirtualBox:~/git/lab3/Server$ git remote -v
origin http://github.com/TomasStep/L3.git (fetch)
origin http://github.com/TomasStep/L3.git (push)
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git commit -m "first"
[master (root-commit) 620007b] first
1 file changed, 1 insertion(+)
create mode 100644 LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
Username for 'https://github.com': TomasStep
Password for 'https://TomasStep@github.com':
warning: redirecting to https://github.com/TomasStep/L3.git/
Counting objects: 3, done.
Writing objects: 100% (3/3), 226 bytes | 226.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3.git
 * [new branch] master -> master
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git commit -m "second"
[master 9c292f5] second
1 file changed, 1 insertion(+)
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
Username for 'https://github.com': TomasStep
Password for 'https://TomasStep@github.com':
warning: redirecting to https://github.com/TomasStep/L3.git/
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 265 bytes | 265.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3.git
 620007b..9c292f5 master -> master
tomas@tomas-VirtualBox:~/git/lab3/Server$ git pull origin master
warning: redirecting to https://github.com/TomasStep/L3.git/
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From http://github.com/TomasStep/L3
 * branch      master       -> FETCH_HEAD
   9c292f5..f65d90e master   -> origin/master
Updating 9c292f5..f65d90e
Fast-forward
 LD3 | 1 +
1 file changed, 1 insertion(+)
```

2 pav. Aplankų tarpusavio susiejimas

„Bendradarbis“ *git fetch* komandos pagalba pasidaro pagrindinės repozitorijos kopiją ir toliau ją susieja su savo Git aplanku.

```
tomas2@tomas2-VirtualBox: ~/git/L3
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas2@tomas2-VirtualBox:~$ cd git
tomas2@tomas2-VirtualBox:~/git$ git fetch http://github.com/TomasStep/L3
warning: redirecting to https://github.com/TomasStep/L3/
remote: Counting objects: 6, done.
remote: Compressing objects: 100% (3/3), done.
Unpacking objects: 100% (6/6), done.
remote: Total 6 (delta 0), reused 6 (delta 0), pack-reused 0
From http://github.com/TomasStep/L3
* branch      HEAD      -> FETCH_HEAD
```

3 pav. Fetch komandos panaudojimas

Toliau naudojant `git clone https://github.com/TSteps/L3` ir `git remote add tomas https://github.com/TomasStep/L3` komandas susiejamas „bendradarbio“ aplankas su pagrindinio vartotoju aplanku.

Susiejus aplankus pradedamas darbas. Gedit komanda pagrindinis vartotojas sukuria failą ir jį du kartu pildo. Po papildymų išsiunčia duomenis.

```
tomas@tomas-VirtualBox: ~/git/lab3/Server
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git commit -m "first"
[master (root-commit) 620007b] first
1 file changed, 1 insertion(+)
create mode 100644 LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
Username for 'https://github.com': TomasStep
Password for 'https://TomasStep@github.com':
warning: redirecting to https://github.com/TomasStep/L3.git/
Counting objects: 3, done.
Writing objects: 100% (3/3), 226 bytes | 226.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3.git
* [new branch]      master -> master
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git commit -m "second"
[master 9c292f5] second
1 file changed, 1 insertion(+)
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
Username for 'https://github.com': TomasStep
Password for 'https://TomasStep@github.com':
warning: redirecting to https://github.com/TomasStep/L3.git/
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 265 bytes | 265.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3.git
620007b..9c292f5  master -> master
```

5 pav. Pradinio dokumento kūrimas ir pildymas

„Bendradarbis“ savo ruožtu atsisiunčia bylą, ją papildo ir išsiunčia.

```
tomas2@tomas2-VirtualBox: ~/git/L3
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas2@tomas2-VirtualBox:~/git/L3$ git pull http://github.com/TomasStep/L3
warning: redirecting to https://github.com/TomasStep/L3/
From http://github.com/TomasStep/L3
 * branch          HEAD      -> FETCH_HEAD
tomas2@tomas2-VirtualBox:~/git/L3$ gedit L3
tomas2@tomas2-VirtualBox:~/git/L3$ gedit LD3
tomas2@tomas2-VirtualBox:~/git/L3$ git add LD3
tomas2@tomas2-VirtualBox:~/git/L3$ git commit -m "third"
[master f65d90e] third
 1 file changed, 1 insertion(+)
tomas2@tomas2-VirtualBox:~/git/L3$ git push tomas master
fatal: 'tomas' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
tomas2@tomas2-VirtualBox:~/git/L3$ git remote add tomas http://github.com/TomasStep/L3
tomas2@tomas2-VirtualBox:~/git/L3$ git push tomas master
Username for 'https://github.com': TSteps
Password for 'https://TSteps@github.com':
warning: redirecting to https://github.com/TomasStep/L3/
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 285 bytes | 285.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3
 9c292f5..f65d90e  master -> master
```

6 pav. „bendradarbio“ pildomas failas

Toliau atsisiunčiamas jau „bendradarbio“ paredaguotas failas (7 pav.) Ir siekiama konflikto. Abu vartotojai vienu kartu pildys failą ir vienas po kito jį išsiųs. Pildyti pradeda „bendradarbis“ (8 pav.)

```
tomas@tomas-VirtualBox: ~/git/lab3/Server
Failas Keisti Rodymas Paieška Terminalas Žinynas
tomas@tomas-VirtualBox:~/git/lab3/Server$ git pull origin master
warning: redirecting to https://github.com/TomasStep/L3.git/
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From http://github.com/TomasStep/L3
 * branch          master     -> FETCH_HEAD
   9c292f5..f65d90e  master     -> origin/master
Updating 9c292f5..f65d90e
Fast-forward
 LD3 | 1 +
 1 file changed, 1 insertion(+)
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git commit -m "fourth"
[master 11c1773] fourth
 1 file changed, 1 insertion(+)
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
```

7 pav. Atsisiunčiamas „bendradarbio“ paredaguotas failas

```
tomas2@tomas2-VirtualBox: ~/git/L3
Failas Keisti Rodymas Paieška Terminalas Žinynas
Username for 'https://github.com': TSteps
Password for 'https://TSteps@github.com':
warning: redirecting to https://github.com/TomasStep/L3/
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 285 bytes | 285.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To http://github.com/TomasStep/L3
   9c292f5..f65d90e master -> master
tomas2@tomas2-VirtualBox:~/git/L3$ gedit LD3
tomas2@tomas2-VirtualBox:~/git/L3$ git add LD3
tomas2@tomas2-VirtualBox:~/git/L3$ git commit -m "fourht"
[master 4c8e473] fourht
   1 file changed, 1 insertion(+)
tomas2@tomas2-VirtualBox:~/git/L3$ git push tomas master
Username for 'https://github.com': TSteps
Password for 'https://TSteps@github.com':
warning: redirecting to https://github.com/TomasStep/L3/
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 294 bytes | 294.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To http://github.com/TomasStep/L3
   f65d90e..4c8e473 master -> master
```

8 pav. Konflikto iniciavimas

Po sėkmingo užpildymo ir išsiuntimo pradeda pildyti pagrindinis vartotojas. Įvyksta klaida ir panaudojus *pull* komandą atsiųstas dokumentas atrodo taip:

```
First line wrote by Tomas
Second line wrote by Tomas
Third line wrote by TSteps
<<<<<<< HEAD
Fourth line wrote by Tomas
=====
Fourth line wrote by TSteps
>>>>>> 4c8e4736925df97f578355087136a84b8088d6a9
```

9 pav. Konflikto metu sugeneruotas dokumentas

Konfliktą galima išspręsti kaip ir per antrąjį laboratorinį darbą, pirmiausia atsisiusius konfliktuotą failą, jį sutvarkius ir sėkmingai patalpinus atgal.

```
tomas@tomas-VirtualBox: ~/git/lab3/Server
Failas Keisti Rodymas Paieška Terminalas Žinynas
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (1/1), done.
remote: Total 3 (delta 1), reused 3 (delta 1), pack-reused 0
Unpacking objects: 100% (3/3), done.
From http://github.com/TomasStep/L3
* branch          master      -> FETCH_HEAD
  f65d90e..4c8e473  master      -> origin/master
Auto-merging LD3
CONFLICT (content): Merge conflict in LD3
Automatic merge failed; fix conflicts and then commit the result.
tomas@tomas-VirtualBox:~/git/lab3/Server$ gedit LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git add LD3
tomas@tomas-VirtualBox:~/git/lab3/Server$ git push origin master
Username for 'https://github.com': TomasStep
Password for 'https://TomasStep@github.com':
warning: redirecting to https://github.com/TomasStep/L3.git/
To http://github.com/TomasStep/L3.git
 ! [rejected]          master -> master (non-fast-forward)
error: failed to push some refs to 'http://github.com/TomasStep/L3.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. Integrate the remote changes (e.g.
hint: 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
tomas@tomas-VirtualBox:~/git/lab3/Server$
```

10 pav. Konflikto sprendimo kelias

Išsprendus konfliktą ir „bendradarbiui atsisiuntus failą gaunamas toks rezultatas:

```
First line wrote by Tomas
Second line wrote by Tomas
Third line wrote by TSteps
Fourth line wrote by Tomas
Fourth line wrote by TSteps
```

11 pav. Galutinis rezultatas