

Ministerul Educației al Republicii Moldova

Universitatea Tehnică a Moldovei

Catedra: Automatica și Tehnologii Informaționale

# RAPORT

Lucrare de laborator Nr.2

*la Medii Interactive de Dezvoltare a Produselor Soft*

A efectuat:

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A verificat:

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Tema: Version Control System si modul de setare a unui server

Scopul lucrarii:

- Intelegerea si folosirea CLI(basic level)
- Administrarea remote a masinilor linux machine folosind SSH (remote code editing)
- Version Control System (git|| mercurial|| svn)
- Compileaza codul C/C++/Java/Python prin intermediul CLI, folosind compilatoarele gcc/g++/javac/python

Formularea conditiei problemei (sarcina de lucru):

- Advanced Level (grade 9||10):
  1. Seteaza un branch to track a remote origin pe care vei putea sa faci push (ex GitHub, Bitbucket or custom server)
  2. Reseteaza un branch la commit-ul anterior
  3. Merge 2 branches
  4. Conflict solving between 2 branches
- Bonus Point:
  - Scribe un script care va Compila HelloWorldPrograms projects;

## Afisarea rezultatelor

- Seteaza un branch to track a remote origin pe care voi executa un push...

```
MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git checkout -b track origin/master
Branch track set up to track remote branch master from origin.
Switched to a new branch 'track'

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ echo "# Branch-Track" >> track.md

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git add track.md
warning: LF will be replaced by CRLF in track.md.
The file will have its original line endings in your working directory.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git commit -m "push to track"
[track e837a41] push to track
warning: LF will be replaced by CRLF in track.md.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 track.md

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git push origin master
Everything up-to-date

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git push -u origin master
Branch master set up to track remote branch master from origin.
Everything up-to-date

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git status
On branch track
Your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)
nothing to commit, working directory clean

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git push -u origin track
Counting objects: 3, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 295 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/RusuMaxim/MIDPS.git
 * [new branch]      track -> track
Branch track set up to track remote branch track from origin.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ |
```

- Reseteaza un Branch la comitul anterior:

```
MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git log -1
commit e837a4155f5fd111df8963b240682b539964827f
Author: Rusu Maxim <MaximMercedesSL5@mail.ru>
Date:   Wed Apr 20 12:39:34 2016 +0300

    push to track

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git reset --hard^HEAD
error: unknown option '^HEAD'
usage: git reset [--mixed | --soft | --hard | --merge | --keep] [-q] [<commit>]
       or: git reset [-q] <tree-ish> [--] [<paths>...]
       or: git reset --patch [<tree-ish>] [--] [<paths>...]

    -q, --quiet                be quiet, only report errors
    --mixed                    reset HEAD and index
    --soft                     reset only HEAD
    --hard                     reset HEAD, index and working tree
    --merge                    reset HEAD, index and working tree
    --keep                     reset HEAD but keep local changes
    -p, --patch                select hunks interactively
    -N, --intent-to-add        record only the fact that removed paths will be added

Later

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ git reset --hard HEAD^
HEAD is now at d256bdc first commit

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (track)
$ |
```

- Merge 2 branches:

```
MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git branch test

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git checkout test
Switched to branch 'test'

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ echo "# QWERTY" >> test.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git add test.txt
warning: LF will be replaced by CRLF in test.txt.
The file will have its original line endings in your working directory.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git commit -m "test"
[test e43839d] test
warning: LF will be replaced by CRLF in test.txt.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 test.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git merge test
Updating d256bdc..e43839d
Fast-forward
 test.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 test.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ |
```



- Conflict solving between 2 branches:

```

MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS
Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ echo "# conflict - branch Master" >> conflict.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git add conflict.txt
warning: LF will be replaced by CRLF in conflict.txt.
The file will have its original line endings in your working directory.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git commit -m "adaugat conflict.txt"
[master cf0a585] adaugat conflict.txt
warning: LF will be replaced by CRLF in conflict.txt.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 conflict.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (master)
$ git checkout test
Switched to branch 'test'

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ echo "# conflict - branch Test" >> conflict.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git add conflict.txt
warning: LF will be replaced by CRLF in conflict.txt.
The file will have its original line endings in your working directory.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git commit -m "add conflict.txt"
[test 142c366] add conflict.txt
warning: LF will be replaced by CRLF in conflict.txt.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 conflict.txt

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test)
$ git merge master
Auto-merging conflict.txt
CONFLICT (add/add): Merge conflict in conflict.txt
Automatic merge failed; fix conflicts and then commit the result.

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test|MERGING)
$ git mergetool

This message is displayed because 'merge.tool' is not configured.
See 'git mergetool --tool-help' or 'git help config' for more details.
'git mergetool' will now attempt to use one of the following tools:
opendiff kdiff3 tkdiff xxdiff meld tortoisemerge gvimdiff diffmerge ecme
rge p4merge araxis bc codecompare emerge vimdiff
Merging:
conflict.txt

Normal merge conflict for 'conflict.txt':
{local}: created file
{remote}: created file
Hit return to start merge resolution tool (vimdiff):
3 files to edit

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS (test|MERGING)
$ |

```

```

MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS
# conflict - branch Test |<<<<<< HEAD |>>>>>> master
# conflict - branch Test |
# conflict - branch Mas |
>>>>>> master |

```

- Bonus Point:  
Script care va compila HelloWorldPrograms project:

```

MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS
# /bin/bash

cd ./HelloWorldPrograms

gcc -o ./c/hello.exe ./c/hello.c
./c/hello.exe

g++ -o ./cpp/hello.exe ./cpp/hello.cpp
./cpp/hello.exe

javac ./java/hello.java
java -cp ./java HelloWorld

python ./python/hello.py

ruby ./ruby/hello.rb
~
~

```

Key

```

MINGW64:/c/Users/Adrian/Desktop/maxim/MIDPS

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS
$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/Adrian/.ssh/id_rsa):
Created directory '/c/Users/Adrian/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/Adrian/.ssh/id_rsa.
Your public key has been saved in /c/Users/Adrian/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:c0vQ+VkyBb5WaUzjyC+DufbJydB1yTEddNL1qn2HsAE Adrian@Lenovo-PC
The key's randomart image is:
+----[RSA 2048]-----+
|
| ..*++
| . + * +*
| . E * Boo
| . = X..+
| S = X +o.
| + = X o
|   = + o o
|   . = o ..
|   *
+----[SHA256]-----+

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS
$ cd ~/.ssh/id_rsa.pub
bash: cd: /c/Users/Adrian/.ssh/id_rsa.pub: Not a directory

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS
$ cd ~/.ssh/id_rsa
bash: cd: /c/Users/Adrian/.ssh/id_rsa: Not a directory

Adrian@Lenovo-PC MINGW64 ~/Desktop/maxim/MIDPS
$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQAC/c5Wq6QQX93okwXkUdx94PoKrHC5vIaOX7akITJgg
naJaS+sBhEpstqAwoBwIA370UJyCjRcpzJoD5SMasSc1UNe0yshoIeDxjR9YNU1a+ioAwLDWuN8uK01x
3wDPVn4m1Fd6NaxBgw5zNhk1xnoFTSN+NneCIKTL74gUQpYVrj+0qGFXxqgwu6cWRXKrZ1XypM+0+4KD
jTtxtvLjNKpZq73NQAqmi2y+pG8fq+BNT9/gxNyLaxF6fUo23WkzafzYY9TP3z13f4tcQIRo98LmNAx4i
i6rw9IceXmzW2z12VkfAG1ZFfJgZhoWH4NLz3C9EmGqJ123nvDcltHvI7nP Adrian@Lenovo-PC

```

Link catre repository online:

<https://github.com/RusuMaxim/MIDPS>

## **Concluzie:**

În urma executiei acestei lucrari de laborator au fost captate deprinderile de baza cu lucrul în GitHub unul dintre cele mai comode optiuni în DVCS care permite schimbul informatiei cit în mod public cit și în privat.

În cadrul lucrării propuse au aparut deprinderi de lucru cu repositoryul local care constituie însăși calculatorul personal, cit și cu repositoryul online prin intermediul caruia și se executa acel schimb de informatie mentionat anterior.

La mod concret pot mentiona: crearea unui nou repositoryu, confirmarea cheii necesare pentru legatura, crearea branchurilor noi , unirea lor în unul singur (merge), și în final solutionarea conflictului prin intermediul VCS .

Manipularile mentionate anterior au fost executate pe doua calculatoare diferite pentru excluderea unor posibilitatii de a face eroare în timpul manipularii branchurilor...