

Ministerul Educatiei al Republicii Moldova

Universitatea Tehnică a Moldovei

Catedra: Tehnologii informationale

RAPORT

Lucrare de laborator Nr. 2

la MIDPS

A efectuat:

*st.gr.TI-143
Gaina Cristin*

A verificat:

*lect.sup.
Cojocaru S.*

Chişinău 2016

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

Obiective:

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

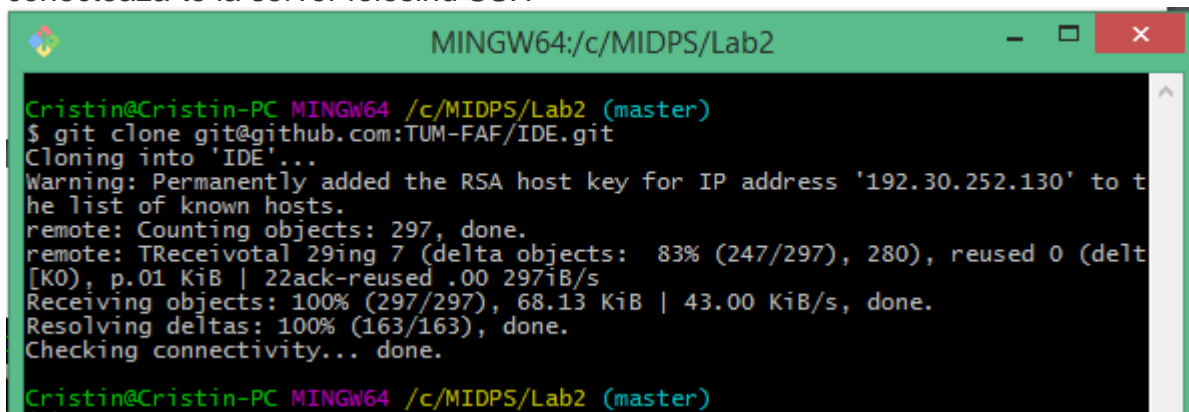
Laboratory Requirements:

- *Basic Level* (nota 5 || 6) :
 - conecteaza-te la server folosind SSH
 - compileaza cel putin 2 sample programs din setul HelloWorldPrograms folosind CLI
 - executa primul commit folosind VCS
- *Normal Level* (nota 7 || 8):
 - initializeaza un nou repository
 - configureaza-ti VCS
 - crearea branch-urilor (creeaza cel putin 2 branches)
 - commit pe ambele branch-uri (cel putin 1 commit per branch)
- *Advanced Level* (nota 9 || 10):
 - seteaza un branch to track a remote origin pe care vei putea sa faci push (ex. Github, Bitbucket or custom server)
 - reseteaza un branch la commit-ul anterior
 - merge 2 branches
 - rezolvarea conflictelor a 2 branches
- *Bonus Point*:
 - Scrie un script care va compila HelloWorldPrograms projects. [vezi lista](#)

Implementarea Task-uri:

- *Basic Level* (nota 5 || 6) :

conecteaza-te la server folosind SSH



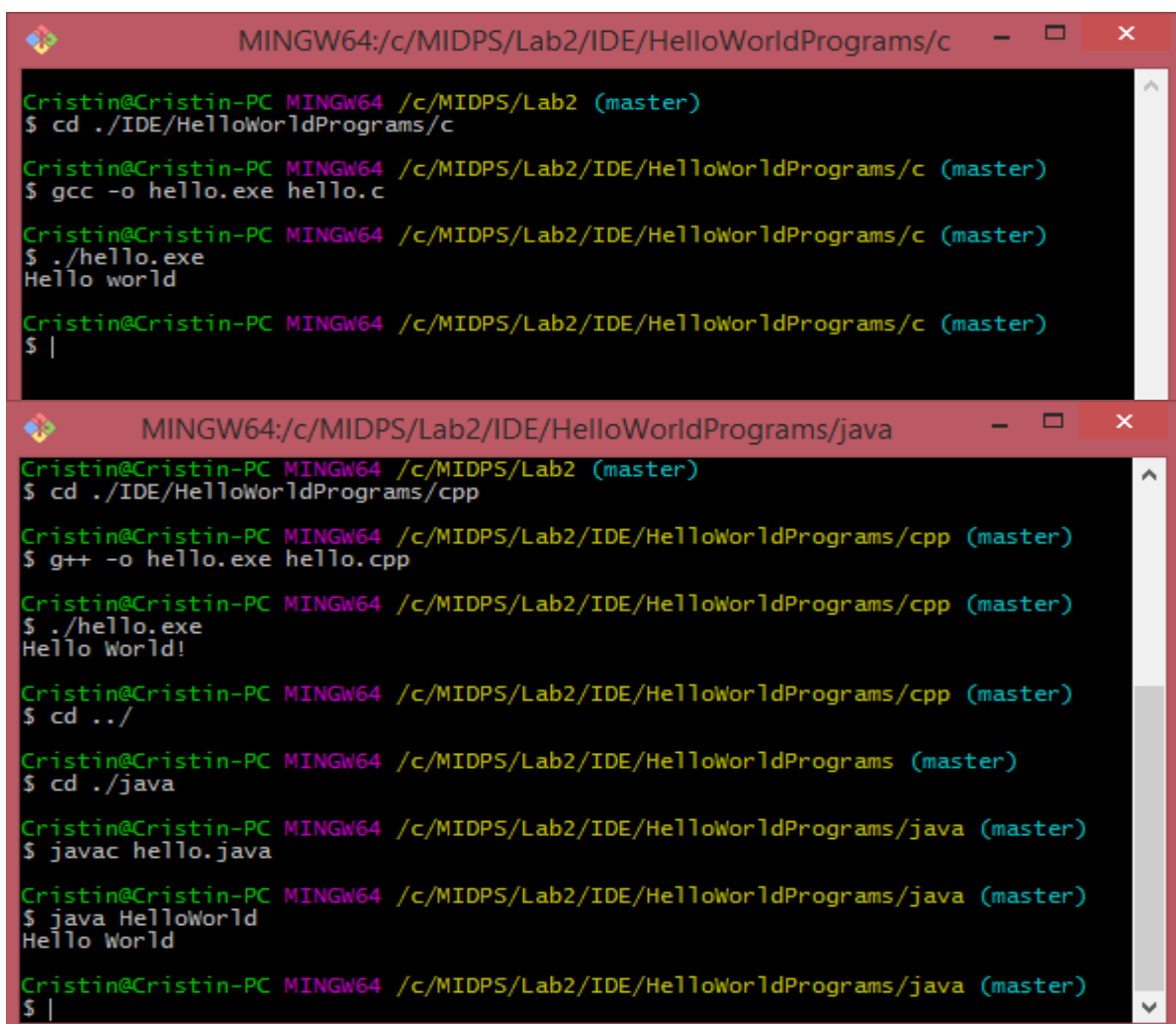
```
MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git clone git@github.com:TUM-FAF/IDE.git
Cloning into 'IDE'...
Warning: Permanently added the RSA host key for IP address '192.30.252.130' to the list of known hosts.
remote: Counting objects: 297, done.
remote: Total 297 (delta 7, reused 0 (delta 0), received 290 (delta 7), reused 0 (delta 0), pack-reused 290)
Receiving objects: 100% (297/297), 68.13 KiB | 43.00 KiB/s, done.
Resolving deltas: 100% (163/163), done.
Checking connectivity... done.

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
```

Cu ajutorul comenzii **git clone** am facut clonare la repozitoriu folosind ssh.

- compileaza cel putin 2 sample programs din setul HelloWorldPrograms folosind CLI



```
MINGW64:/c/MIDPS/Lab2/IDE/HelloWorldPrograms/c

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ cd ../IDE/HelloWorldPrograms/c

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/c (master)
$ gcc -o hello.exe hello.c

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/c (master)
$ ./hello.exe
Hello world

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/c (master)
$ |

MINGW64:/c/MIDPS/Lab2/IDE/HelloWorldPrograms/java

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ cd ../IDE/HelloWorldPrograms/cpp

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/cpp (master)
$ g++ -o hello.exe hello.cpp

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/cpp (master)
$ ./hello.exe
Hello World!

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/cpp (master)
$ cd ../

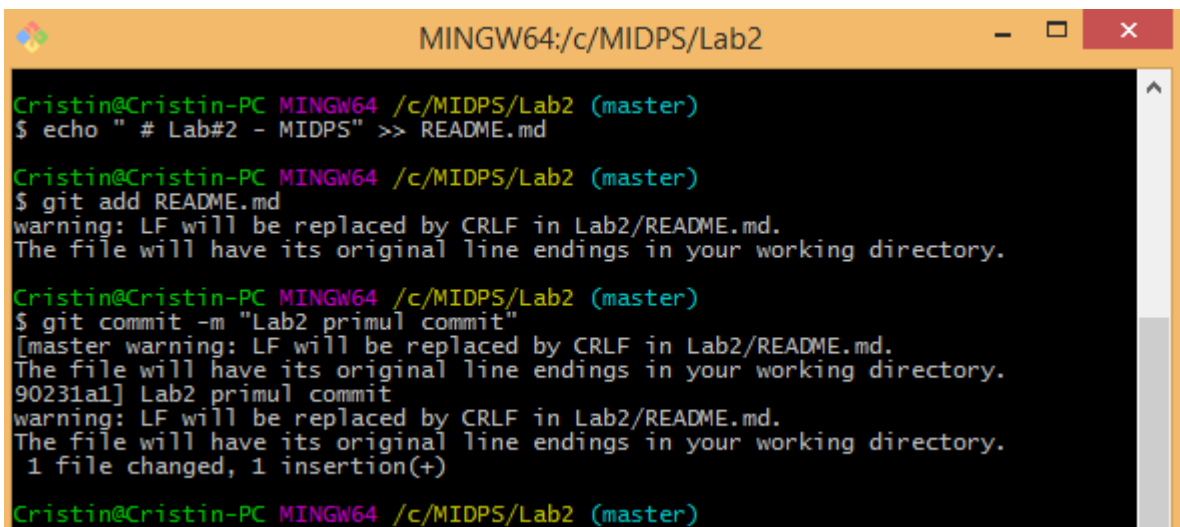
Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms (master)
$ cd ./java

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/java (master)
$ javac hello.java

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/java (master)
$ java HelloWorld
Hello World

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2/IDE/HelloWorldPrograms/java (master)
$ |
```

- executa primul commit folosind VCS



```

MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ echo "# Lab#2 - MIDPS" >> README.md

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git add README.md
warning: LF will be replaced by CRLF in Lab2/README.md.
The file will have its original line endings in your working directory.

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git commit -m "Lab2 primul commit"
[master warning: LF will be replaced by CRLF in Lab2/README.md.
The file will have its original line endings in your working directory.
90231a1] Lab2 primul commit
warning: LF will be replaced by CRLF in Lab2/README.md.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)

```

- *Normal Level* (nota 7 || 8):
 - initializeaza un nou repository
 - configureaza-ti VCS
 - crearea branch-urilor (creeaza cel putin 2 branches)
 - commit pe ambele branch-uri (cel putin 1 commit per branch)

-
- initializeaza un nou repository
 - configureaza-ti VCS



```

MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git init
Reinitialized existing Git repository in C:/MIDPS/Lab2/.git/

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git config --global user.name "Gaina Cristin"

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git config --global user.email cristin.gaina1995@gmail.com

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git config user.name
Gaina Cristin

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ git config user.email
cristin.gaina1995@gmail.com

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (master)
$ |

```

- crearea branch-urilor (creeaza cel putin 2 branches)
- commit pe ambele branch-uri (cel putin 1 commit per branch)

```
MINGW64:/c/MIDPS

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ git branch Cristin

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ git branch Gaina

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ git branch
  Cristin
  Gaina
* master

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ echo "# Cristin - Commit" >> cristin.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ echo "# Gaina - Commit" >> Gaina.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS (master)
$ git checkout Cristin
Switched to branch 'Cristin'

Cristin@Cristin-PC MINGW64 /c/MIDPS (Cristin)
$ git add cristin.txt
warning: LF will be replaced by CRLF in cristin.txt.
The file will have its original line endings in your working directory.

Cristin@Cristin-PC MINGW64 /c/MIDPS (Cristin)
$ git status
On branch Cristin
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   cristin.txt

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

        Gaina.txt
        Lab2/IDE/

Cristin@Cristin-PC MINGW64 /c/MIDPS (Cristin)
$ git checkout Gaina
A       cristin.txt
Switched to branch 'Gaina'

Cristin@Cristin-PC MINGW64 /c/MIDPS (Gaina)
$ git add Gaina.txt
warning: LF will be replaced by CRLF in Gaina.txt.
The file will have its original line endings in your working directory.

Cristin@Cristin-PC MINGW64 /c/MIDPS (Gaina)
$ git status
On branch Gaina
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   Gaina.txt
        new file:   cristin.txt
```

- *Advanced Level* (nota 9 || 10):
 - seteaza un branch to track a remote origin pe care vei putea sa faci push (ex. Github, Bitbucket or custom server)
 - reseteaza un branch la commit-ul anterior
 - merge 2 branches
 - rezolvarea conflictelor a 2 branches

- seteaza un branch to track a remote origin pe care vei putea sa faci push (ex. Github, Bitbucket or custom server)

```

Cristin@Cristin-PC MINGW64 /c/MIDPS (track)
$ git checkout -b totrack origin/master
A      Gaina.txt
A      cristin.txt
Branch totrack set up to track remote branch master from origin.
Switched to a new branch 'totrack'

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ echo "# totrack Branch - commit" >> totrack.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ git add totrack.txt
warning: LF will be replaced by CRLF in totrack.txt.
The file will have its original line endings in your working directory.

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ git commit -m "commit"
[totrack 4f75fc6] commit
warning: LF will be replaced by CRLF in Gaina.txt.
The file will have its original line endings in your working directory.
warning: LF will be replaced by CRLF in cristin.txt.
The file will have its original line endings in your working directory.
warning: LF will be replaced by CRLF in totrack.txt.
The file will have its original line endings in your working directory.
3 files changed, 3 insertions(+)
create mode 100644 Gaina.txt
create mode 100644 cristin.txt
create mode 100644 totrack.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ |

```

- reseteaza un branch la commit-ul anterior

```

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ git log -1
commit 4f75fc6669e642c1a89af17d92a877e297938784
Author: Gaina Cristin <cristin.gaina1995@gmail.com>
Date:   Wed Mar 23 19:28:54 2016 +0200

    commit

Cristin@Cristin-PC MINGW64 /c/MIDPS (totrack)
$ git reset --hard HEAD^
HEAD is now at 6123e5f test

```

- merge 2 branches

```
MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git commit -m "al doilea"
[Cristin 05b1f44] al doilea
warning: LF will be replaced by CRLF in file1.txt.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 file1.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git merge Gaina
Merge made by the 'recursive' strategy.
file2.txt | 1 +
1 file changed, 1 insertion(+)
create mode 100644 file2.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git branch
* Cristin
  Gaina
  master
  track
```

- rezolvarea conflictelor a 2 branches

```
MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ echo "# hello, master Branch" >> fil.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git add fil.txt
warning: LF will be replaced by CRLF in fil.txt.
The file will have its original line endings in your working directory.

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git comit -m "added fil.txt"
git: 'comit' is not a git command. See 'git --help'.

Did you mean this?
    commit

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git commit -m "added fil.txt"
[Cristin 982333a] added fil.txt
warning: LF will be replaced by CRLF in fil.txt.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 fil.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git checkout Gaina
D      track.txt
Switched to branch 'Gaina'

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Gaina)
$ |
```

```
MINGW64:/c/MIDPS/Lab2
Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Gaina)
$ echo "# unu" >> conflict.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Gaina)
$ 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.

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Gaina)
$ git commit -m "conflict-Gaina"
[Gaina 130c4ec] conflict-Gaina
warning: LF will be replaced by CRLF in conflict.txt.
The file will have its original line endings in your working directory.
warning: LF will be replaced by CRLF in fil.txt.
The file will have its original line endings in your working directory.
2 files changed, 2 insertions(+)
create mode 100644 conflict.txt
create mode 100644 fil.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Gaina)
$ git checkout Cristin
D      track.txt
Switched to branch 'Cristin'

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ echo "# doi" >> conflict.txt

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git ad ./conflict.txt
git: 'ad' is not a git command. See 'git --help'.

Did you mean one of these?
    add
    am

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ 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.

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git commit -m "conflict- Cristin"
[Cristin 962b1fb] conflict- Cristin
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

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin)
$ git merge Gaina
Auto-merging fil.txt
CONFLICT (add/add): Merge conflict in fil.txt
Auto-merging conflict.txt
CONFLICT (add/add): Merge conflict in conflict.txt
Automatic merge failed; fix conflicts and then commit the result.
```



```

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin|MERGING)
$ git mergetool

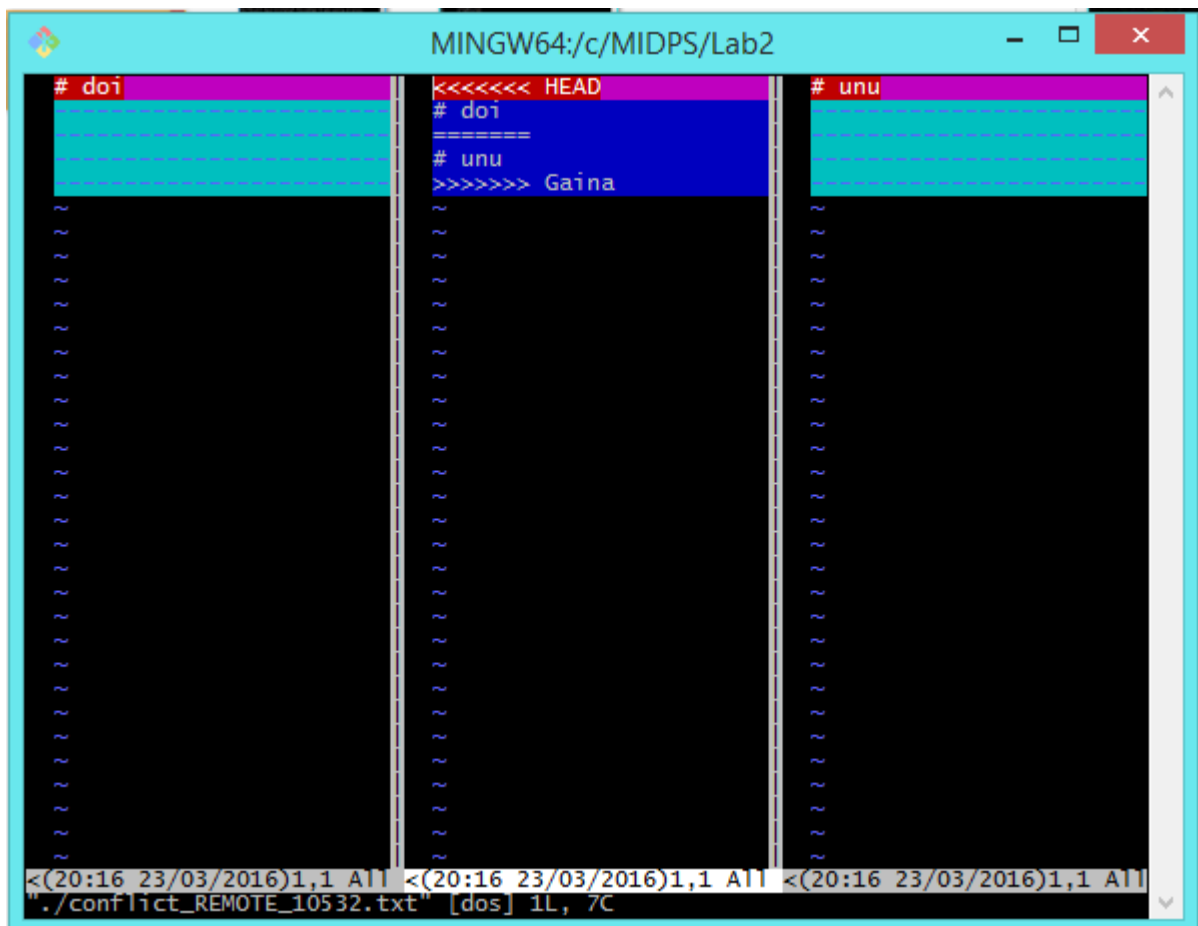
This message is displayed because 'merge.tool' is not configured.
See 'git mergetool --tool-help' or 'git help config' for more details.
'git mergetool' will now attempt to use one of the following tools:
opendiff kdiff3 tkdiff xxdiff meld tortoisemerge gvimdiff diffuse diffmerge ecme
rge p4merge araxis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

Normal merge conflict for 'fil.txt':
{local}: created file
{remote}: created file
Hit return to start merge resolution tool (vimdiff):
3 files to edit
fil.txt seems unchanged.
Was the merge successful? [y/n] y

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin|MERGING)
$ |

```



- *Bonus Point:*
 - Scrie un script care va compila HelloWorldPrograms projects. [vezi lista](#)

```
MINGW64:/c/MIDPS/Lab2

./c/hello.exe

echo "C++"
g++ -o ./cpp/hello.exe ./cpp/hello.cpp
./cpp/hello.exe

echo "Java"
javac ./java/hello.java
java -cp ./java HelloWorld

echo "Python"
python ./python/hello.py

echo "Ruby"
/c/MIDPS/Lab2/point.sh [unix] (20:47 23/03/2016) 20,11 85%
"point.sh" [unix] 21L, 300C
```

```
Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin|MERGING)
$ vim point.sh
```

```
MINGW64:/c/MIDPS/Lab2

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin|MERGING)
$ ./point.sh
C
Hello world
C++
Hello World!
Java
Hello World
Python
Hello World !
Ruby
Hello World !

Cristin@Cristin-PC MINGW64 /c/MIDPS/Lab2 (Cristin|MERGING)
$ |
```

Concluzie:

In cadrul acestei lucrari de laborator am facut cunostinta cu Git care este folosit si raspindit foarte vertiginous in cadrul companiilor mari pentru lucrul in echipa. Am capatat primele deprinderi cu comenzile din Git care o sa ne ajute foarte mult in viitor in cadrul dezvoltarii unui proiect in grup. Am obtinut primele deprinderi cu comenzile de compilare a codului direct din CLI. GIT-ul poate fi considerat ca fiind unul dintre cele mai populare DVCS si unul dintre cele mai comode .