Software Methods and Tools
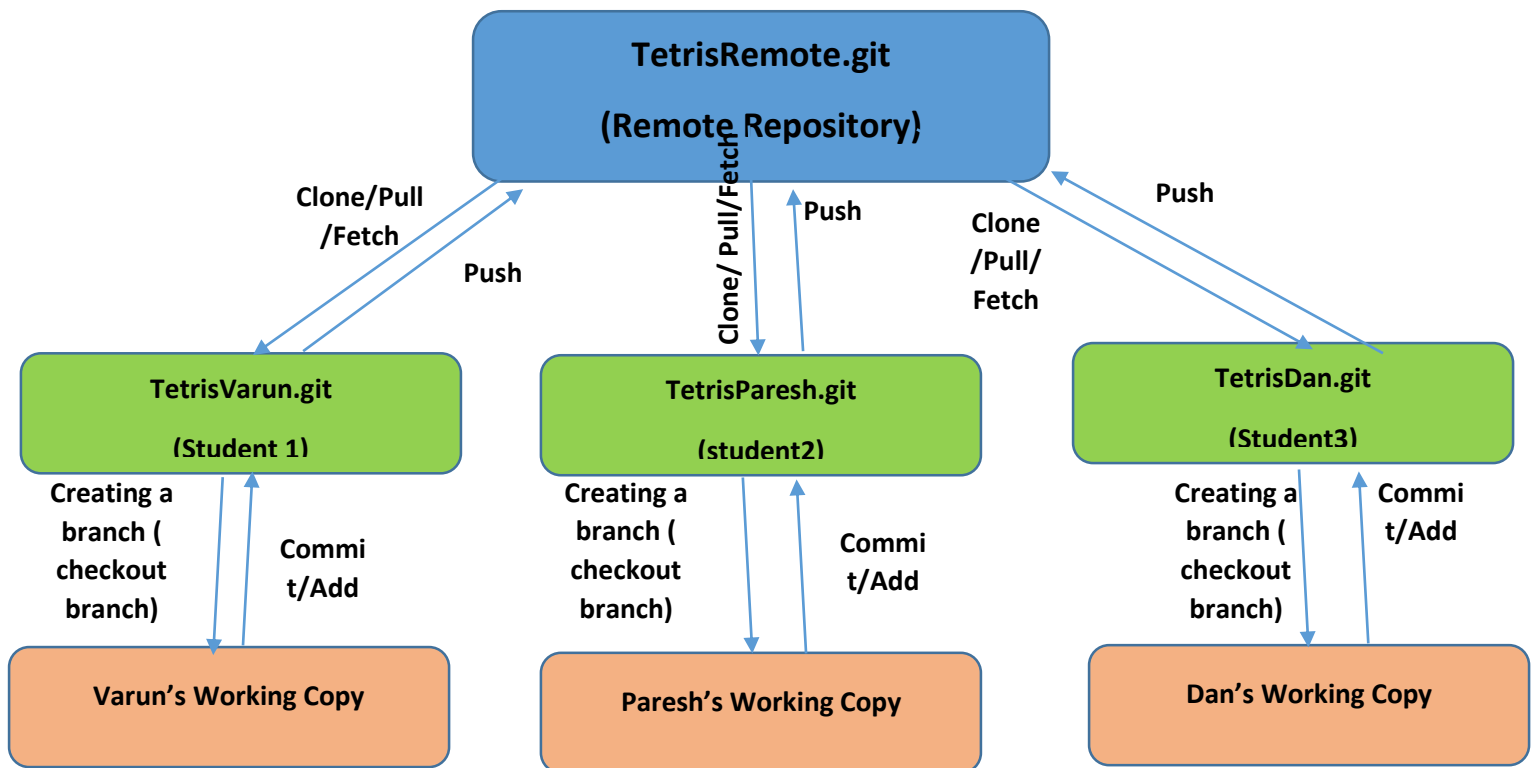
Spring 2016

Assignment 8

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Overview:

 I have used concept of Centralized repository structure. Remote repository TetrisRemote.git is the repository where all users push their changes to and pull latest code from. Here are the functions performed:

- Students are using remote repository TetrisRemote.git to clone into their Local repository
- Then they move to existing branches or create new branches to make updates or add new source codes.
- After making changes they add the code(which is also called staging) and commit it.
- After committing code is pushed to TetrisRemote.git so that the code has latest updates.

I have developed a working flow such that all the important concepts are covered. Here is the working flow. :

Performed below commands for GIT initialization.

git config --global user.name "Varun"
git config --global user.email vp4gb@mail.umkc.edu
git config --global core.editor emacs

Initial Remote repository creation:

mkdir TetrisRemote.git
cd TetrisRemote.git
git init - -bare
(used bare as this is not a working directory)

Adding files/source code to Remote Repository:

To add files to remote repository I created first varun's local repo and added source files to it. And then I tracked, committed and pushed all source files to Remote Repository.

Steps to create Varun's Local repo and initializing it.

cd .. (as I was in remote repo)
mkdir TetrisVarun.git
cd TetrisVarun.git
git init

Then I copied source code folder to the TetrisVarun.git folder

Command performed to Track files.

git add *

Command performed to commit code.

git commit –m "INITIAL COMMIT"

Command performed to add source to remote repository.

First I performed command to add remote repo in the list of remote servers:

git remote add origin C:/TetrisRemote.git

Command to Push source code from TetrisVarun to remote repo.

git push origin master

Command perfomed to Clone repo for user local repos PareshTetris and DanTetris

Created two directories TetrisParesh and TetrisDan for both the users

cd ..

mkdir TetrisParesh

mkdir TetrisDan

Executed below command to clone code form remote repository to both local directories.

git clone file:///C:/TetrisRemote.git TetrisParesh

git clone file:///C:/TetrisRemote.git TetrisDan

```
Admin@sweetp-PC MINGW32 /c (master)
$ mkdir TetrisParesh.git

Admin@sweetp-PC MINGW32 /c (master)
$ mkdir TetrisDan.git

Admin@sweetp-PC MINGW32 /c (master)
$ git clone file:///C:/TetrisRemote.git TetrisParesh.git
Cloning into 'TetrisParesh.git'...
remote: Counting objects: 7, done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 7 (delta 0), reused 0 (delta 0)
Receiving objects: 100% (7/7), 12.96 KiB | 0 bytes/s, done.
Checking connectivity... done.

Admin@sweetp-PC MINGW32 /c (master)
$ git clone file:///C:/TetrisRemote.git TetrisDan.git
Cloning into 'TetrisDan.git'...
remote: Counting objects: 7, done.
remote: Compressing objects: 100% (7/7), done.
Receiving objects: 100r% (7/7), 12.96 KiB | 0 bytes/s, done.
emote: Total 7 (delta 0), reused 0 (delta 0)
Checking connectivity... done.

Admin@sweetp-PC MINGW32 /c (master)
$
```

Now each student will perform actions sequentially and all important operations of git will be performed.

Actions performed by Varun:

Creating and switching to a branch (or branching):

cd ../TetrisVarun.git

git checkout –b development

Modifying a file:

Vi Tetris.java

Opened Tetris.java file in vi editor, did changes in row 2 and saved it.

Command used to staging Tetris.java file.

git add Tetris.java

Command to check status:

git status

Command to commit changes:

git commit –m "Development in Progress"

git push origin master

```
Admin@sweetp-PC MINGW32 /c/TetrisVarun.git (development)
$ git add Tetris.java
warning: LF will be replaced by CRLF in Tetris.java.
The file will have its original line endings in your working directory.

Admin@sweetp-PC MINGW32 /c/TetrisVarun.git (development)
$ git commit -m "Development in Progress"
[development warning: LF will be replaced by CRLF in Tetris.java.
The file will have its original line endings in your working directory.
7ef43f1] Development in Progress
warning: LF will be replaced by CRLF in Tetris.java.
The file will have its original line endings in your working directory.
 1 file changed, 1 insertion(+), 1 deletion(-)

Admin@sweetp-PC MINGW32 /c/TetrisVarun.git (development)
$ git push origin development
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 330 bytes | 0 bytes/s, done.
Total 3 (delta 2), reused 0 (delta 0)
To C:/TetrisRemote.git
 * [new branch]      development -> development

Admin@sweetp-PC MINGW32 /c/TetrisVarun.git (development)
```

Actions performed by Paresh:

cd ../TetrisParesh

Check the branch information on remote system:

This command shows that there is one new branch "development" in remote repo.

git remote show origin

Command to fetch the latest changes.

As there was one new branch so fetched the latest code.

git fetch origin

Switched to master branch and did changes on BoardPanel.java file at the

git checkout master

vi BoardPanel.java

He then added BoardPanel.java(staged), committed it and pushed it to TetrisRemote repo:

git add BoardPanel.java

git commit –m "Dev in progress"

git push remote master

git fetch origin

```
Admin@sweetp-PC MINGW32 /c/TetrisParesh (master)
$ vi BoardPanel.java

Admin@sweetp-PC MINGW32 /c/TetrisParesh (master)
$ git checkout -b development origin/development
M       BoardPanel.java
Branch development set up to track remote branch development from origin.
Switched to a new branch 'development'

Admin@sweetp-PC MINGW32 /c/TetrisParesh (development)
$ git checkout master
M       BoardPanel.java
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.

Admin@sweetp-PC MINGW32 /c/TetrisParesh (master)
$ git merge development
Updating 90b715f..9bfc970
Fast-forward
 Tetris.java | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)

Admin@sweetp-PC MINGW32 /c/TetrisParesh (master)
$
```

Command used to create a tracking branch:

git checkout –b development origin/development

Command to perform Merging:

git checkout master

git merge development

Operations performed by Dan

Go to local dir of Dan.

cd ..

cd TetrisDan

Opened Tetris.java file and did changes on the same row where Varun did his changes and staged and committed Tetris.java file. But received conflicts while pushing this code to TetrisRemote.git

Here are the steps that he performed.

git add Tetris.java

git commit –m "Dev in progress"

git push origin master

```
Admin@sweetp-PC MINGW32 /c/TetrisParesh.git (master)
$ git merge development
Auto-merging Tetris.java
CONFLICT (content): Merge conflict in Tetris.java
Automatic merge failed; fix conflicts and then commit the result.
```

Steps used to perfom Pull

Pull command fetches and merges the conflicting files automatically and thus user can make changes to one merged file manually.

git pull

```
Admin@sweetp-PC MINGW32 /c/TetrisDan (master)
$ git pull
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0)
Unpacking objects: 100% (3/3), done.
From file:///C:/TetrisRemote
   90b715f..97c1854  master      -> origin/master
Auto-merging Tetris.java
CONFLICT (content): Merge conflict in Tetris.java
Automatic merge failed; fix conflicts and then commit the result.
```

He fixed the conflicts manually and after that staged, committed and pushed file to TetrisRemote.git. Here are the steps perfomed.

git add Tetris.java

git commit –m "resolving Conflicts"

git checkout development

git add Tetris.java

git commit –m "resolving Conflicts"

```
Admin@sweetp-PC MINGW32 /c/TetrisDan (master|MERGING)
$ vi Tetris.java

Admin@sweetp-PC MINGW32 /c/TetrisDan (master|MERGING)
$ git add Tetris.java

Admin@sweetp-PC MINGW32 /c/TetrisDan (master|MERGING)
$ git commit -m "Dev in progress"
[master 459117f] Dev in progress

Admin@sweetp-PC MINGW32 /c/TetrisDan (master)
$ git push origin master
Counting objects: 6, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 576 bytes | 0 bytes/s, done.
Total 6 (delta 4), reused 0 (delta 0)
To file:///C:/TetrisRemote.git
   97c1854..459117f  master -> master

Admin@sweetp-PC MINGW32 /c/TetrisDan (master)
$
```