# SOFTWARE METHODS AND TOOLS

# ASSIGNMENT: 8

SUBMITTED BY:
ANKITA WANKHEDE
16233344

➢ In the following assignment, I made used of Centralized repository structure to checking code as three different users.

➢ I used three students namely Ankita, Rashmi and Ritika (two of my classmates) and checked in to remote repository AsteroidRemote.git then push the changes and to pull the latest code from.

**Below is diagram to illustrate the working process for Asteroid Remote**
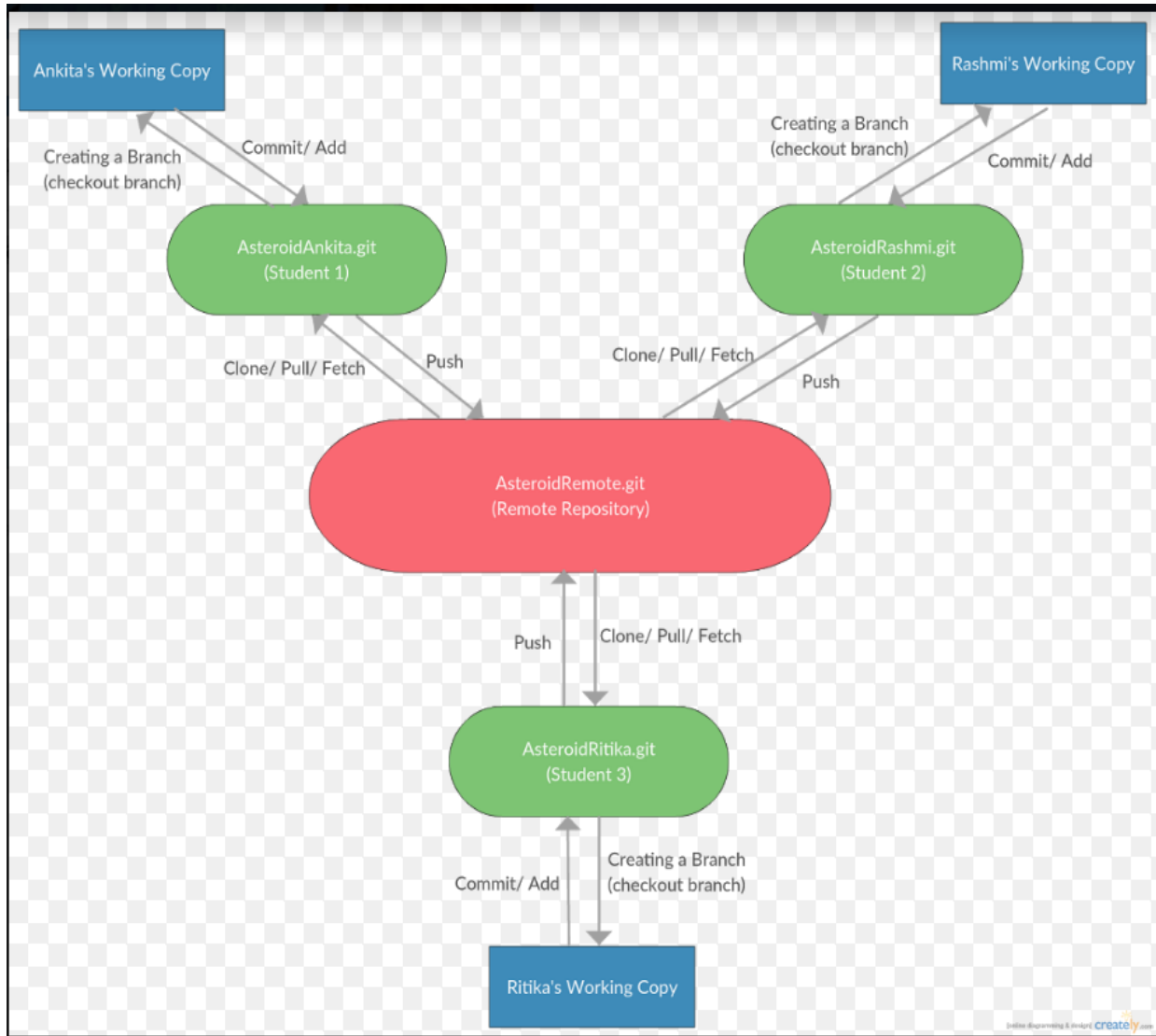
➤ As different Students, I used the remote repository AestroidRemote.git to clone and pull the latest code into my local repository.

➤ Created new branches on the existing ones to make updates and add new changes to the codes.

➤ All changes and new codes were staged and committed to the repository.

➤ After all the code is committed the code is pushed to AsteroidRemote.git where the code with latest updates is available.

**Below is the process that describes the entire working flow systematically**

**STEP 1: I have performed the below commands for GIT Initialization.**

- **git config --global user.name "Ankita W"**
- **git config --global user.email awqhf@mail.umkc.edu**
- **git config --global core.editor emacs**

```
AnkitaW@DESKTOP-SDCNBRR MINGW64 ~ (master)
$ git config --global user.name "Ankita W"

AnkitaW@DESKTOP-SDCNBRR MINGW64 ~ (master)
$ git config --global core.editor emacs

AnkitaW@DESKTOP-SDCNBRR MINGW64 ~ (master)
$ git config --global user.email awqhf@mail.umkc.edu
```

**STEP 2: Creating Asteroid Remote Repository and initialized it.**

- **mkdir AsteroidRemote.git**
- **cd AsteroidRemote.git**
- **git init - -bare (used bare because this is not a working directory)**

```
AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ mkdir AsteroidRemote.git

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ cd A
Apps/                    AsteroidRemote.git/   AsteroidsRemote.git/

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ cd AsteroidRemote.git/

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidRemote.git (master)
$ git init --bare
Initialized empty Git repository in C:/AsteroidRemote.git/

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidRemote.git (BARE:master)
$ |
```

## STEP 3: Creating Local Repo AsteroidAnkita.git and adding source code to remote Repository.

for adding files and source code to remote firstly we must create local repo "AsteroidAnkita.git" and then add the Asteroid source code to the local repo. Add, committed, and push all the source code to remote repository. Below is the screenshot for step3

Command performed to Track files

- **mkdir AsteroidAnkita.git (make the new repository**)
- **cd AsteroidAnkita.git**
- **git init (Initialized git repository)**
- **git add * (Adding source code to the folder)**

- **git commit –m "INITIAL COMMIT" (command used to commit the source code)**

- **git remote add origin C:/TeAsteroidRemote.git (command used to add remote repository)**

- **git push origin master (command used to push code from local to remote)**

**Below is the screenshot for committed and push all the source code to remote repository**

```
AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidAnkita.git (master)
$ git commit -m "Initial Commit"
[master (root-commit) 8fd9e28] Initial Commit
 9 files changed, 1855 insertions(+)
 create mode 100644 Game.java
 create mode 100644 WorldPanel.java
 create mode 100644 entity/Asteroid.java
 create mode 100644 entity/AsteroidSize.java
 create mode 100644 entity/Bullet.java
 create mode 100644 entity/Entity.java
 create mode 100644 entity/Player.java
 create mode 100644 util/Clock.java
 create mode 100644 util/Vector2.java

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidAnkita.git (master)
$ git remote add origin C:/AsteroidRemote.git

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidAnkita.git (master)
$ git push origin master
Counting objects: 13, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (13/13), done.
Writing objects: 100% (13/13), 15.41 KiB | 0 bytes/s, done.
Total 13 (delta 0), reused 0 (delta 0)
To C:/AsteroidRemote.git
 * [new branch]      master -> master

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c/AsteroidAnkita.git (master)
$ |
```

**STEP 4: Creating and cloning two Local Repository named AsteroidRashmi(Student2) and AsteroidRitika(Student3).**

- **mkdir AsteroidRashmi.git**

- **mkdir AsteroidRitika.git**

- **git clone** file:///C:/AsteroidRemote.git AsteroidRashmi.git

- **git clone** file:///C:/AsteroidRemote.git AsteroidRitika.git

**Below command is used to clone the source code form remote repository to both local directories.**

```
AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ mkdir RashmiAsteroid.git

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ mkdir RitikaAsteroid.git

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ git clone file:///C:/AsteroidRemote.git AsteroidRashmi.git
Cloning into 'AsteroidRashmi.git'...
remote: Counting objects: 13, done.
remote: Compressing objects: 100% (13/13), done.
remote: Total 13 (delta 0), reused 0 (delta 0)
Receiving objects: 100% (13/13), 15.41 KiB | 0 bytes/s, done.

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ git clone file:///C:/AsteroidRemote.git AsteroidRitika.git
Cloning into 'AsteroidRitika.git'...
remote: Counting objects: 13, done.
remote: Compressing objects: 100% (13/13), done.
remote: Total 13 (delta 0), reused 0 (delta 0)
Receiving objects: 100% (13/13), 15.41 KiB | 0 bytes/s, done.

AnkitaW@DESKTOP-SDCNBRR MINGW64 /c (master)
$ |
```

**STEP 5: Students will perform some action (for ex changing code) on the local repository and push it to remote repository.**

1. **Actions performed by Ankita**

   - **cd AsteroidAnkita.git**

     **Switching to a new branch development**
   - **git checkout –b development**

     **Command used to staging Game.java**
   - **git add Game.java**

     **Command to check status**
   - **git status**

     **Command to commit changes**
   - **git commit –m "Development in Progress"**

     **Command to push change to Asteroidremote**

- **git push origin development**

Creating and switching to a branch- Ankita has done some changes for game.java file locally and then add and commit new game.java file and push the file to original development. Below is the screen shot for this operation.

```
ankit@DESKTOP-PVI8VS7 MINGW64 /c
$ cd asteroidankita.git/

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (master)
$ git checkout -b devlopment
Switched to a new branch 'devlopment'

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ git add Game.java
warning: LF will be replaced by CRLF in Game.java.
The file will have its original line endings in your working directory.

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ git status
On branch devlopment
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   Game.java


ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ git commit -m "devlopment in progress"
[devlopment 79fbe83] devlopment in progress
 1 file changed, 1 insertion(+), 1 deletion(-)

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ git push origin development
error: src refspec development does not match any.
error: failed to push some refs to 'c:/asteroidremote.git'

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ git push origin devlopment
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 406 bytes | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
To c:/asteroidremote.git
 * [new branch]      devlopment -> devlopment

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidankita.git (devlopment)
$ |
```

## 2. Actions performed by Rashmi

- cd AsteroidRashmi.git

   **Check the branch information on remote system**
- git remote show origin (Checking the branch information on remote system)

- git fetch origin (**fetch the latest change**)
- git checkout master (**Switch to master**)

## Command used to create a tracking branch
- git checkout –b development origin/development

## Command to perform Merging
- git checkout master
- git merge development

```
ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidrashmi (master)
$ git fetch origin
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 1), reused 0 (delta 0)
Unpacking objects: 100% (3/3), done.
From file:///c:/asteroidremote
 * [new branch]      devlopment -> origin/devlopment

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidrashmi (master)
$ git checkout -b devlopment origin/devlopment
Branch devlopment set up to track remote branch devlopment from origin.
Switched to a new branch 'devlopment'

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidrashmi (devlopment)
$ git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidrashmi (master)
$ git merge devlopment
Updating d7f3f47..79fbe83
Fast-forward
 Game.java | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidrashmi (master)
$ |
```

### 3. Actions performed by Ritika

Ritika will do same changes which is done by Ankita in game.java file and then run the command git add and committed for the same file and received conflicts while merging the code to development.

- **git add Game.java**
- **git commit –m "Devlopment in progress"**
- **git push origin master**
- **git merge development**

She got the conflicts and then she should perform pull command to fetch and merge the conflict files.

```
ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master)
$ git add Game.java

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master)
$ git commit -m "dev in progress"
[master 9cf1c1d] dev in progress
 1 file changed, 1 insertion(+), 1 deletion(-)

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master)
$ git merge devlopment
Auto-merging Game.java
CONFLICT (content): Merge conflict in Game.java
Automatic merge failed; fix conflicts and then commit the result.
```

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

- **git pull**

```
ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master)
$ git pull
remote: Counting objects: 6, done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 6 (delta 2), reused 0 (delta 0)
Unpacking objects: 100% (6/6), done.
From file:///c:/asteroidremote
 * [new branch]      devlopment -> origin/devlopment
Already up-to-date.
```

After fixing the conflicts manually here is the command to run.

- **git add Game.java**
- **git commit –m "resolving conflicts"**
- **git push origin master**

```
ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master|MERGING)
$ git add Game.java

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master|MERGING)
$ git commit -m "Resolving conflict"
[master a9ed2d5] Resolving conflict

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (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), 780 bytes | 0 bytes/s, done.
Total 6 (delta 2), reused 1 (delta 0)
To file:///c:/asteroidremote.git
   4e20339..a9ed2d5  master -> master

ankit@DESKTOP-PVI8VS7 MINGW64 /c/asteroidritika (master)
$ |
```