

Title: Demonstrate to use of Version Control System (hg mercurial offline: on local machine with multiple user). Create multiple users and usage with team leader role and coder roles. Demonstrate code merge, fork (branching) and code diff amongst the users Compare it with svn.

How to Achieve This:

Ubuntu Installation

```
#sudo apt update
#sudo apt install mercurial
#hg --version
```

2. Setup Project Repository and Users

- Create a Project Directory

```
#mkdir C:\Users\Vaishnavi\Downloads\team_project
#cd C:\Users\Vaishnavi\Downloads\team_project
```
- Initialize the Mercurial Repository

```
#hg init
```
- Create a File to Track

```
#echo "Welcome to the team project!" > README.txt
```
- Add the File to the Repository

```
#hg add README.txt
```
- Set the Username for the First Commit (Team Leader)
 - create an `.hg/hgrc` file with their name
 - Open a new text file named `hgrc` (without any extension) in a text editor and add:

```
[ui]
username = TeamLeader <teamleader@example.com>
```
- Commit the Initial Changes:

```
#hg commit -m "Initial commit: Added README file"
#hg log
```

```

C:\Users\Vaishnavi\Downloads\team_project>echo "Welcome to the team project
!" > README.txt

C:\Users\Vaishnavi\Downloads\team_project>hg add README.txt

C:\Users\Vaishnavi\Downloads\team_project>cd .hg

C:\Users\Vaishnavi\Downloads\team_project\.hg>cd ..

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Initial commit: Add
ed README file"

C:\Users\Vaishnavi\Downloads\team_project>hg log
changeset: 0:ba5ea77a1e39
tag: tip
user: TeamLeader <teamleader@example.com>
date: Fri Nov 08 11:00:06 2024 +0530
summary: Initial commit: Added README file

```

3. Simulating Work for Multiple Users

- Simulate Coder1's Work
 - Open the `.hg/hgrc` file again, and change the username line to:

[ui]

username = Coder1 <coder1@example.com>

- Create a Branch for Coder1: `#hg branch feature1_branch`
- Add a New File and Commit as Coder1:
 - `#echo "Coder1's feature 1 code" > feature1.txt`
 - `#hg add feature1.txt`
 - `#hg commit -m "Coder1: Added feature1"`
- Make an Improvement and Commit Again:
 - `#echo "Coder1's improved feature 1 code" >> feature1.txt`
- `#hg commit -m "Coder1: Improved feature1"`

```

C:\Users\Vaishnavi\Downloads\team_project>hg branch feature1_branch
marked working directory as branch feature1_branch
(branches are permanent and global, did you want a bookmark?)

C:\Users\Vaishnavi\Downloads\team_project>echo "Coder1's feature 1 code" > feature1.txt

C:\Users\Vaishnavi\Downloads\team_project>hg add feature1.txt

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Coder1: Added feature1"

C:\Users\Vaishnavi\Downloads\team_project>echo "Coder1's improved feature 1 code" >> feature1.txt

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Coder1: Improved feature1"

C:\Users\Vaishnavi\Downloads\team_project>hg log
changeset: 2:6e0243f37306
branch:    feature1_branch
tag:       tip
user:      Coder1 <coder1@example.com>
date:      Fri Nov 08 11:01:16 2024 +0530
summary:   Coder1: Improved feature1

changeset: 1:72c8399c8365
branch:    feature1_branch
user:      Coder1 <coder1@example.com>
date:      Fri Nov 08 11:01:01 2024 +0530
summary:   Coder1: Added feature1

changeset: 0:ba5ea77a1e39
user:      TeamLeader <teamleader@example.com>
date:      Fri Nov 08 11:00:06 2024 +0530
summary:   Initial commit: Added README file

```

Simulate Coder2's Work (use same commands...just change names)

- Set the Username to Coder2:
 - Reopen `.hg/hgrc` and update the username line to:


```
[ui]
  username = Coder2 <coder2@example.com>
```
- Create a Branch for Coder2:
- Add a New File and Commit as Coder2:
- Make an Improvement and Commit Again:

```

C:\Users\Vaishnavi\Downloads\team_project>hg branch feature2_branch
marked working directory as branch feature2_branch

C:\Users\Vaishnavi\Downloads\team_project>echo "Coder2's feature 2 code" > feature2.txt

C:\Users\Vaishnavi\Downloads\team_project>hg add feature2.txt

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Coder2: Added feature2"

C:\Users\Vaishnavi\Downloads\team_project>echo "Coder2's improved feature 2 code" >> feature2.txt

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Coder2: Improved feature2"

C:\Users\Vaishnavi\Downloads\team_project>hg log
changeset: 4:0d052392876f
branch:    feature2_branch
tag:       tip
user:      Coder2 <coder2@example.com>
date:      Fri Nov 08 11:04:40 2024 +0530
summary:   Coder2: Improved feature2

changeset: 3:2d3139ff8cef
branch:    feature2_branch
user:      Coder2 <coder2@example.com>
date:      Fri Nov 08 11:04:34 2024 +0530
summary:   Coder2: Added feature2

changeset: 2:6e0243f37306
branch:    feature1_branch
user:      Coder1 <coder1@example.com>
date:      Fri Nov 08 11:01:16 2024 +0530
summary:   Coder1: Improved feature1

changeset: 1:72c8399c8365
branch:    feature1_branch
user:      Coder1 <coder1@example.com>
date:      Fri Nov 08 11:01:01 2024 +0530
summary:   Coder1: Added feature1

```

4. Merging Branches (Team Leader's Role)

- Set the Username to Team Leader: Update the `.hg/hgrc` file again:


```
[ui] username = TeamLeader <teamleader@example.com>
```
- Update to the Default Branch:
 - `#hg update default`
- Merge `feature1_branch` into Default:
 - `#hg merge feature1_branch`
 - `#hg commit -m "Merged feature1_branch into default by Team Leader"`
- Merge `feature2_branch` into Default:
 - `#hg merge feature2_branch`
 - `#hg commit -m "Merged feature2_branch into default by Team Leader"`
- `hg log`

```
C:\Users\Vaishnavi\Downloads\team_project>hg update default
0 files updated, 0 files merged, 2 files removed, 0 files unresolved

C:\Users\Vaishnavi\Downloads\team_project>hg merge feature1_branch
1 files updated, 0 files merged, 0 files removed, 0 files unresolved
(branch merge, don't forget to commit)

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Merged feature1_branch into default by Team Leader"

C:\Users\Vaishnavi\Downloads\team_project>hg merge feature2_branch
1 files updated, 0 files merged, 0 files removed, 0 files unresolved
(branch merge, don't forget to commit)

C:\Users\Vaishnavi\Downloads\team_project>hg commit -m "Merged feature2_branch into default by Team Leader"

C:\Users\Vaishnavi\Downloads\team_project>hg diff -r feature1_branch -r feature2_branch
diff -r 6e0243f37306 -r 0d052392876f feature2.txt
--- /dev/null   Thu Jan 01 00:00:00 1970 +0000
+++ b/feature2.txt   Fri Nov 08 11:04:40 2024 +0530
@@ -0,0 +1,2 @@
+"Coder2's feature 2 code"
+"Coder2's improved feature 2 code"

C:\Users\Vaishnavi\Downloads\team_project>hg log
changeset: 6:ec19c9680a1
tag: tip
parent: 5:18063f440752
parent: 4:0d052392876f
user: TeamLeader <teamleader@example.com>
date: Fri Nov 08 11:06:05 2024 +0530
summary: Merged feature2_branch into default by Team Leader

changeset: 5:18063f440752
parent: 0:ba5ea77a1e39
parent: 2:6e0243f37306
user: TeamLeader <teamleader@example.com>
date: Fri Nov 08 11:05:53 2024 +0530
summary: Merged feature1_branch into default by Team Leader

changeset: 4:0d052392876f
branch: feature2_branch
user: Coder2 <coder2@example.com>
date: Fri Nov 08 11:04:40 2024 +0530
summary: Coder2: Improved feature2
```