**SWE 525 GIT Version Control Mid Term Exam 08/21/2016**

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1. Perform the following steps on any repository of your choice and push it to remote. Explain your work and paste your github repo address. Make me collaborator. Draw flow chart if applicable.
2. Create a repository

Answer: created a repository “midtermgit” on github and used git clone <https://github.com/Supriyankumar/midtermgit.git> which now has a local copy on my computer as midtermgit folder.

Last login: Sun Aug 21 09:27:01 on console

SUPRIYAs-MacBook-Pro:~ suppi$ cd desktop

SUPRIYAs-MacBook-Pro:desktop suppi$ cd SWE 525

-bash: cd: SWE: No such file or directory

SUPRIYAs-MacBook-Pro:desktop suppi$ SWE525

-bash: SWE525: command not found

SUPRIYAs-MacBook-Pro:desktop suppi$ cd SWE525

SUPRIYAs-MacBook-Pro:SWE525 suppi$ git clone https://github.com/Supriyankumar/midtermgit.git

Cloning into 'midtermgit'...

remote: Counting objects: 3, done.

remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0

Unpacking objects: 100% (3/3), done.

SUPRIYAs-MacBook-Pro:SWE525 suppi$ cd midtermgit

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

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1. Make some changes -- add some files, change content of some files

Answer:

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

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SUPRIYAs-MacBook-Pro:midtermgit suppi$ echo "#This is a new test file" > file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

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file1

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file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'add new file1'

[master 84c148b] add new file1

1 file changed, 1 insertion(+)

create mode 100644 file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 1 commit.

#

# Untracked files:

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

#

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nothing added to commit but untracked files present (use "git add" to track)

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'new line added'

[master cffb938] new line added

1 file changed, 1 insertion(+)

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 2 commits.

#

# Untracked files:

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

#

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nothing added to commit but untracked files present (use "git add" to track)

1. Commit changes

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'add new file1'

[master 84c148b] add new file1

1 file changed, 1 insertion(+)

create mode 100644 file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 1 commit.

#

# Untracked files:

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

#

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nothing added to commit but untracked files present (use "git add" to track)

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'new line added'

[master cffb938] new line added

1 file changed, 1 insertion(+)

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 2 commits.

#

# Untracked files:

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

#

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nothing added to commit but untracked files present (use "git add" to track)

1. repeat steps 1-3 for 2 more times. try to remove and ignore some files . Use git diff before each commit.

Answer:

SUPRIYAs-MacBook-Pro:midtermgit suppi$ touch file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

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file1

file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 2 commits.

#

# Changes to be committed:

# (use "git reset HEAD <file>..." to unstage)

#

# new file: file2.txt

#

# Untracked files:

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

#

# SWE 525 GIT Version Control Mid Term Exam 08.docx

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add SWE\_525\_GIT\_Version\_Control\_Mid\_Term\_Exam\_08.docx

fatal: pathspec 'SWE\_525\_GIT\_Version\_Control\_Mid\_Term\_Exam\_08.docx' did not match any files

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add Answersgitmidterm.docx

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

Answersgitmidterm.docx

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file1

file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2

fatal: pathspec 'file2' did not match any files

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 2 commits.

#

# Changes to be committed:

# (use "git reset HEAD <file>..." to unstage)

#

# new file: Answersgitmidterm.docx

# new file: file2.txt

#

# Untracked files:

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

#

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SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 2 commits.

#

# Changes to be committed:

# (use "git reset HEAD <file>..." to unstage)

#

# new file: Answersgitmidterm.docx

# new file: file2.txt

#

# Untracked files:

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

#

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SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'new changes made'

[master b902a62] new changes made

2 files changed, 8 insertions(+)

create mode 100644 Answersgitmidterm.docx

create mode 100644 file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch is ahead of 'origin/master' by 3 commits.

#

# Untracked files:

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

#

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nothing added to commit but untracked files present (use "git add" to track)

SUPRIYAs-MacBook-Pro:midtermgit suppi$

SUPRIYAs-MacBook-Pro:midtermgit suppi$ touch .gitignore

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls

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file1

file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ ls -a

.

..

.git

.gitignore

Answersgitmidterm.docx

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file1

file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git rm --cached .gitignore

fatal: pathspec '.gitignore' did not match any files

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add .gitignore

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git rm --cached .gitignore

rm '.gitignore'

SUPRIYAs-MacBook-Pro:midtermgit suppi$

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Changes not staged for commit:

# (use "git add <file>..." to update what will be committed)

# (use "git checkout -- <file>..." to discard changes in working directory)

#

# modified: Answersgitmidterm.docx

#

# Untracked files:

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

#

# .gitignore

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no changes added to commit (use "git add" and/or "git commit -a")

SUPRIYAs-MacBook-Pro:midtermgit suppi$

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add Answersgitmidterm.docx

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit -m 'added more answers for remove and ignore'

[master 22f4ef4] added more answers for remove and ignore

1 file changed, 0 insertions(+), 0 deletions(-)

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff Answersgitmidterm

fatal: ambiguous argument 'Answersgitmidterm': unknown revision or path not in the working tree.

Use '--' to separate paths from revisions

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff Answersgitmidterm.docx

SUPRIYAs-MacBook-Pro:midtermgit suppi$

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ echo '# test line' >> file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Changes not staged for commit:

# (use "git add <file>..." to update what will be committed)

# (use "git checkout -- <file>..." to discard changes in working directory)

#

# modified: Answersgitmidterm.docx

# modified: file2.txt

#

# Untracked files:

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

#

# .gitignore

# SWE 525 GIT Version Control Mid Term Exam 08.docx

no changes added to commit (use "git add" and/or "git commit -a")

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git diff

diff --git a/Answersgitmidterm.docx b/Answersgitmidterm.docx

index 549aa61..450de80 100644

Binary files a/Answersgitmidterm.docx and b/Answersgitmidterm.docx differ

diff --git a/file2.txt b/file2.txt

index 0f3bb87..7112a74 100644

--- a/file2.txt

+++ b/file2.txt

@@ -5,4 +5,4 @@ Here are the new added lines into this file

This is the third change in the file

-This is the fifth change in the file.

\ No newline at end of file

+This is the fifth change in the file.# test line

SUPRIYAs-MacBook-Pro:midtermgit suppi$

1. create changes and revert those changes using git when those changes are not added to staging area?

Answers: SUPRIYAs-MacBook-Pro:midtermgit suppi$ git commit --amend

added more answers for remove and ignore

# Please enter the commit message for your changes. Lines starting

# with '#' will be ignored, and an empty message aborts the commit.

# On branch master

# Changes to be committed:

# (use "git reset HEAD^1 <file>..." to unstage)

#

# modified: Answersgitmidterm.docx

#

# Changes not staged for commit:

# (use "git add <file>..." to update what will be committed)

# (use "git checkout -- <file>..." to discard changes in working directory)

#

# modified: Answersgitmidterm.docx

# modified: file2.txt

#

# Untracked files:

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

#

# .gitignore

# SWE 525 GIT Version Control Mid Term Exam 08.docx

~

".git/COMMIT\_EDITMSG" 22L, 706C

1. create changes and revert those changes after adding changes to staging area?

Answer:

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git add \*

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git status

# On branch master

# Your branch and 'origin/master' have diverged,

# and have 1 and 1 different commit each, respectively.

#

# Changes to be committed:

# (use "git reset HEAD <file>..." to unstage)

#

# modified: Answersgitmidterm.docx

# new file: SWE 525 GIT Version Control Mid Term Exam 08.docx

# modified: file2.txt

#

# Untracked files:

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

#

# .gitignore

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git reset HEAD file2.txt

Unstaged changes after reset:

M file2.txt

SUPRIYAs-MacBook-Pro:midtermgit suppi$

1. create change and revert those changes after committing those changes .

8. Check repository status before adding changes to staging area, after adding changes to staging area and after committing changes .

9. Display all the commits .

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git log

commit 22f4ef476387a6692c53f87cbb0748b882a8b938

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 13:20:43 2016 -0700

added more answers for remove and ignore

commit 732dd582d51faf200939265f9c0e4015ce1980ee

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 13:02:39 2016 -0700

new answers

commit b902a626648a3134596063e9a4f77000b07b101b

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 13:00:36 2016 -0700

new changes made

commit cffb938d25e9ff23f8244b948e00613d934a3590

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 12:44:51 2016 -0700

new line added

:

10. Display a specific commit .

Answer: SUPRIYAs-MacBook-Pro:midtermgit suppi$ git log -Snew

commit b902a626648a3134596063e9a4f77000b07b101b

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 13:00:36 2016 -0700

new changes made

commit 84c148b817bcddfff0414ee59989f400f7b36008

Author: Supriya Kumar <supriya.nkumar@gmail.com>

Date: Sun Aug 21 12:42:05 2016 -0700

add new file1

SUPRIYAs-MacBook-Pro:midtermgit suppi$

11. create branches called "feature1" and "feature2" from master.

Answers: SUPRIYAs-MacBook-Pro:midtermgit suppi$ git branch

\* master

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git branch feature1

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git branch feature2

SUPRIYAs-MacBook-Pro:midtermgit suppi$ git branch

feature1

feature2

\* master

SUPRIYAs-MacBook-Pro:midtermgit suppi$

12. Delete branch "feature2".

Answer: SUPRIYAs-MacBook-Pro:midtermgit suppi$ git branch -d feature2

Deleted branch feature2 (was a54132a).

SUPRIYAs-MacBook-Pro:midtermgit suppi$

13. Make some commits on "feature1".

14. Make some commits on branch "master".

15. merge branch "feature1" in "master" (make some conflicts by changing same file on same line in both the branches)

16. create branch "feature2" from master .

17. Make some commits on "feature2".

18. Make some commits on branch "master".

19. rebase branch "master" in "feature2" (make some conflicts by changing same file on same line in both the branches) .

20. find the differences between "merge" and "rebase" in above cases.

21. Use git stash

22. create a repository on github for your working repository and push changes on remote repository.

2. List out the key difference between a centralized version control system and distributed version control system.

Answer:

**Centralized Version Control System**:

Provides a server software component which stores and manages the different versions of the files and let developer copy(checkout) a certain version onto their individual computer.

There is a single point of failure in centralized version control system. The server machine is a single point of failure here.

It gets harder to work in parallel on different features.

**Distributed Version Control system**:

Each user has a complete copy of a repository on his individual computer. The user can copy an existing repository.

There is a central server for keeping a repository but each cloned repository is a full copy of this repository. There is no problem of a single system failure since a copy of the repository is saved locally and uploaded only what is required.

Distributed version control system makes it easier to work in parallel on different features.

List down any two centralized version control system and 2 distributed version control system.

Two Centralized Version control system: Perforce, Subversion

Two Distributed Version Control system: git, mercurial

What are the advantages of git VCS over other VCS.

The main difference between Git and any other VCS is the way Git thinks about its data. Git thinks of its data more like set of snapshots of a miniature filesystem.

Git maintains a set of configuration values within each repository. Git manages and inspects configuration and setup information on a per-site, per-user, and per-repository basis

What are the different states of a file in the Git VCS.

Committed, modified and staged. Committed means, that the data is safely stored in your local database. Modified means that you have changed the file but have not committed it to your database yet. Staged means that you have marked a modified file in its current version to go into your next commit snapshot.