CA6C1 – DevOps - National Institute of Technology, Trichy

Assignment 1 – BASH & GIT

Roll No. 205224005

Question 4

A. **Create a master repository using a GIT terminal in any version control platform (github, gitlab, bitbucket, gogs, codeberg, radicle, gitea etc.) and add files of any one question (Q1, Q2, Q3) from this assignment into this repository. Capture repository status at this point.**

Install GitHub CLI & Authenticate with GitHub

Create a GitHub Repository from Terminal

DevOps-Assignment-Question4 Public

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Set up GitHub Copilot
Use GitHub's AI pair programmer to autocomplete suggestions as you code.

Get started with GitHub Copilot

Add collaborators to this repository
Search for people using their GitHub username or email address.

Invite collaborators

Quick setup — if you've done this kind of thing before

⊞ Set up in Desktop   or   HTTPS SSH   https://github.com/JenilHP29/DevOps-Assignment-Question4.git   ⧉

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# DevOps-Assignment-Question4" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/JenilHP29/DevOps-Assignment-Question4.git
git push -u origin main
```

Add Files and Commit Changes

```
D:\DevOps\assignment1-bash-JenilHP29>copy D:\DevOps\assignment1-bash-JenilHP29\q1\Kaprekar-routine.sh D:\DevOps\assignment1-bash-JenilHP29\q4\
        1 file(s) copied.

D:\DevOps\assignment1-bash-JenilHP29>cd q4

D:\DevOps\assignment1-bash-JenilHP29\q4>git add .
warning: in the working copy of 'Kaprekar-routine.sh', LF will be replaced by CRLF the next time Git touches it

D:\DevOps\assignment1-bash-JenilHP29\q4>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   Kaprekar-routine.sh


D:\DevOps\assignment1-bash-JenilHP29\q4>_
```

B. **push the files of one question (Q1, Q2, Q3) from this assignment from your local machine to a repository. Capture repository status at this point.**

Add the GitHub Remote

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git remote add origin https://github.com/JenilHP29/DevOps-Assignment-Question4.git

D:\DevOps\assignment1-bash-JenilHP29\q4>git remote -v
origin  https://github.com/JenilHP29/DevOps-Assignment-Question4.git (fetch)
origin  https://github.com/JenilHP29/DevOps-Assignment-Question4.git (push)

D:\DevOps\assignment1-bash-JenilHP29\q4>git push -u origin master
error: src refspec master does not match any
error: failed to push some refs to 'https://github.com/JenilHP29/DevOps-Assignment-Question4.git'

D:\DevOps\assignment1-bash-JenilHP29\q4>git commit -m "Q4 First Commit"
On branch master

Initial commit

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

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

Commit on Remote Repo

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git add .
warning: in the working copy of 'Kaprekar-routine.sh', LF will be replaced by CRLF the next time Git touches it

D:\DevOps\assignment1-bash-JenilHP29\q4>git commit -m "Q4-First Commit"
[master (root-commit) e878275] Q4-First Commit
 1 file changed, 63 insertions(+)
 create mode 100644 Kaprekar-routine.sh

D:\DevOps\assignment1-bash-JenilHP29\q4>git push -u origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 964 bytes | 241.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/JenilHP29/DevOps-Assignment-Question4.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
```
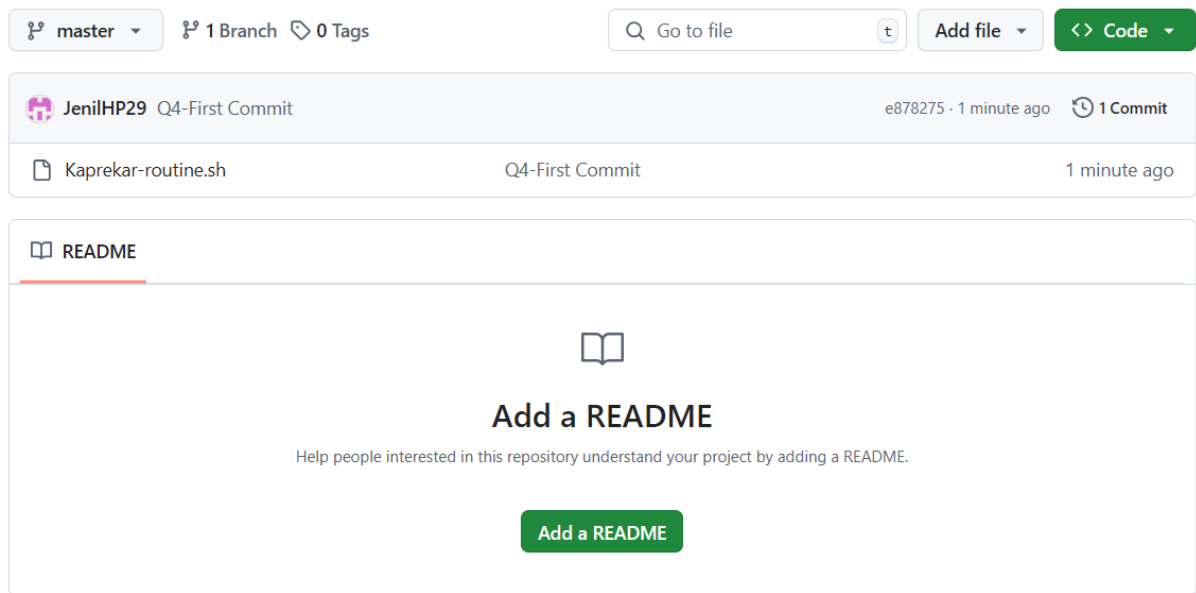
Git Status

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean
```

C. **Create a new branch to your existing repository and now pull your repository locally, make changes to 10 lines and merge into the master repository. Capture repository status at this point.**

Create and Switch to a demoBranch

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git checkout -b demoBranch
Switched to a new branch 'demoBranch'
```

This creates a new branch named demoBranch and switches to it.

Pull the Latest Changes from GitHub

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git pull origin master
From https://github.com/JenilHP29/DevOps-Assignment-Question4
 * branch            master     -> FETCH_HEAD
Already up to date.
```

Make chances to Kaprekar-routine.sh

```
54          # Comment: Iterating until we reach 6174
55          # Comment: Kaprekar's routine guarantees reaching 6174 in at most 7 steps
56          # Comment: This ensures that the input number follows the routine correctly
57          # Comment: Using printf to maintain leading zeros in the number
58          # Comment: The number is recalculated in every iteration to move towards 6174
59          # Comment: Each iteration reduces randomness and converges to Kaprekar's constant
60          # Comment: If we reach 6174, the loop will terminate
61          # Comment: Printing each step helps in visualizing the transformation process
62          # Comment: Ensuring that we don't enter an infinite loop
63          # Comment: This method works for any 4-digit number that isn't a repdigit
```

Add and Commit Changes

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git add .
warning: in the working copy of 'Kaprekar-routine.sh', LF will be replaced by CRLF the next time Git touches it

D:\DevOps\assignment1-bash-JenilHP29\q4>git commit -m "Added 10 Comments"
[demoBranch 951a44a] Added 10 Comments
 1 file changed, 13 insertions(+), 3 deletions(-)
```

Push the demoBranch to GitHub

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git push -u origin demoBranch
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 717 bytes | 239.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'demoBranch' on GitHub by visiting:
remote:      https://github.com/JenilHP29/DevOps-Assignment-Question4/pull/new/demoBranch
remote:
To https://github.com/JenilHP29/DevOps-Assignment-Question4.git
 * [new branch]      demoBranch -> demoBranch
branch 'demoBranch' set up to track 'origin/demoBranch'.
```

Switching Back to Master

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

D:\DevOps\assignment1-bash-JenilHP29\q4>git pull origin master
From https://github.com/JenilHP29/DevOps-Assignment-Question4
 * branch            master      -> FETCH_HEAD
Already up to date.
```

Merge the Feature Branch into Master

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git merge demoBranch
Updating e878275..951a44a
Fast-forward
 Kaprekar-routine.sh | 16 ++++++++++++---
 1 file changed, 13 insertions(+), 3 deletions(-)
```

Push the Merged Changes to GitHub

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git push origin master
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/JenilHP29/DevOps-Assignment-Question4.git
   e878275..951a44a  master -> master
```

Capture Repository Status

```
D:\DevOps\assignment1-bash-JenilHP29\q4>git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean
```