Experiment-3.1

Student Name: Adarsh Kumar Singh **UID:** 22BDO10053

Branch: CSE(DEVOPS) **Section/Group:** 22BCD-1/B

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Subject Name: Git and GitHub **Subject Code:** 22CSH-293

1. Aim/Overview of the practical: Compare the changes in the repository.

2. Task to be done: git diff, comparing changes etc.

3. Steps for Experiment: -

1). Create a new repository in your local machine i.e. (**mkdir** <repo_name>), and go to the created repository by (**cd** <repo_name>).

```
adarsh@ASUS MINGW64 ~ (master)
$ mkdir new_repo

adarsh@ASUS MINGW64 ~ (master)
$ cd new_repo/
```

2). Now initialize a empty repository by (**git init**) it will contain the .git file and metadata.

```
adarsh@ASUS MINGW64 ~/new_repo (master)
$ git init
Initialized empty Git repository in C:/Users/adars/new_repo/.git/
```

3). After that create a new file in your repository by (**vi** <file_name>) and write some content inside the file.

```
adarsh@ASUS MINGW64 ~/new_repo (master)
$ vi file.c
adarsh@ASUS MINGW64 ~/new_repo (main)
$ cat file.c
#include <stdio.h>

int main() {
    int num1 = 5;
    int num2 = 7;

    int sum= num1 + num2;
    printf("Sum is %d: ",sum);
    return 0;
}
```

4). Now create a new branch by (**git branch** <branch_name>) and rename the master branch to main by (**git branch -m main**) and run the (**git branch**) command to see all the branches.

```
adarsh@ASUS MINGW64 ~/new_repo (master)
$ git branch testbranch

adarsh@ASUS MINGW64 ~/new_repo (master)
$ git branch -m main

adarsh@ASUS MINGW64 ~/new_repo (main)
$ git branch
* main
  testbranch
```

5). Now go to the feature_branch by (**git checkout** <branch_name>) and open the same file which was created in the main branch by (**vi** <file_name>).

```
adarsh@ASUS MINGW64 ~/new_repo (main)
$ git checkout testbranch
Switched to branch 'testbranch'

adarsh@ASUS MINGW64 ~/new_repo (testbranch)
$ vi file.c
```

6). Now do some change in the same file and see the changed content by (**cat** <file_name>).

```
adarsh@ASUS MINGW64 ~/new_repo (testbranch)
$ cat file.c
#include <stdio.h>

int main() {
    int num1 = 5;
    int num2 = 7;

    int sum= num1 + num2;
    int mul = num1 * num2;
    int div = num1 / num2;
    printf("Sum is %d: ",sum);
    printf("Mul is %d: ",mul);
    printf("Div is %d: ",div);
    return 0;
}
```

7). Now checkout to main branch by (**git checkout main**). run the git diff command to see the changes.

```
adarsh@ASUS MINGW64 ~/new_repo (testbranch)
$ git checkout main
Switched to branch 'main'
```

8). After running (**git diff main** <feature_branch>) it will show the changes that are made in the file, it will show insertion with "+" & "**green color**" and deletion with "-" & "**red color**"

```
adarsh@ASUS MINGW64 ~/new_repo (main)
$ git diff main testbranch
diff --git a/file.c b/file.c
index d007c39..1b45ce7 100644
--- a/file.c
+++ b/file.c
@@ -5,6 +5,10 @@ int main() {
     int num2 = 7;

     int sum= num1 + num2;
+    int mul = num1 * num2;
+    int div = num1 / num2;
     printf("Sum is %d: ",sum);
-    return 0;
+    printf("Mul is %d: ",mul);
+    printf("Div is %d: ",div);
+    return 0;
 }
```

9). Now add and commit your all the changes by (**git add** <file_name>) & (**git commit -m** "messages").

```
adarsh@ASUS MINGW64 ~/new_repo (master)
$ git add file.c
warning: in the working copy of 'file.c', LF will be replaced by CRLF the ne
xt time Git touches it

adarsh@ASUS MINGW64 ~/new_repo (master)
$ git commit -m "done"
[master (root-commit) ed708e1] done
 1 file changed, 10 insertions(+)
 create mode 100644 file.c
```

We have successfully forked a repository and made the changes.

Learning outcomes (What I have learnt):

1. Learnt about Git.
2. Learnt about GitHub.
3. Learnt about various git commands that can be applied on Git Bash.
4. Learnt about git diff and how we can see the changes.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			