Experiment-1.2

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

Semester: 4th   **Date of Performance:**19-01-24
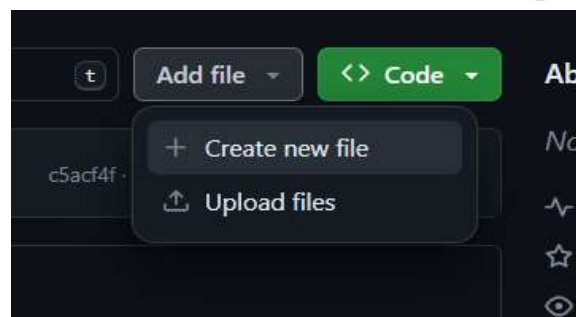
Subject Name: Git and GitHub   **Subject Code:** 22CSH-293

1. Aim/Overview of the practical: Creating Branches with GitHub.
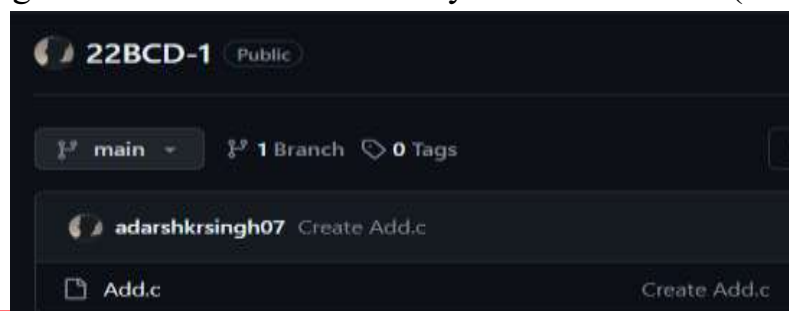
2. Task to be done: Creation of branches, Merging of branches and Deletion of branches.
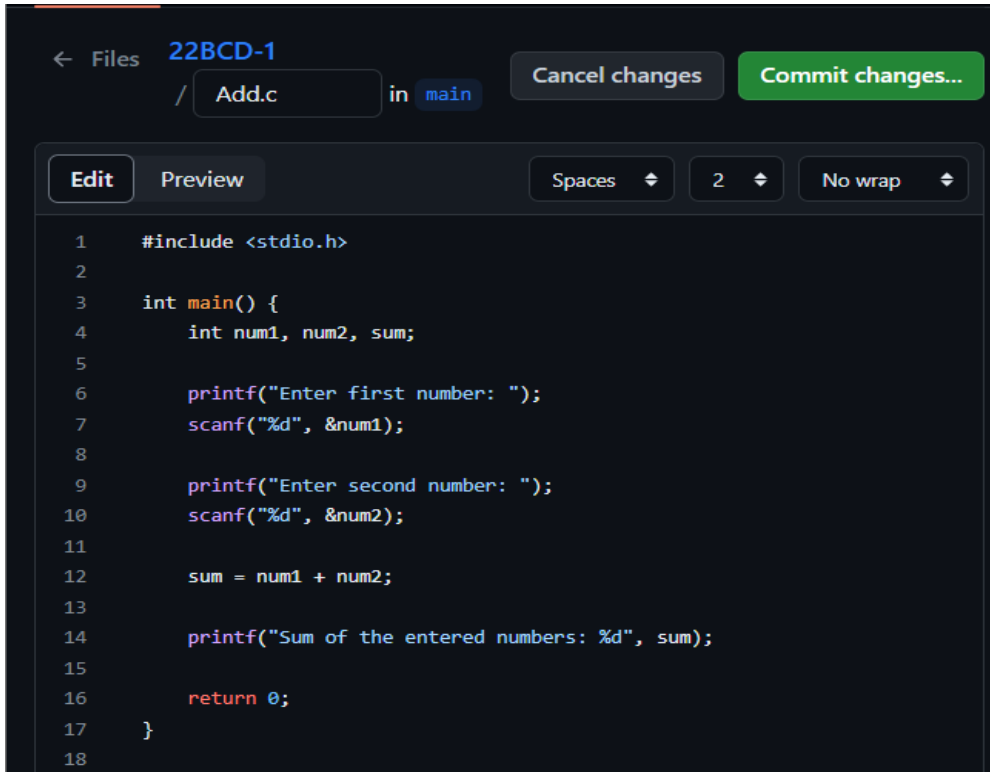
3. Steps for Experiment: -

1) On GitHub.com, go to your account navigate to the main page of the repository i.e.(22BCD-1).

2) From your repository click on the file tree view on the left, select the branch dropdown menu, then click on Main.

3) Apart from this, by clicking on View All Branches you can see all the branches created.

4) So, by default you will be in Main branch (default branch).

5) Now, click on Add File... Select "Create new file" option.

6) After clicking on "Create new file" Enter your file name i.e. (Add.c).

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7) The (Add.c) file is created in the "Main branch", now write a simple code for adding two numbers in your file.
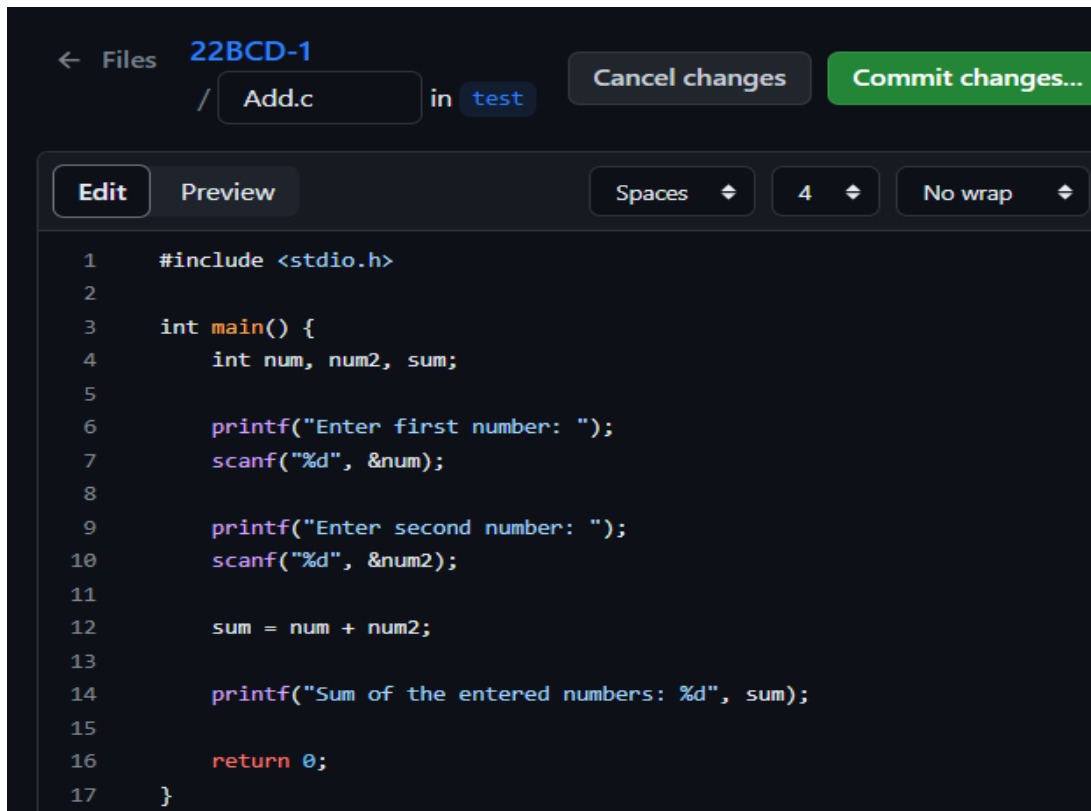
```c
#include <stdio.h>

int main() {
    int num1, num2, sum;

    printf("Enter first number: ");
    scanf("%d", &num1);

    printf("Enter second number: ");
    scanf("%d", &num2);

    sum = num1 + num2;

    printf("Sum of the entered numbers: %d", sum);

    return 0;
}
```

8) So, now we have to create another branch from "Main branch" i.e. (Feature_Branch).

9) In the "Find or create a branch..." text field, type a unique name for your new branch, then click Create branch i.e.(test_Branch).
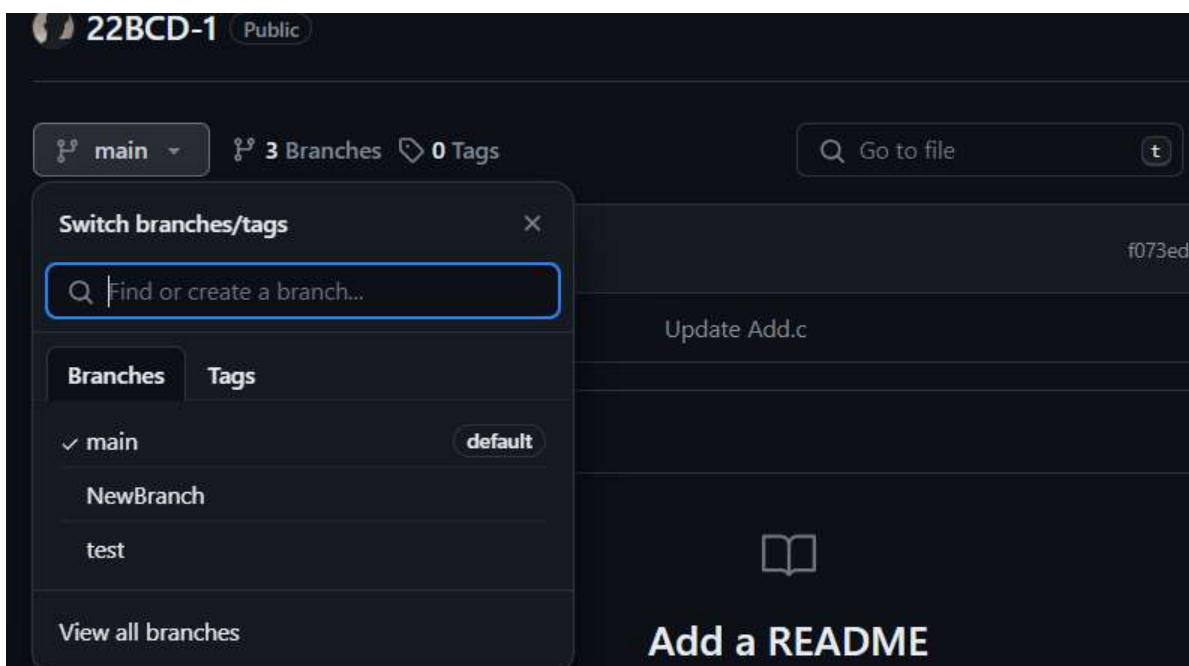
10) After Creating a Feature branch from the "Main branch", now in the Feature branch we have to do some changes in the (Add.c) file which was created in the main branch.
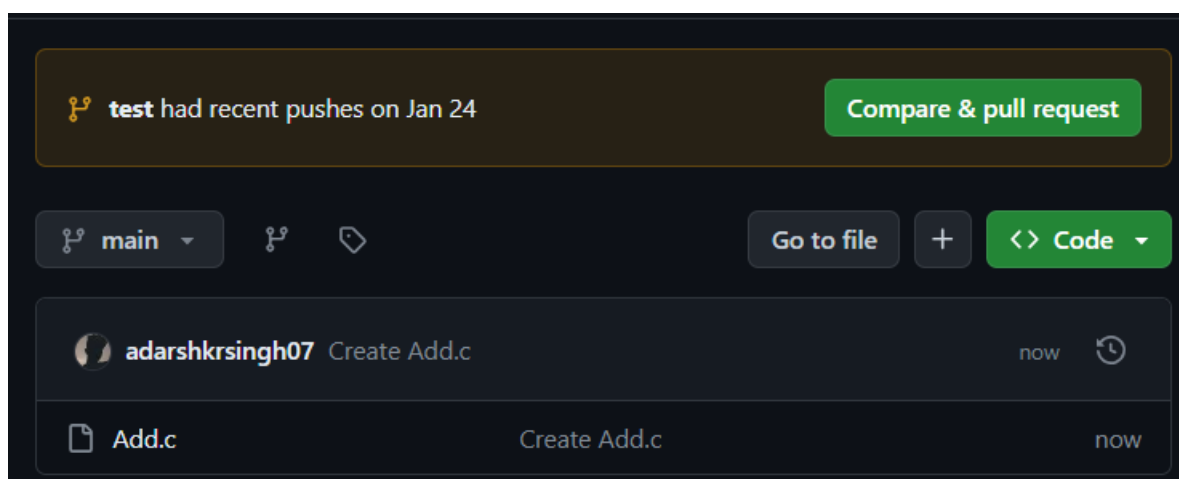


```c
#include <stdio.h>

int main() {
    int num, num2, sum;

    printf("Enter first number: ");
    scanf("%d", &num);

    printf("Enter second number: ");
    scanf("%d", &num2);

    sum = num + num2;

    printf("Sum of the entered numbers: %d", sum);

    return 0;
}
```

11) In the Main Branch file the variables are (num1, num2,sum) and now in feature branch after some changes the variables are (num,num2,sum).

12) Now go to "Main branch" a compare and pull request notification is reflected.

13) Now click on the Compare & Pull request.

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14) After clicking on Compare and Pull Request, it will be visible what changes have been made in the feature branch.

```
 ⌄  6  ■■ ■■■  Add.c  ⎘

 ...     ...        @@ -1,15 +1,15 @@
  1       1         #include <stdio.h>
  2       2
  3       3         int main() {
  4                 -    int num1, num2, sum;
          4       +    int num, num2, sum;
  5       5
  6       6             printf("Enter first number: ");
  7                 -    scanf("%d", &num1);
          7       +    scanf("%d", &num);
  8       8
  9       9             printf("Enter second number: ");
 10      10             scanf("%d", &num2);
 11      11
 12                 -    sum = num1 + num2;
         12       +    sum = num + num2;
 13      13
 14      14             printf("Sum of the entered numbers: %d", sum);
 15      15
```

15) 1Now compare the changes in the file, after comparison it will show whether the file is able to be merged or there are some conflicts.

```
Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you
need to, you can also compare across forks or learn more about diff comparisons.

⇅  [ base: main ▾ ]  ←  [ compare: test ▾ ]
                  ...

        ✓ Able to merge. These branches can be automatically merged.


Discuss and review the changes in this comparison       [ Create pull request ]
with others. Learn about pull requests


    ⌥ 1 commit          ⊞ 1 file changed          ⅍ 1 contributor
```
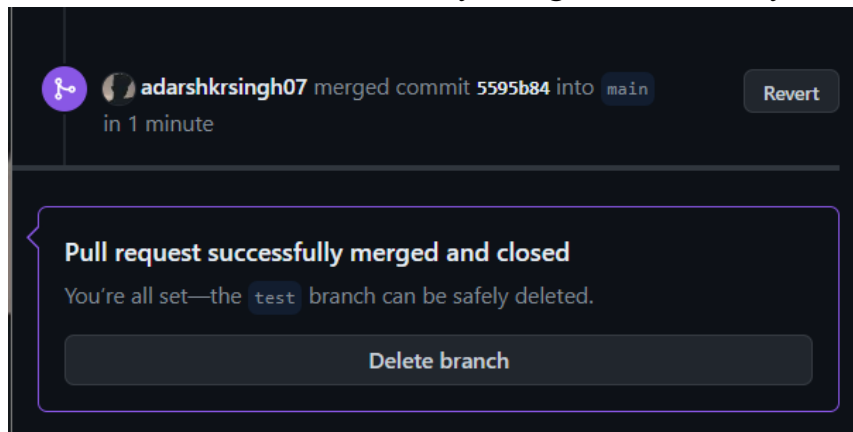
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16) Now click on create pull request after that the files will be merge if there was no conflict occur in the branches. The Branch is successfully Merged without any conflicts.

Creating a Branch on Bash/GUI: -

- **To Change the directory a branch:** touch <File1>

- **To Create a branch:** touch <File1>

- After creating a file in the "Main Branch" check for "**git status**" and add the file in "**git add File1**".

- After Creating a file now enter your message: **vi File1,** after that check **"git status"** it will show that the File1 is modified.

```
adars@ASUS MINGW64 ~/22BCD-1 (main)
$ vi File1.txt

adars@ASUS MINGW64 ~/22BCD-1 (main)
$ cat File1
cat: File1: No such file or directory

adars@ASUS MINGW64 ~/22BCD-1 (main)
$ cat File1.txt
Hello,my name is Adarsh Kumar Singh
I am in 22BCD-1 repo.
```

- Now create a Feature_branch from the main branch i.e.(**testBranch**).

```
adars@ASUS MINGW64 ~/22BCD-1 (NewBranch)
$ git checkout -b FeatureBranch
Switched to a new branch 'FeatureBranch'
```

- Now open the same file by **vi File1.txt** in the "**testBranch**" and perform some changes on it.

```
adars@ASUS MINGW64 ~/22BCD-1 (testBranch)
$ vi File1.txt

adars@ASUS MINGW64 ~/22BCD-1 (testBranch)
$ cat File1.txt
Hello,my name is Adarsh Kumar Singh
I am in 22BCD-1 repo.
I am in CHANDIGARH UNIVERSITY
My Uid is 22BDO10053
```

- Now Commit the changes in main branch of file i.e.(testFile).

```
adars@ASUS MINGW64 ~/22BCD-1 (main)
$ git commit -m "changes are done in the tstbranch"
On branch main
Your branch is ahead of 'origin/main' by 8 commits.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   File1.txt

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

- After creating a file in the "Main branch" and also commiting it. after, that we have to merge the (testfile) of "**feature_branch**" in the Main branch.

```
adars@ASUS MINGW64 ~/22BCD-1/test (FeatureBranch)
$ git checkout main
Switched to branch 'main'
A       test/testFiles
A       tstFile
Your branch is ahead of 'origin/main' by 5 commits.
  (use "git push" to publish your local commits)

adars@ASUS MINGW64 ~/22BCD-1/test (main)
$ git merge FeatureBranch
Already up to date.

adars@ASUS MINGW64 ~/22BCD-1/test (main)
$ git checkout NewBranch\
> \
>
Switched to branch 'NewBranch'
A       test/testFiles
A       tstFile

adars@ASUS MINGW64 ~/22BCD-1/test (NewBranch)
$ git merge FeatureBranch
Already up to date.
```

- After merging the branches now we have to delete the branches: "**git branch –delete "branch_name"**

```
adars@ASUS MINGW64 ~/22BCD-1 (main)
$ git branch --delete TestBranch
Deleted branch TestBranch (was ccd546d).

adars@ASUS MINGW64 ~/22BCD-1 (main)
$ git branch
  FeatureBranch
  NewBranch
* main
```

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We have successfully created a file and merged in the Main Branch.

Learning outcomes (What I have learnt):

1. Learnt about GitHub.

2. Learnt about Git.

3. Learnt about various git commands that can be applied on Git Bash.

4. Learnt about how to create repositories.

5. Learnt about how to pull request and push source code /files etc.

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.			