Training Program

Assignment #2

Git & Github Report

Instructor: Prof. Motasem Al-Diab

Done by: Ahmad Al-Sou'b

Abstraction:

We used the Gitflow workflow to manage a simple calculator project. For the hotfix, we created a new versiondirectly by adding a minor improvement (e.g., updating a new version) in the hotfix branch, merged it into the main branch, and synced it with the develop branch. For the release, we promoted the develop branch to the release branch, conducted testing within the release branch, completed the changes, and merged them into the main branch to publish the new version, then synced it back to the develop branch. This approach ensures production stability, organized development, and precise version tracking.

Introduction:

Purpose: Briefly introduce the concept of Gitflow Workflow and the project's objective. This report documents the implementation of the Gitflow Workflow in managing a simple calculator project. The objective is to demonstrate the use of hotfix and release branches to ensure stable production, organized development, and traceable versioning.

Project Overview:

The project involves developing a basic calculator in Java, featuring addition, subtraction, multiplication, and division. Git and GitHub were used to manage the workflow.

Workflow Explanation:

Gitflow Workflow is a branching model designed to organize development and deployment as figure **1**. It separates production (main) from ongoing development (develop), allowing structured hotfixes and feature releases.

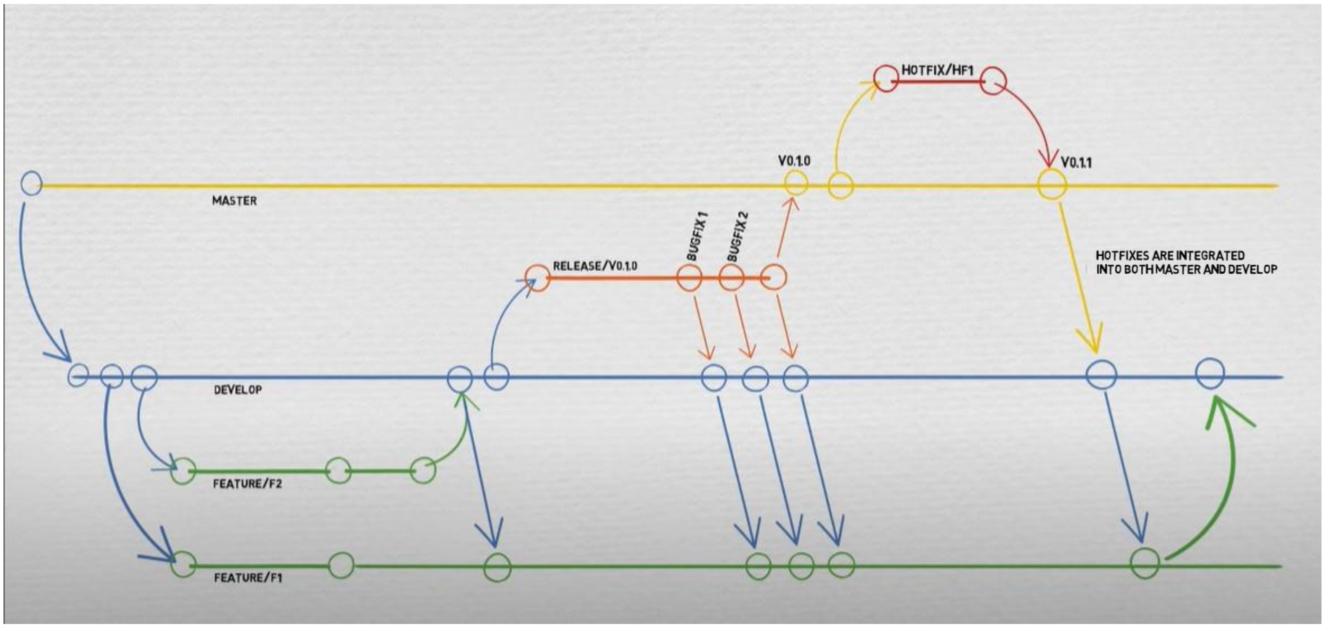


Figure 1

Solution:

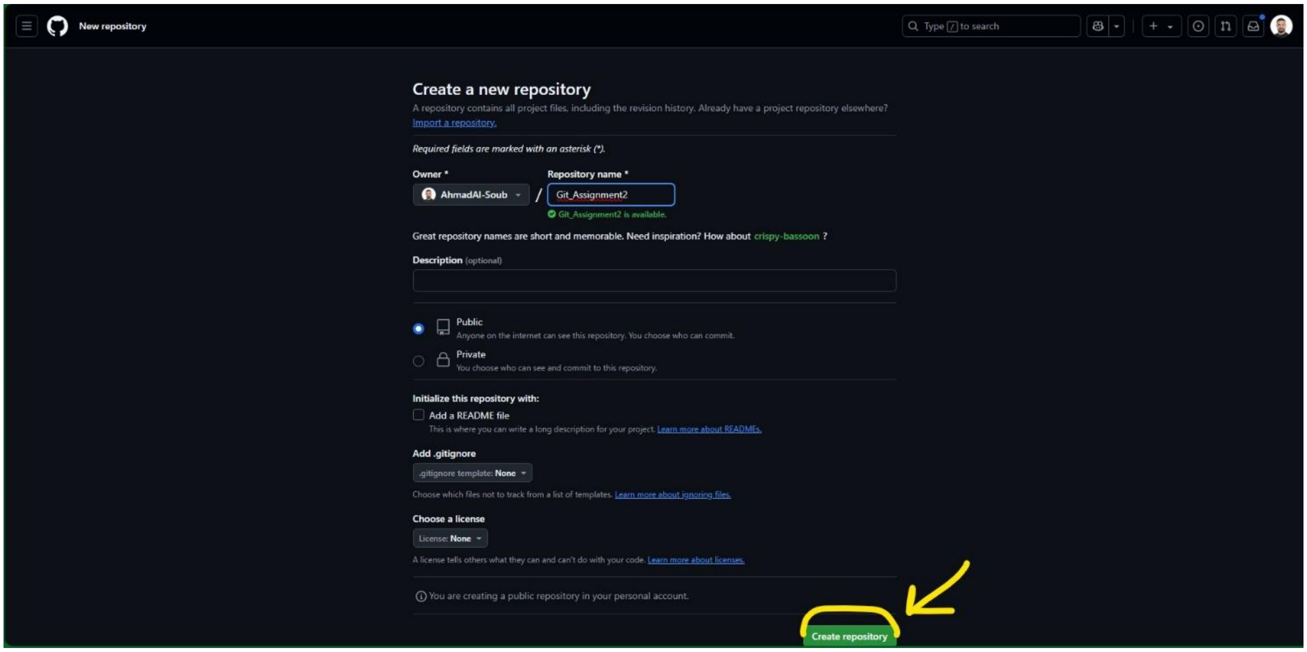
- **Idea:**
  - In this solution, I created a project on IntelliJ titled Git_Assignment2 to build a simple calculator and added a Java file. On the other side, I created a repository on GitHub and uploaded the IntelliJ project to the repository. The work was divided as follows:

  1. **Senior Developer:**
     - ✓ Responsible for creating the IntelliJ project and uploading it to the GitHub repository.
     - ✓ Prepared the Java file to organize tasks.
     - ✓ Managed merging feature branches into the develop branch, promoting the develop branch to the release branch, and merging the release branch into the main branch.
     - ✓ Handled creating a hotfix branch for quick fixes or updates, merging it into the main branch, and syncing it with the develop branch.
  2. **Mid-Level Developer:**
     - ✓ Responsible for building the multiply, divide, and modulus functions under a feature branch.
  3. **Junior Developer:**
     - ✓ Responsible for building the addition and subtraction functions under a feature branch.

- **Implementation Steps:**
  - Here we can start building git workflow as the following steps:

➢ Senior Developer Section:

1. Create a remote repository on GitHub and upload the project from IntelliJ to the repository as a figure 2 & 3.



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Required fields are marked with an asterisk (*).

Owner *: AhmadAl-Soub / Repository name *: Git_Assignment2

Git_Assignment2 is available.

Great repository names are short and memorable. Need inspiration? How about crispy-bassoon ?

Description (optional)

● Public
Anyone on the internet can see this repository. You choose who can commit.

○ Private
You choose who can see and commit to this repository.

Initialize this repository with:

□ Add a README file
This is where you can write a long description for your project. Learn more about READMEs.

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. Learn more about ignoring files.

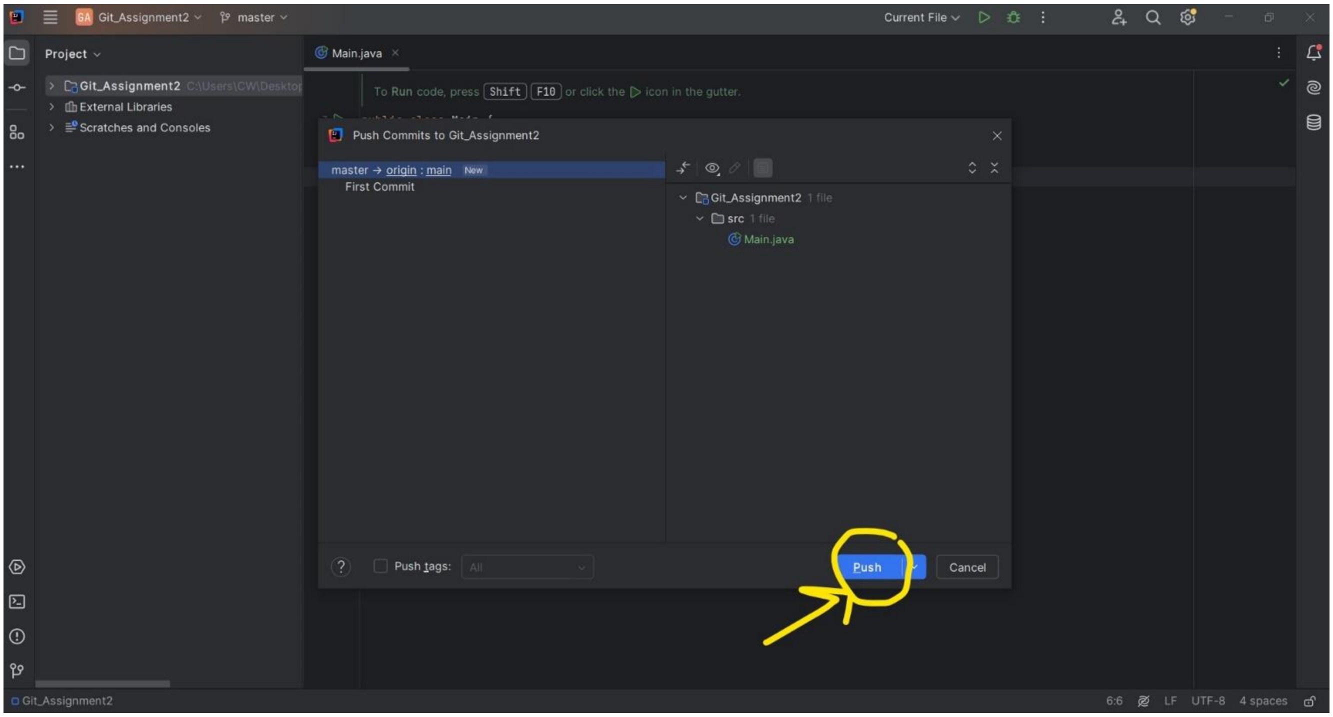
Choose a license

License: None

A license tells others what they can and can't do with your code. Learn more about licenses.

You are creating a public repository in your personal account.

Figure 2



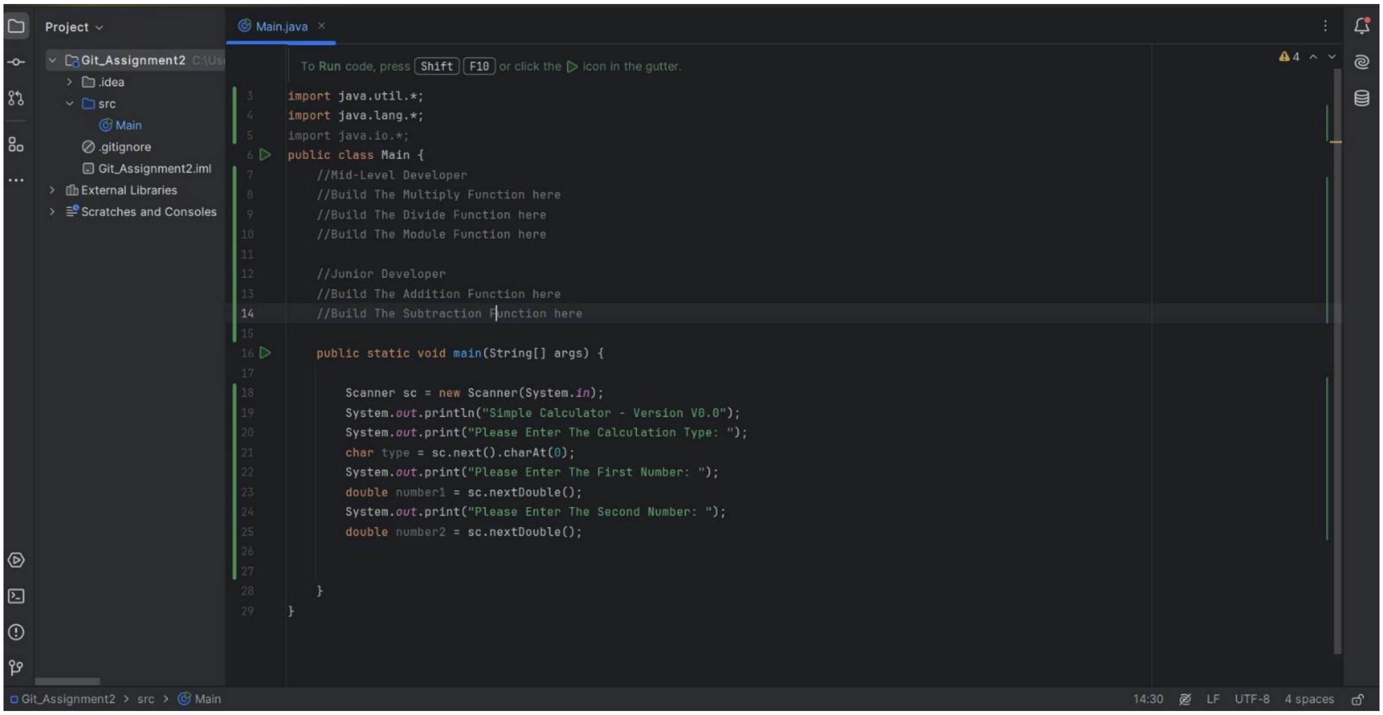
To Run code, press Shift F10 or click the ▷ icon in the gutter.

master → origin : main New
First Commit

Git_Assignment2 1 file
src 1 file
Main.java

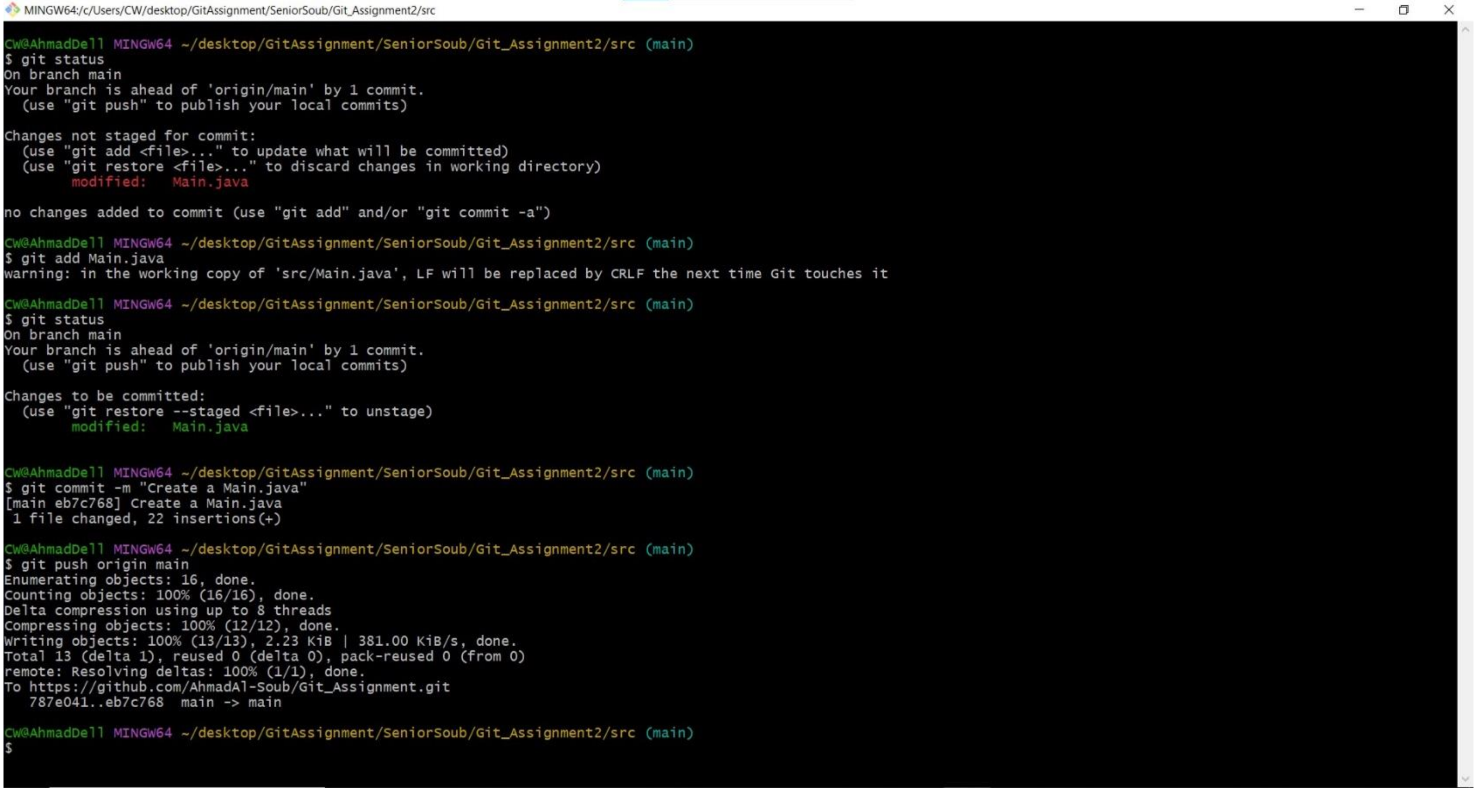
Figure 3

2. Create ‘Main.java’ and commit it and push it in main branch as a figure 4 &5.



```java
import java.util.*;
import java.lang.*;
import java.io.*;
public class Main {
    //Mid-Level Developer
    //Build The Multiply Function here
    //Build The Divide Function here
    //Build The Module Function here

    //Junior Developer
    //Build The Addition Function here
    //Build The Subtraction Function here

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.0");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();


    }
}
```

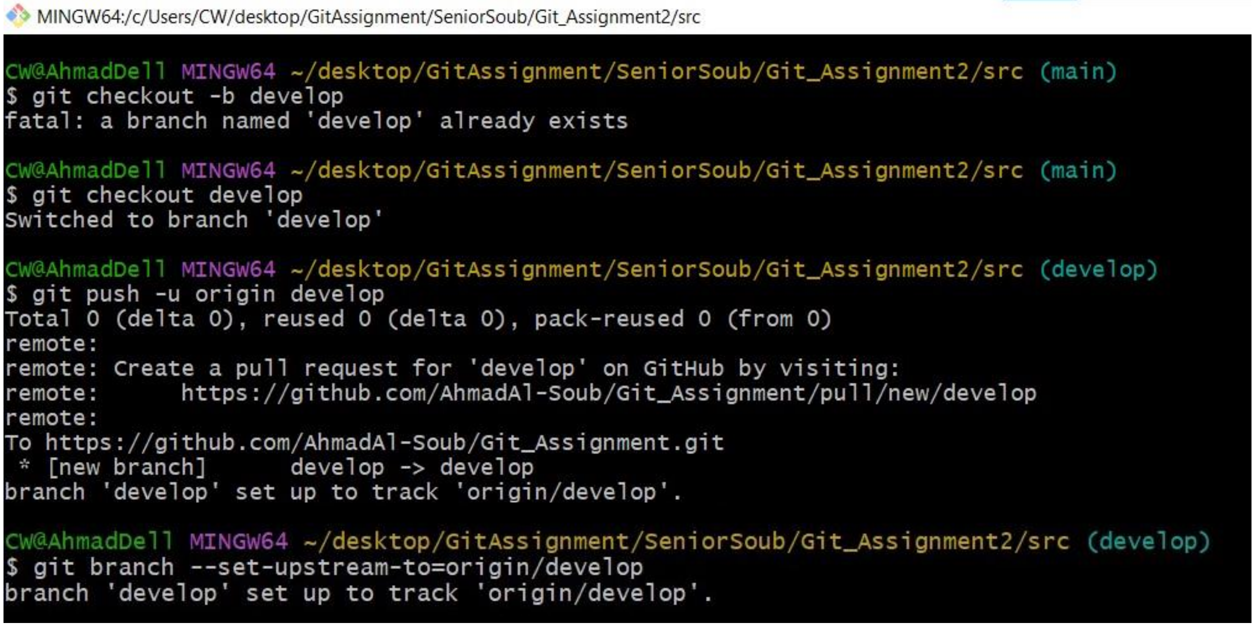
Figure 4


MINGW64:/c/Users/CW/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (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:   Main.java

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

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git add Main.java
warning: in the working copy of 'src/Main.java', LF will be replaced by CRLF the next time Git touches it

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git commit -m "Create a Main.java"
[main eb7c768] Create a Main.java
 1 file changed, 22 insertions(+)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git push origin main
Enumerating objects: 16, done.
Counting objects: 100% (16/16), done.
Delta compression using up to 8 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (13/13), 2.23 KiB | 381.00 KiB/s, done.
Total 13 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/AhmadAl-Soub/Git_Assignment.git
   787e041..eb7c768  main -> main

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$
```

Figure 5

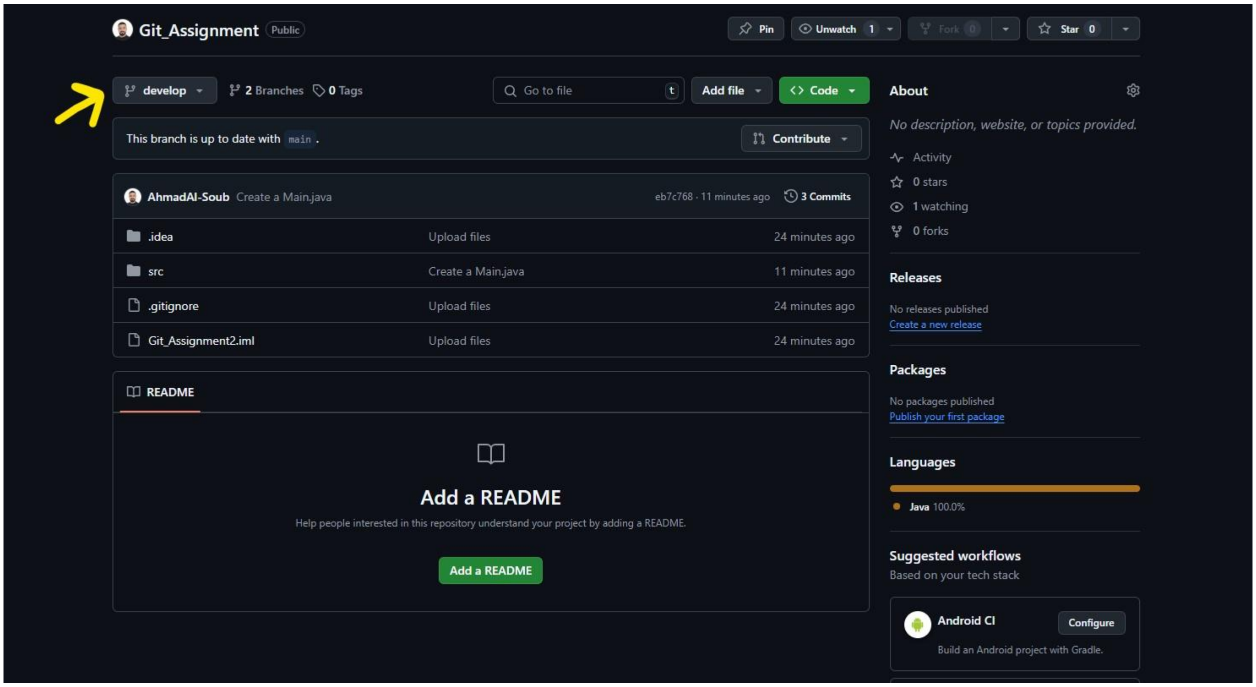
3. Create the develop branch and connect the local develop branch with the remote one to pull any change in the future as a figure 6 &7.



MINGW64:/c/Users/CW/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout -b develop
fatal: a branch named 'develop' already exists

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout develop
Switched to branch 'develop'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git push -u origin develop
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:      https://github.com/AhmadAl-Soub/Git_Assignment/pull/new/develop
remote:
To https://github.com/AhmadAl-Soub/Git_Assignment.git
 * [new branch]      develop -> develop
branch 'develop' set up to track 'origin/develop'.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git branch --set-upstream-to=origin/develop
branch 'develop' set up to track 'origin/develop'.
```

Figure 6



This branch is up to date with `main`.

AhmadAl-Soub Create a Main.java eb7c768 · 11 minutes ago 3 Commits

```
.idea                Upload files          24 minutes ago
src                  Create a Main.java    11 minutes ago
.gitignore           Upload files          24 minutes ago
Git_Assignment2.iml  Upload files          24 minutes ago
```

No description, website, or topics provided.

No releases published

No packages published

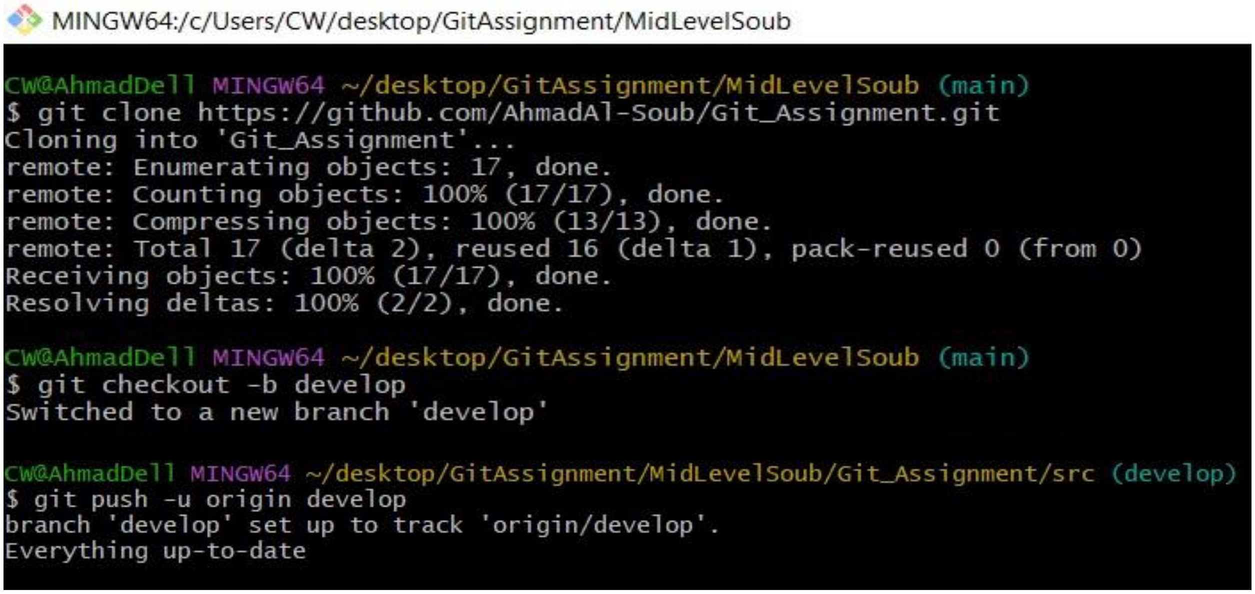
Help people interested in this repository understand your project by adding a README.

Build an Android project with Gradle.

Figure 7

➢ Mid-Level Developer Section:

1. Clone the repository branch and connect the local develop with the remote develop as a figure 8.

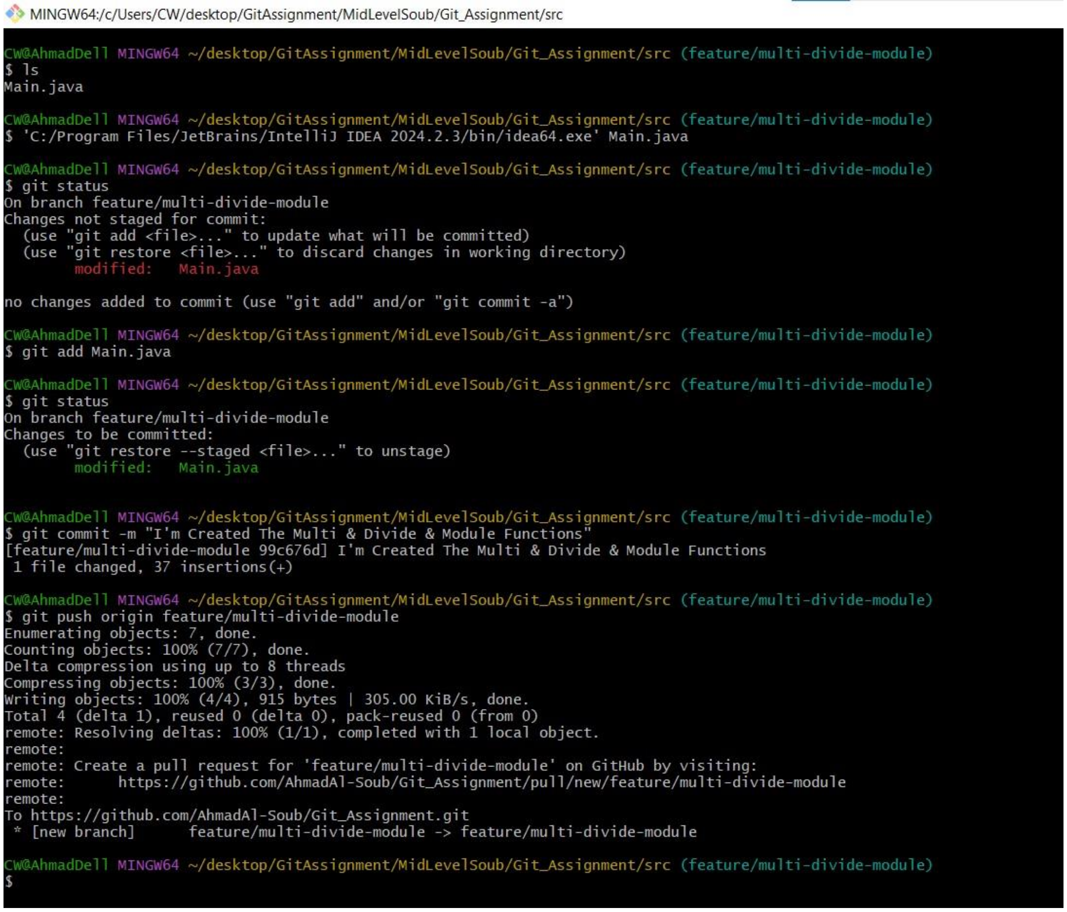


MINGW64:/c/Users/CW/desktop/GitAssignment/MidLevelSoub

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub (main)
$ git clone https://github.com/AhmadAl-Soub/Git_Assignment.git
Cloning into 'Git_Assignment'...
remote: Enumerating objects: 17, done.
remote: Counting objects: 100% (17/17), done.
remote: Compressing objects: 100% (13/13), done.
remote: Total 17 (delta 2), reused 16 (delta 1), pack-reused 0 (from 0)
Receiving objects: 100% (17/17), done.
Resolving deltas: 100% (2/2), done.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub (main)
$ git checkout -b develop
Switched to a new branch 'develop'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (develop)
$ git push -u origin develop
branch 'develop' set up to track 'origin/develop'.
Everything up-to-date
```

Figure 8

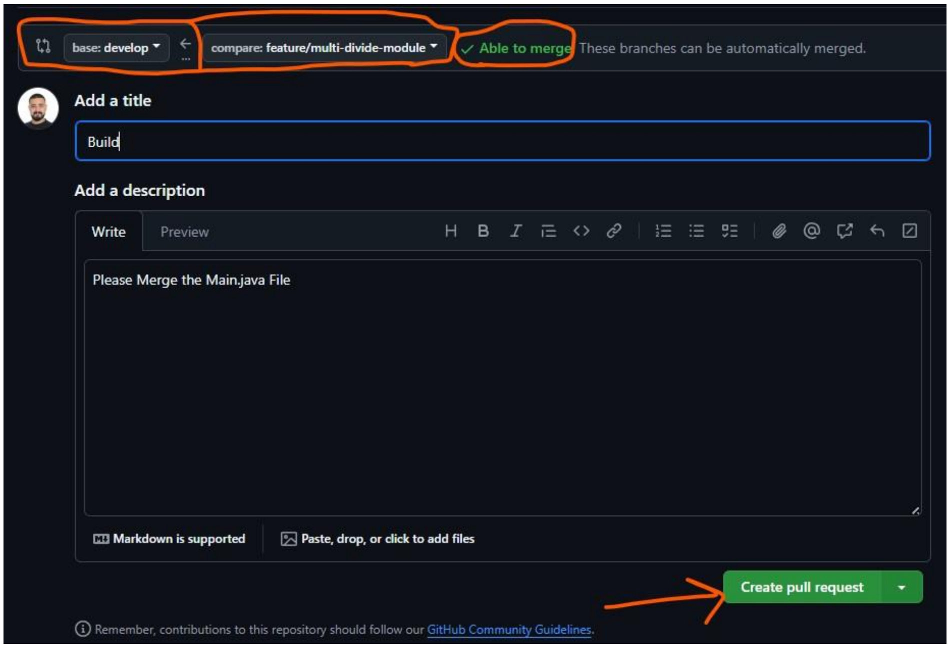
2. Create a feature branch named multi-divide-module, modify the main Java file, push the changes, and create a pull request to merge it into the develop branch as a figure 9 & 10.



MINGW64:/c/Users/CW/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ ls
Main.java

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ 'C:/Program Files/JetBrains/IntelliJ IDEA 2024.2.3/bin/idea64.exe' Main.java

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ git status
On branch feature/multi-divide-module
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:   Main.java

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

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ git add Main.java

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ git status
On branch feature/multi-divide-module
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ git commit -m "I'm Created The Multi & Divide & Module Functions"
[feature/multi-divide-module 99c676d] I'm Created The Multi & Divide & Module Functions
 1 file changed, 37 insertions(+)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$ git push origin feature/multi-divide-module
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 915 bytes | 305.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'feature/multi-divide-module' on GitHub by visiting:
remote:      https://github.com/AhmadAl-Soub/Git_Assignment/pull/new/feature/multi-divide-module
remote:
To https://github.com/AhmadAl-Soub/Git_Assignment.git
 * [new branch]      feature/multi-divide-module -> feature/multi-divide-module

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/MidLevelSoub/Git_Assignment/src (feature/multi-divide-module)
$
```

Figure 9



base: develop ← compare: feature/multi-divide-module ✓ Able to merge These branches can be automatically merged.

Add a title

Build

Add a description

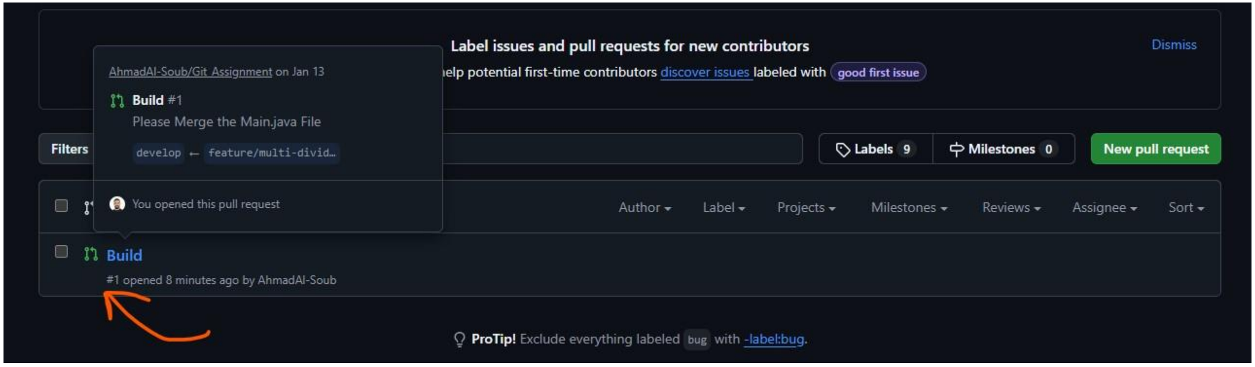
Please Merge the Main.java File

Write
Preview
H
B
I
Markdown is supported
Paste, drop, or click to add files
Create pull request
Remember, contributions to this repository should follow our GitHub Community Guidelines.

Figure 10

➢ Senior Developer Section:

1. Ensure there are no conflicts and merge it into the develop branch as a figure 11.



Label issues and pull requests for new contributors

AhmadAl-Soub/Git Assignment on Jan 13

Build #1

Please Merge the Main.java File

develop ← feature/multi-divid…

You opened this pull request

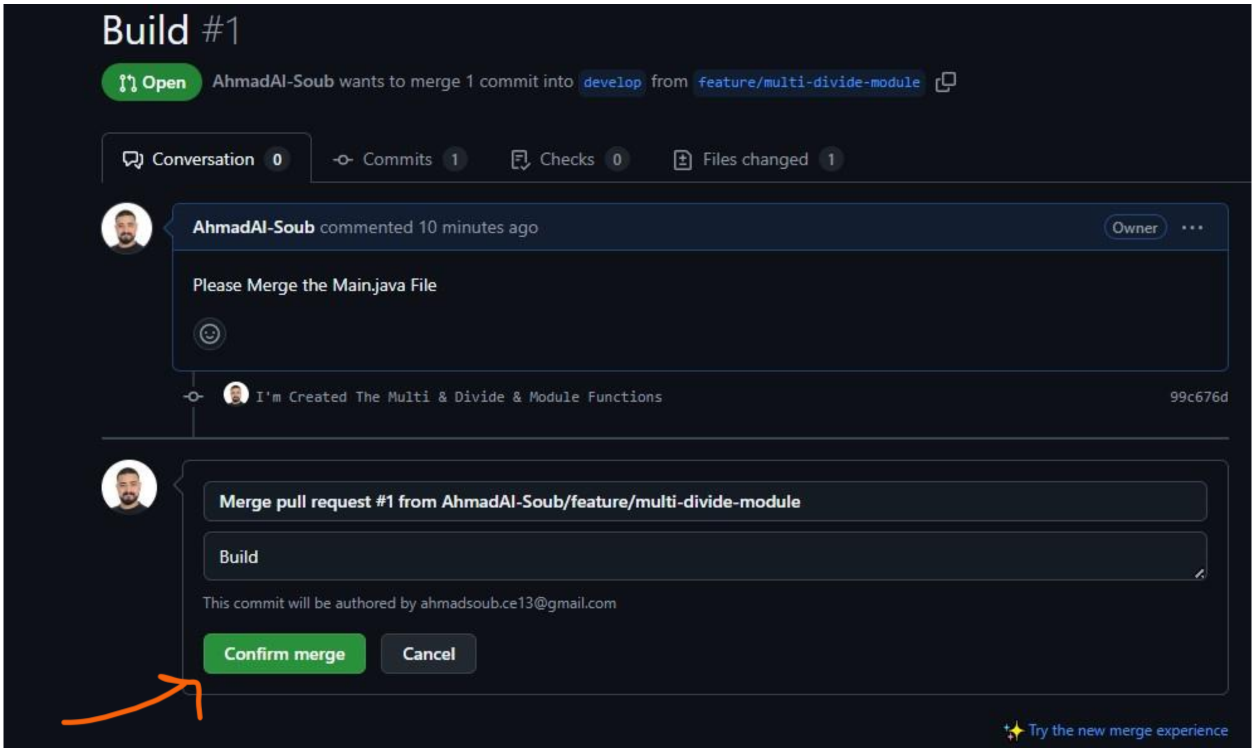
…elp potential first-time contributors discover issues labeled with good first issue

Build

#1 opened 8 minutes ago by AhmadAl-Soub

ProTip! Exclude everything labeled bug with -label:bug.

Figure 11-A



Build #1

Open AhmadAl-Soub wants to merge 1 commit into develop from feature/multi-divide-module

AhmadAl-Soub commented 10 minutes ago

Please Merge the Main.java File

I'm Created The Multi & Divide & Module Functions 99c676d

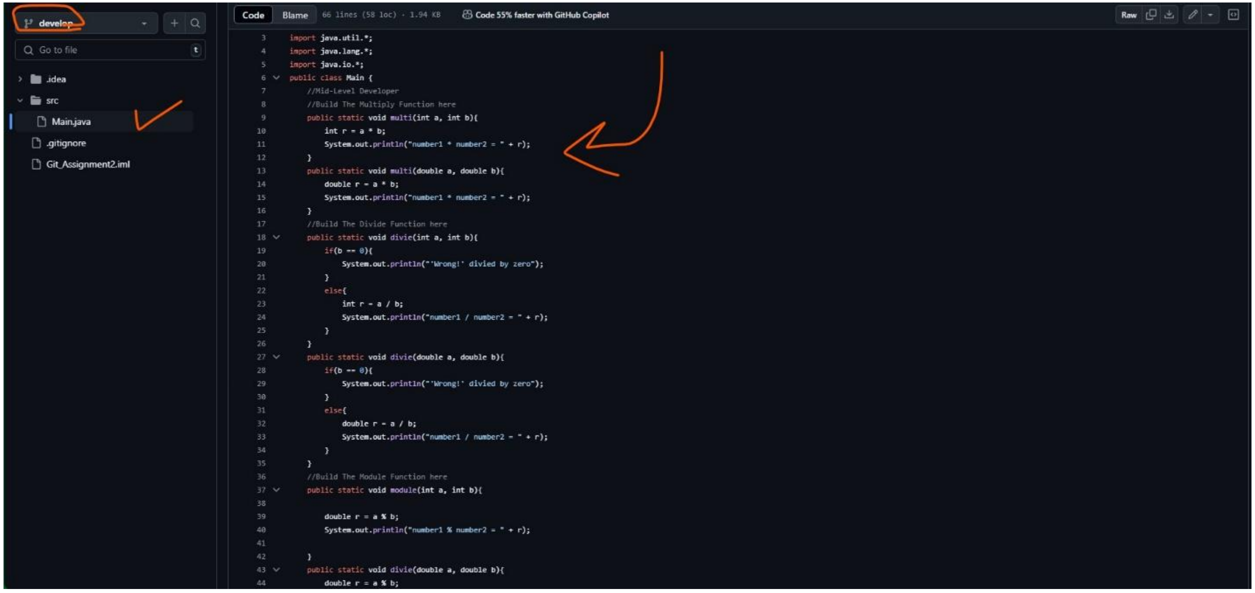
Merge pull request #1 from AhmadAl-Soub/feature/multi-divide-module

Build

This commit will be authored by ahmadsoub.ce13@gmail.com

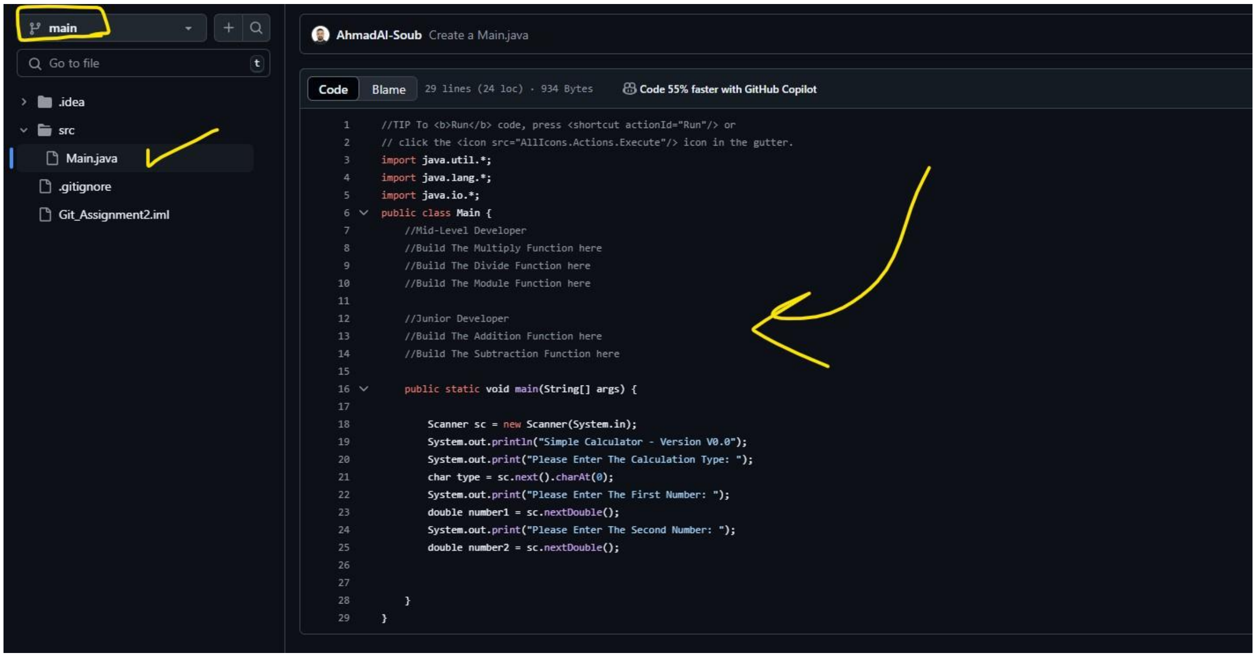
Figure 11-B

2. Here, as we can see, the develop branch has been modified, while the main branch remains unchanged as a figure 12 & 13.



```java
import java.util.*;
import java.lang.*;
import java.io.*;
public class Main {
    //Mid-Level Developer
    //Build The Multiply Function here
    public static void multi(int a, int b){
        int r = a * b;
        System.out.println("number1 * number2 = " + r);
    }
    public static void multi(double a, double b){
        double r = a * b;
        System.out.println("number1 * number2 = " + r);
    }
    //Build The Divide Function here
    public static void divie(int a, int b){
        if(b == 0){
            System.out.println("'Wrong!' divied by zero");
        }
        else{
            int r = a / b;
            System.out.println("number1 / number2 = " + r);
        }
    }
    public static void divie(double a, double b){
        if(b == 0){
            System.out.println("'Wrong!' divied by zero");
        }
        else{
            double r = a / b;
            System.out.println("number1 / number2 = " + r);
        }
    }
    //Build The Module Function here
    public static void module(int a, int b){

        double r = a % b;
        System.out.println("number1 % number2 = " + r);

    }
    public static void divie(double a, double b){
        double r = a % b;
```

Figure 12

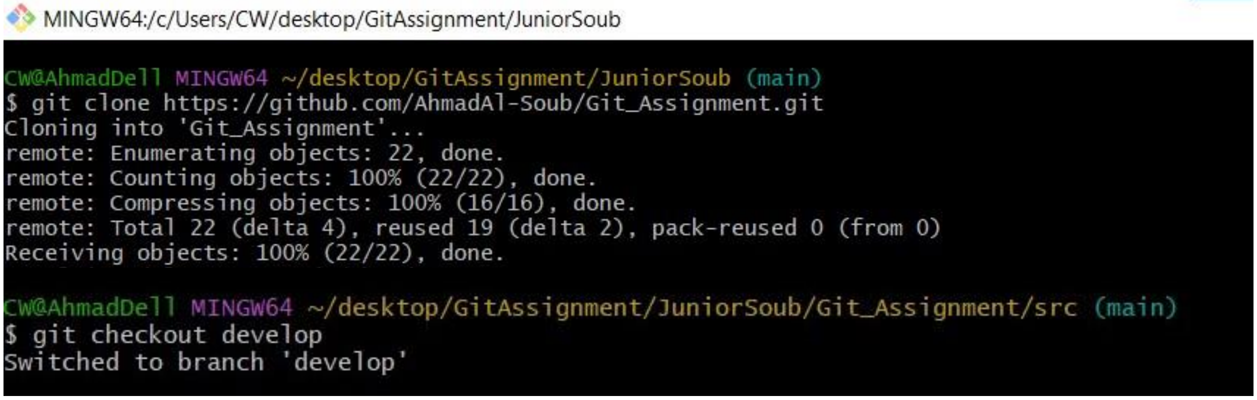

main
Go to file
.idea
src
Main.java
.gitignore
Git_Assignment2.iml
AhmadAl-Soub Create a Main.java
Code
Blame
29 lines (24 loc) · 934 Bytes
Code 55% faster with GitHub Copilot

```java
//TIP To <b>Run</b> code, press <shortcut actionId="Run"/> or
// click the <icon src="AllIcons.Actions.Execute"/> icon in the gutter.
import java.util.*;
import java.lang.*;
import java.io.*;
public class Main {
    //Mid-Level Developer
    //Build The Multiply Function here
    //Build The Divide Function here
    //Build The Module Function here

    //Junior Developer
    //Build The Addition Function here
    //Build The Subtraction Function here

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.0");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();


    }
}
```

Figure 12

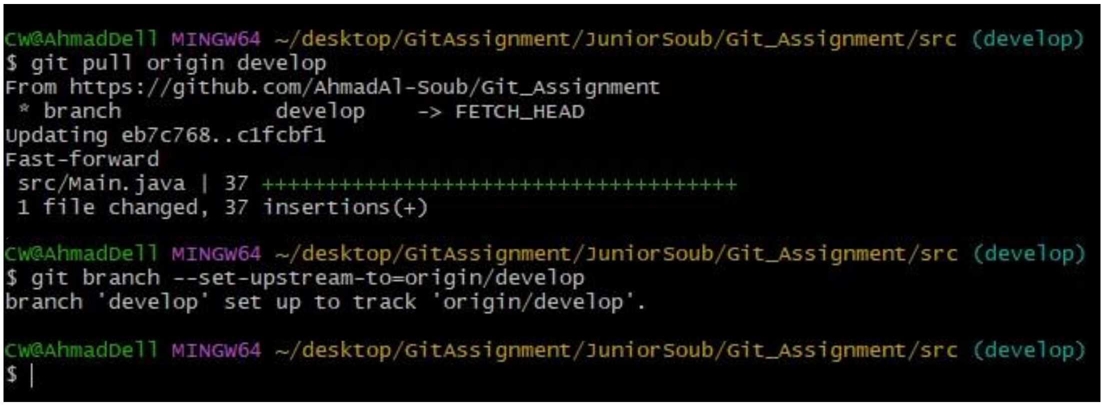
➢ Junior Developer Section:

1. Clone the repository branch, create a develop branch, pull all changes from the remote develop branch, and connect the local develop branch with the remote develop branch as a figure 13 & 14.



```
MINGW64:/c/Users/CW/desktop/GitAssignment/JuniorSoub

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub (main)
$ git clone https://github.com/AhmadAl-Soub/Git_Assignment.git
Cloning into 'Git_Assignment'...
remote: Enumerating objects: 22, done.
remote: Counting objects: 100% (22/22), done.
remote: Compressing objects: 100% (16/16), done.
remote: Total 22 (delta 4), reused 19 (delta 2), pack-reused 0 (from 0)
Receiving objects: 100% (22/22), done.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (main)
$ git checkout develop
Switched to branch 'develop'
```

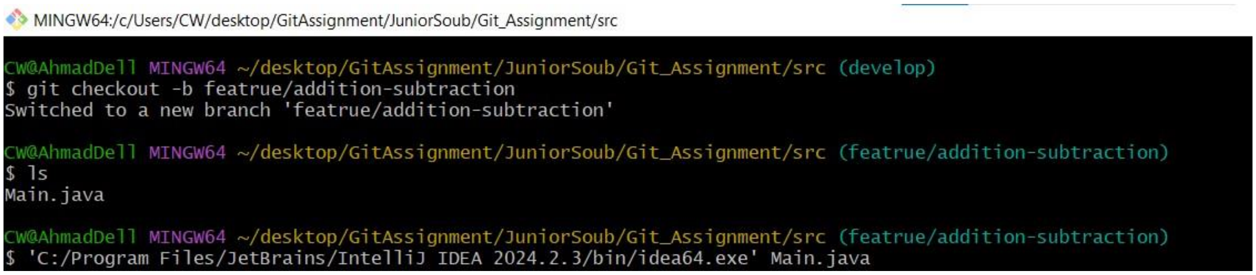
Figure 13



```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (develop)
$ git pull origin develop
From https://github.com/AhmadAl-Soub/Git_Assignment
 * branch            develop    -> FETCH_HEAD
Updating eb7c768..c1fcbf1
Fast-forward
 src/Main.java | 37 +++++++++++++++++++++++++++++++++++++
 1 file changed, 37 insertions(+)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (develop)
$ git branch --set-upstream-to=origin/develop
branch 'develop' set up to track 'origin/develop'.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (develop)
$ |
```

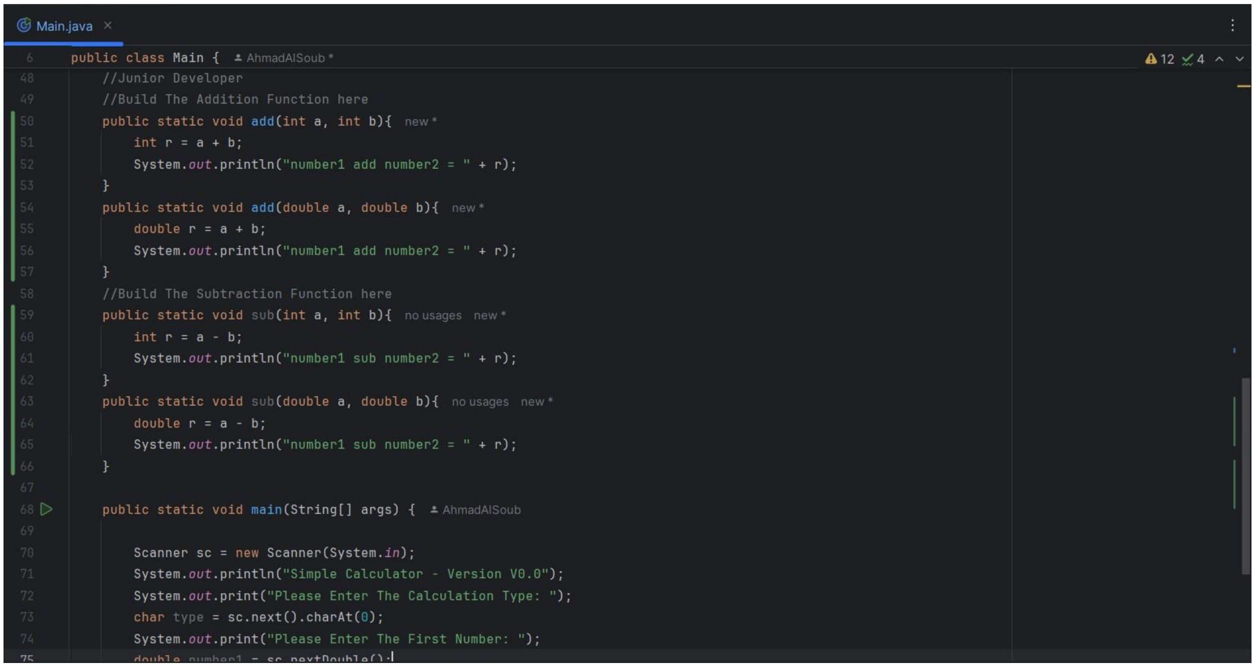
Figure 14

2. Create a feature branch named addition-subtraction, modify the main Java file as a figure 15 & 16.


MINGW64:/c/Users/CW/desktop/GitAssignment/JuniorSoub/Git_Assignment/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (develop)
$ git checkout -b featrue/addition-subtraction
Switched to a new branch 'featrue/addition-subtraction'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ ls
Main.java

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ 'C:/Program Files/JetBrains/IntelliJ IDEA 2024.2.3/bin/idea64.exe' Main.java
```

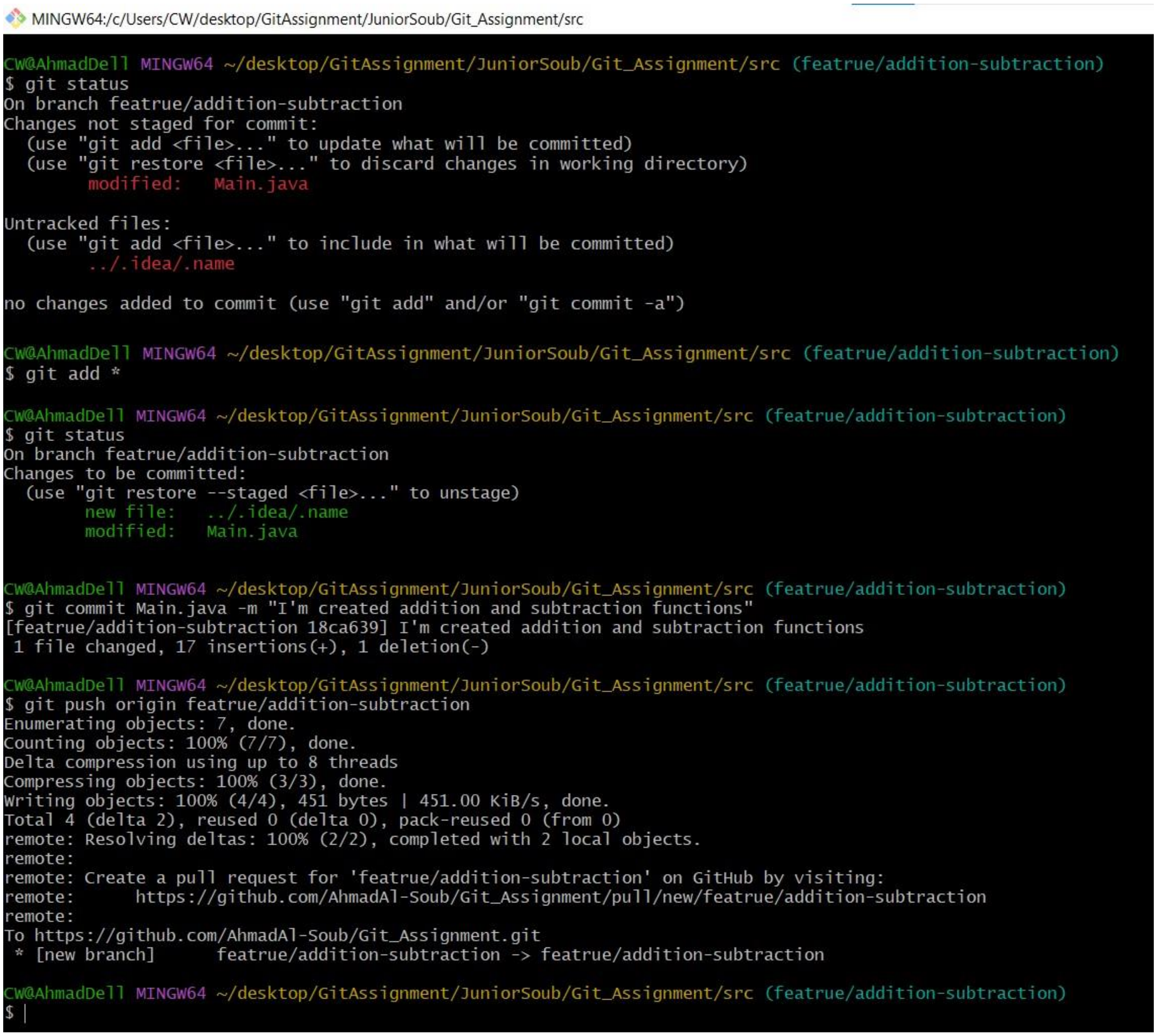
Figure 15



```
public class Main {
    //Junior Developer
    //Build The Addition Function here
    public static void add(int a, int b){
        int r = a + b;
        System.out.println("number1 add number2 = " + r);
    }
    public static void add(double a, double b){
        double r = a + b;
        System.out.println("number1 add number2 = " + r);
    }
    //Build The Subtraction Function here
    public static void sub(int a, int b){
        int r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }
    public static void sub(double a, double b){
        double r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.0");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
```

Figure 16

3. Commit and push the changes as a figure 17.

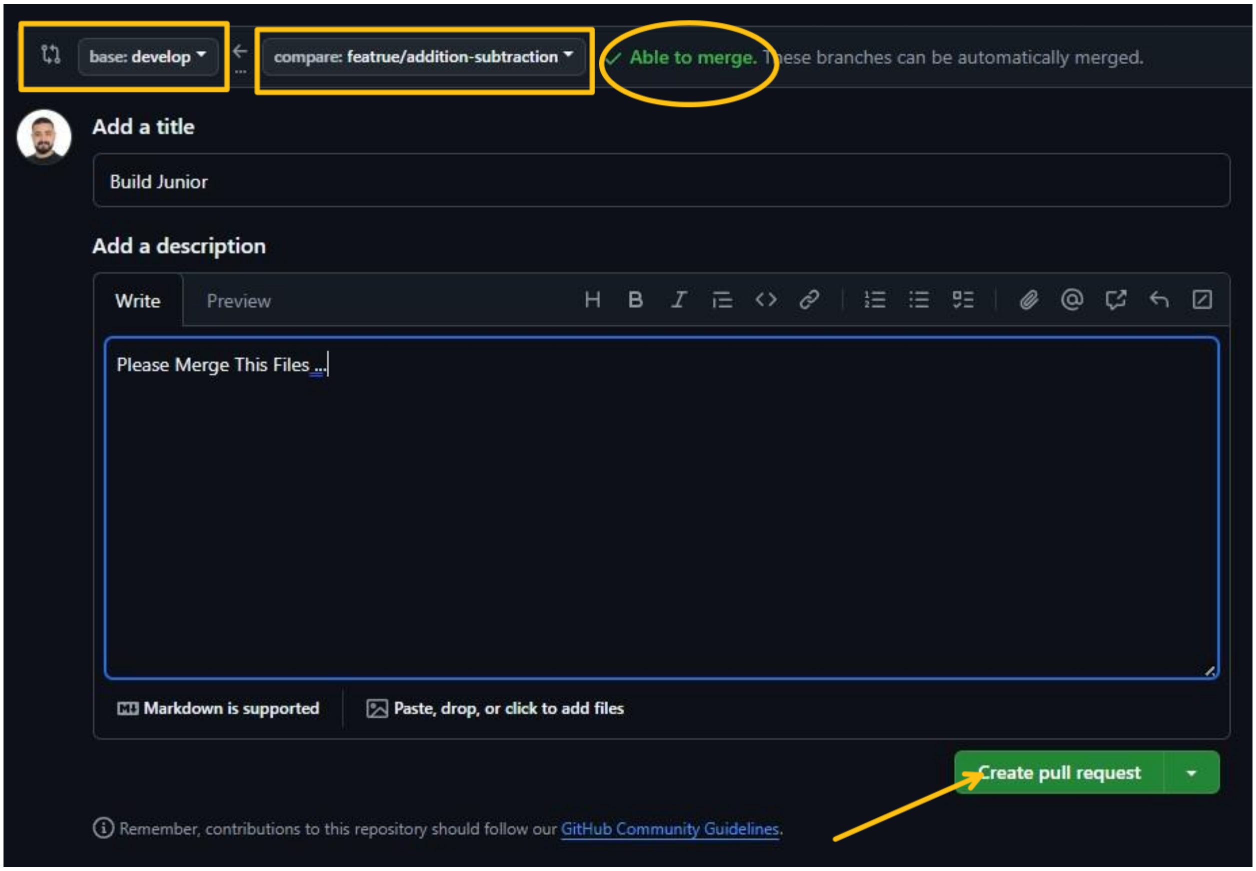


MINGW64:/c/Users/CW/desktop/GitAssignment/JuniorSoub/Git_Assignment/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ git status
On branch featrue/addition-subtraction
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:   Main.java

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        ../.idea/.name

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

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ git add *

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ git status
On branch featrue/addition-subtraction
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   ../.idea/.name
        modified:   Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ git commit Main.java -m "I'm created addition and subtraction functions"
[featrue/addition-subtraction 18ca639] I'm created addition and subtraction functions
 1 file changed, 17 insertions(+), 1 deletion(-)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ git push origin featrue/addition-subtraction
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 451 bytes | 451.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
remote:
remote: Create a pull request for 'featrue/addition-subtraction' on GitHub by visiting:
remote:      https://github.com/AhmadAl-Soub/Git_Assignment/pull/new/featrue/addition-subtraction
remote:
To https://github.com/AhmadAl-Soub/Git_Assignment.git
 * [new branch]      featrue/addition-subtraction -> featrue/addition-subtraction

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/JuniorSoub/Git_Assignment/src (featrue/addition-subtraction)
$ |
```

Figure 17

4. Create a pull request to merge it into the develop branch as a figure 18.


base: develop
compare: featrue/addition-subtraction
✓ Able to merge. These branches can be automatically merged.
Add a title
Add a description
Write
Preview
Markdown is supported
Paste, drop, or click to add files
Create pull request
Remember, contributions to this repository should follow our GitHub Community Guidelines.

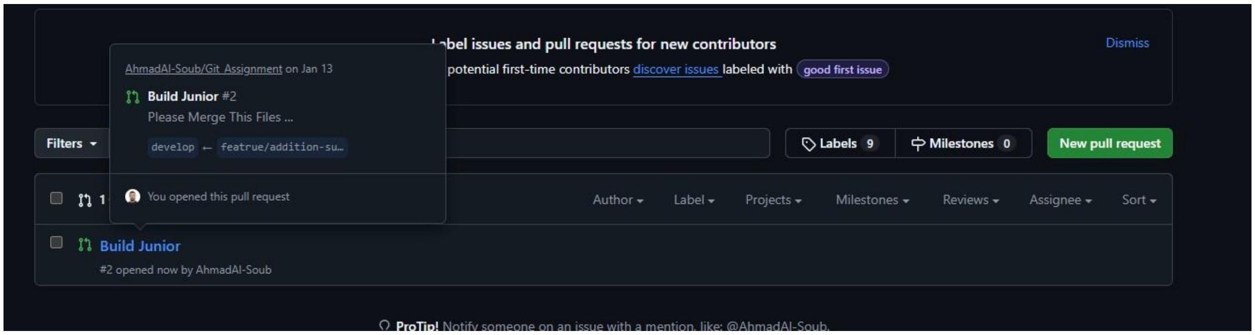
Build Junior

Please Merge This Files ...

Figure 18

➢ Senior Developer Section:

1. Ensure there are no conflicts and merge it into the develop branch as a figure 19.


Label issues and pull requests for new contributors
potential first-time contributors discover issues labeled with good first issue
Dismiss
Filters
Labels 9
Milestones 0
New pull request
Author
Label
Projects
Milestones
Reviews
Assignee
Sort
ProTip! Notify someone on an issue with a mention, like: @AhmadAl-Soub.

AhmadAl-Soub/Git_Assignment on Jan 13

Build Junior #2

Please Merge This Files ...

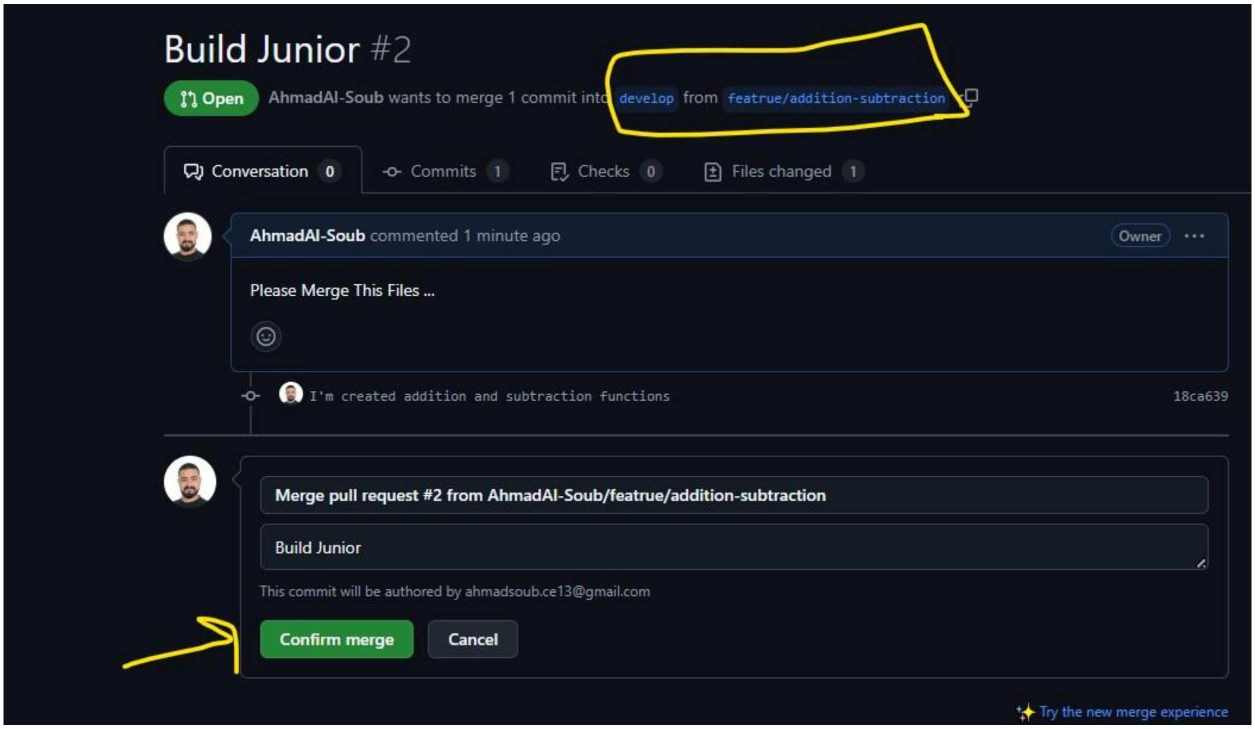
develop ← featrue/addition-su…

You opened this pull request

Build Junior

#2 opened now by AhmadAl-Soub

Figure 19-A



Build Junior #2

Open AhmadAl-Soub wants to merge 1 commit into develop from featrue/addition-subtraction

AhmadAl-Soub commented 1 minute ago

Please Merge This Files ...

I'm created addition and subtraction functions 18ca639

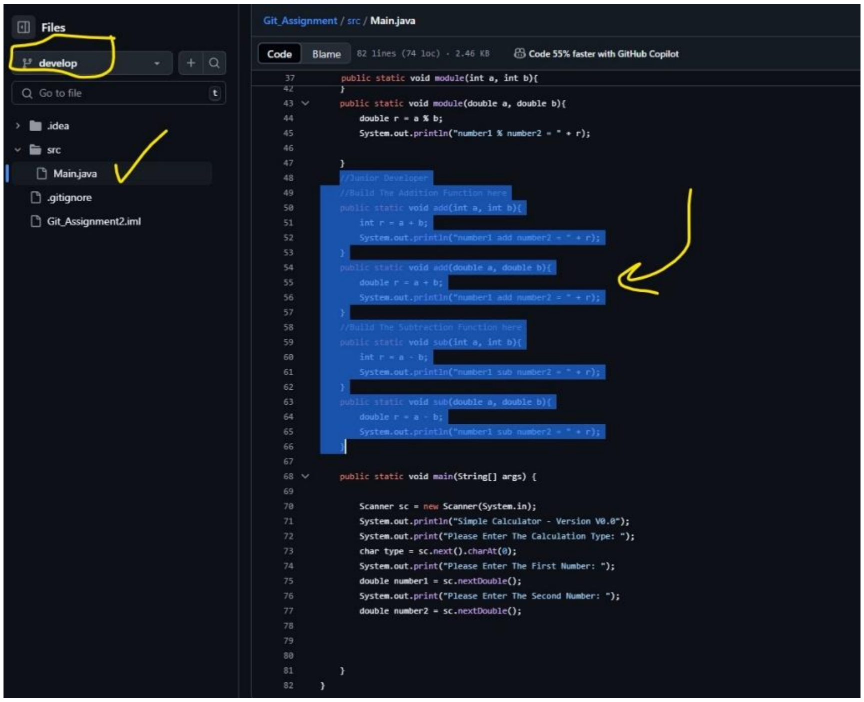
Merge pull request #2 from AhmadAl-Soub/featrue/addition-subtraction

Build Junior

This commit will be authored by ahmadsoub.ce13@gmail.com

Figure 19-B

2. Here, as we can see, the develop branch has been modified, while the main branch remains unchanged as a figure 20 & 21.

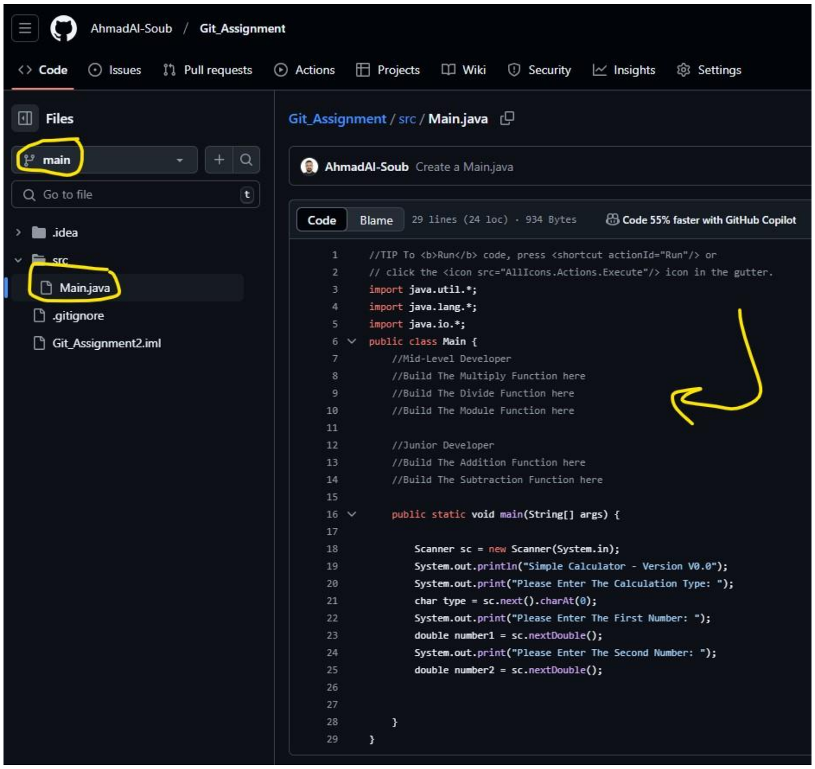


Git_Assignment / src / Main.java

82 lines (74 loc) · 2.46 KB

```java
    public static void module(int a, int b){
    }
    public static void module(double a, double b){
        double r = a % b;
        System.out.println("number1 % number2 = " + r);

    }
    //Junior Developer
    //Build The Addition Function here
    public static void add(int a, int b){
        int r = a + b;
        System.out.println("number1 add number2 = " + r);
    }
    public static void add(double a, double b){
        double r = a + b;
        System.out.println("number1 add number2 = " + r);
    }
    //Build The Subtraction Function here
    public static void sub(int a, int b){
        int r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }
    public static void sub(double a, double b){
        double r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.0");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();



    }
}
```

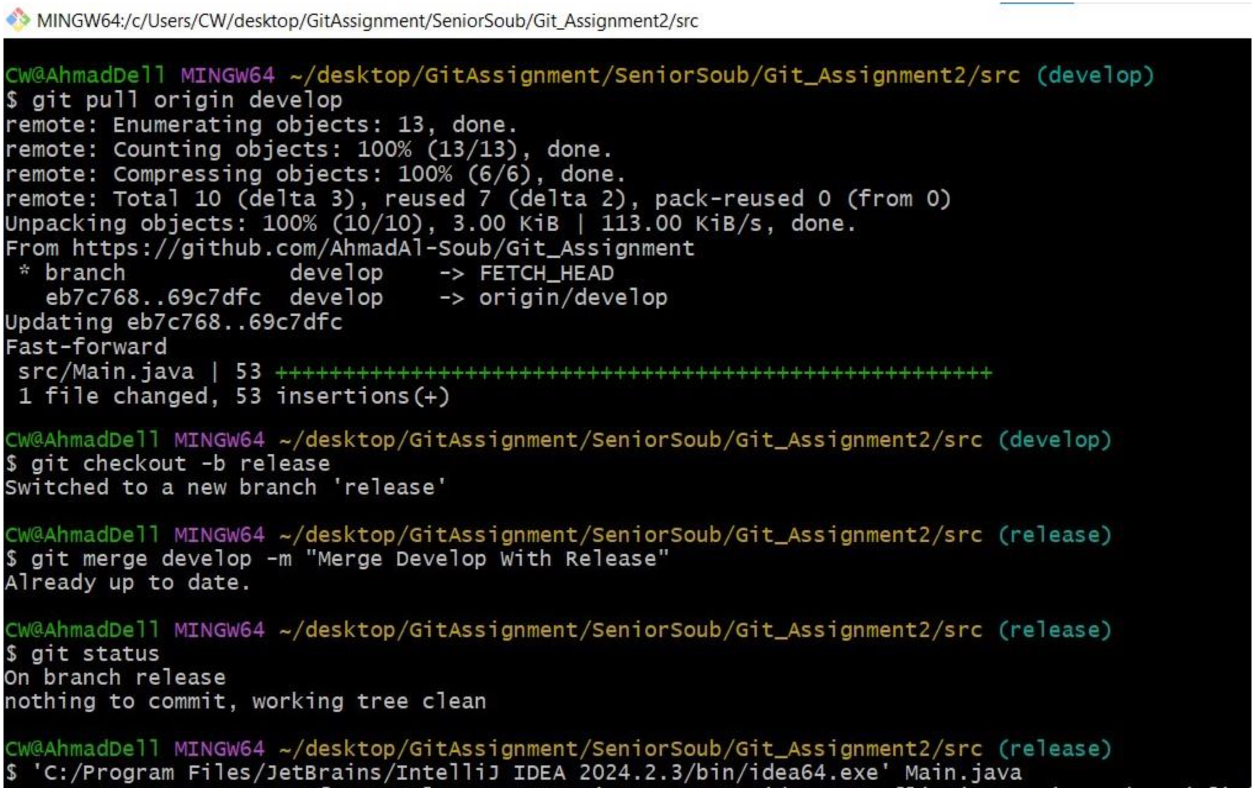
Figure 20


AhmadAl-Soub / Git_Assignment
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
Files
main
Go to file
.idea
src
Main.java
.gitignore
Git_Assignment2.iml
Git_Assignment / src / Main.java
AhmadAl-Soub Create a Main.java
Code
Blame
29 lines (24 loc) · 934 Bytes
Code 55% faster with GitHub Copilot

```java
//TIP To <b>Run</b> code, press <shortcut actionId="Run"/> or
// click the <icon src="AllIcons.Actions.Execute"/> icon in the gutter.
import java.util.*;
import java.lang.*;
import java.io.*;
public class Main {
    //Mid-Level Developer
    //Build The Multiply Function here
    //Build The Divide Function here
    //Build The Module Function here

    //Junior Developer
    //Build The Addition Function here
    //Build The Subtraction Function here

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.0");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();


    }
}
```

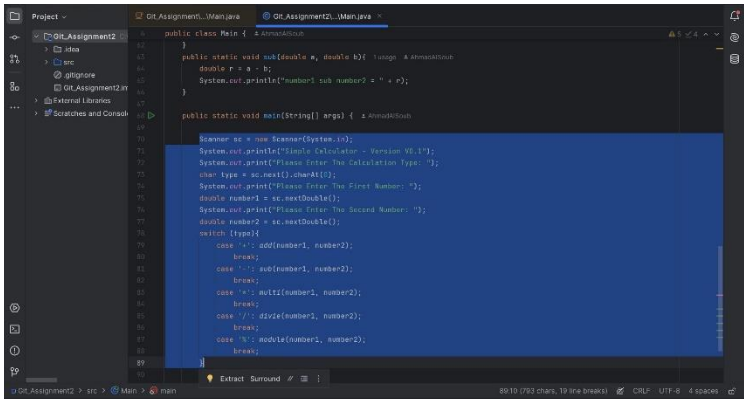
Figure 21

3. After the code is ready for the final release, we will create a release branch, merge the contents of the develop branch with the release branch, modify the main.java file (test), and prepare the new version **v0.1**. Then, we will connect the release branch with the remote branch after pushing it as a figure 22 & 23 & 24.


MINGW64:/c/Users/CW/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src

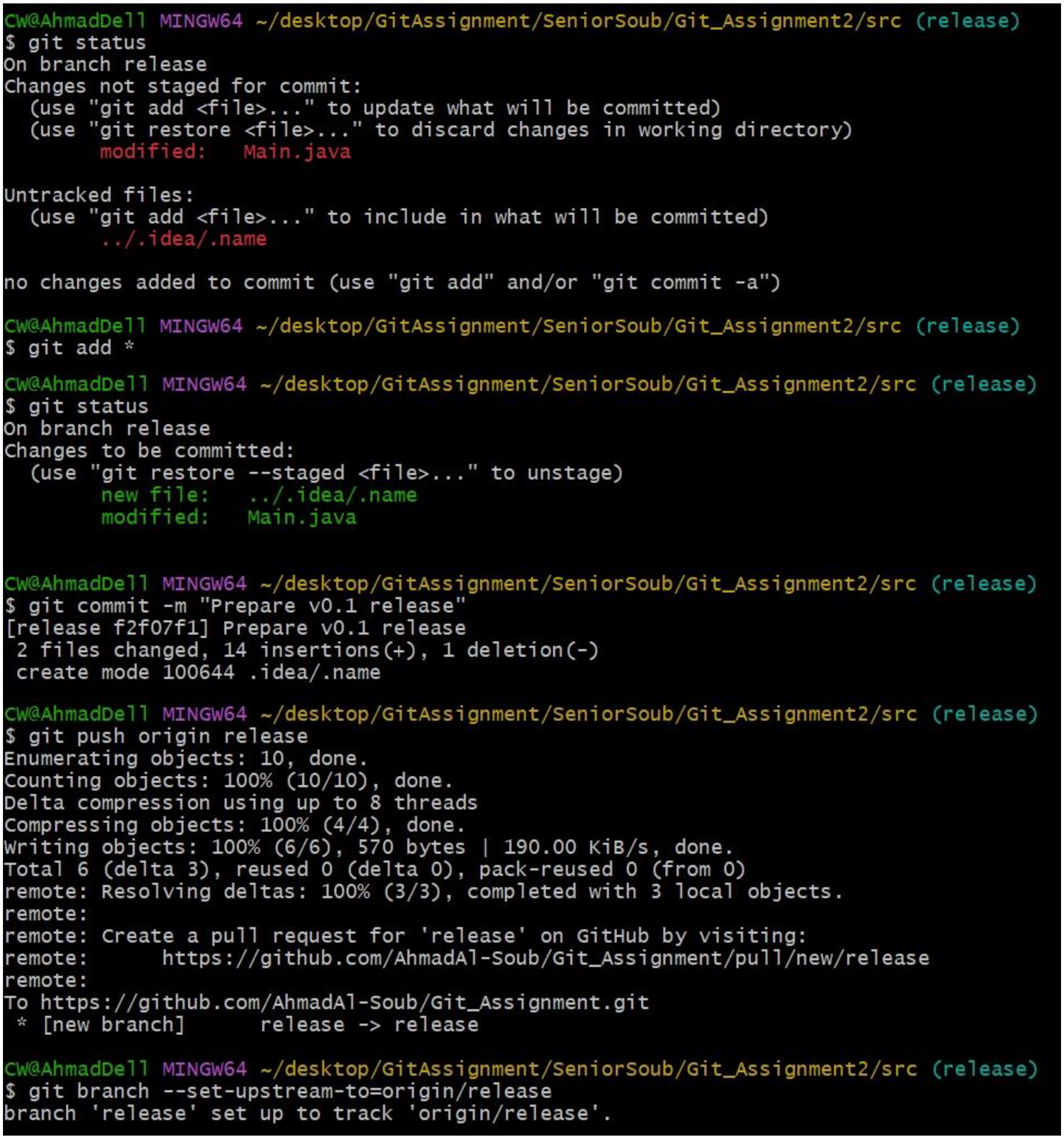
```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git pull origin develop
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 10 (delta 3), reused 7 (delta 2), pack-reused 0 (from 0)
Unpacking objects: 100% (10/10), 3.00 KiB | 113.00 KiB/s, done.
From https://github.com/AhmadAl-Soub/Git_Assignment
 * branch            develop    -> FETCH_HEAD
   eb7c768..69c7dfc  develop    -> origin/develop
Updating eb7c768..69c7dfc
Fast-forward
 src/Main.java | 53 +++++++++++++++++++++++++++++++++++++++++++++++++++++
 1 file changed, 53 insertions(+)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git checkout -b release
Switched to a new branch 'release'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git merge develop -m "Merge Develop With Release"
Already up to date.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git status
On branch release
nothing to commit, working tree clean

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ 'C:/Program Files/JetBrains/IntelliJ IDEA 2024.2.3/bin/idea64.exe' Main.java
```

Figure 22



```
public class Main {  AhmadAlSoub
    }
    public static void sub(double a, double b){  1 usage  AhmadAlSoub
        double r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }

    public static void main(String[] args) {  AhmadAlSoub

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();
        switch (type){
            case '+': add(number1, number2);
                break;
            case '-': sub(number1, number2);
                break;
            case '*': multi(number1, number2);
                break;
            case '/': divie(number1, number2);
                break;
            case '%': module(number1, number2);
                break;
        }
```

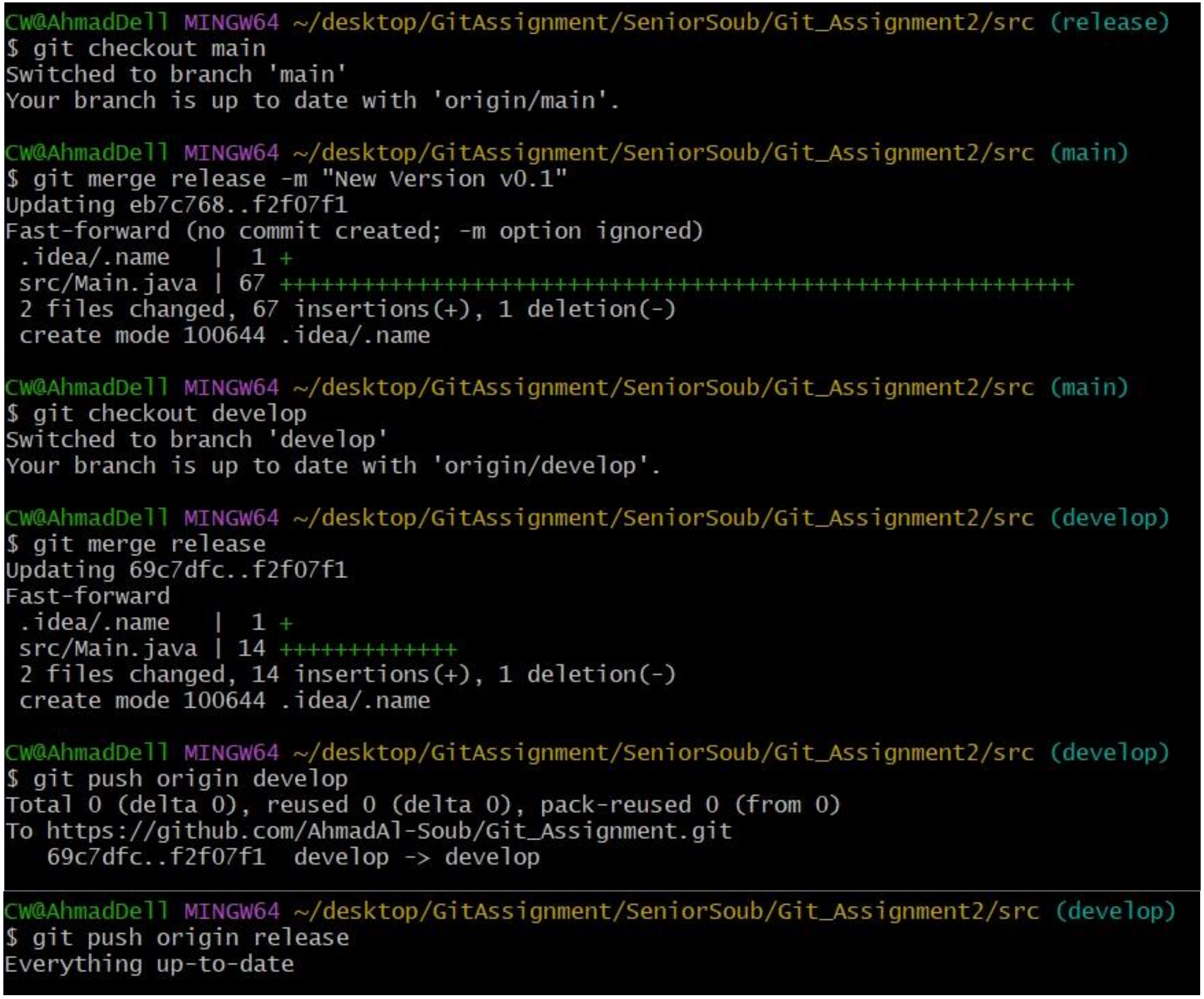
Figure 23



```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git status
On branch release
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:   Main.java

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        ../.idea/.name

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

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git add *

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git status
On branch release
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   ../.idea/.name
        modified:   Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git commit -m "Prepare v0.1 release"
[release f2f07f1] Prepare v0.1 release
 2 files changed, 14 insertions(+), 1 deletion(-)
 create mode 100644 .idea/.name

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git push origin release
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 570 bytes | 190.00 KiB/s, done.
Total 6 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
remote:
remote: Create a pull request for 'release' on GitHub by visiting:
remote:      https://github.com/AhmadAl-Soub/Git_Assignment/pull/new/release
remote:
To https://github.com/AhmadAl-Soub/Git_Assignment.git
 * [new branch]      release -> release

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git branch --set-upstream-to=origin/release
branch 'release' set up to track 'origin/release'.
```

Figure 24

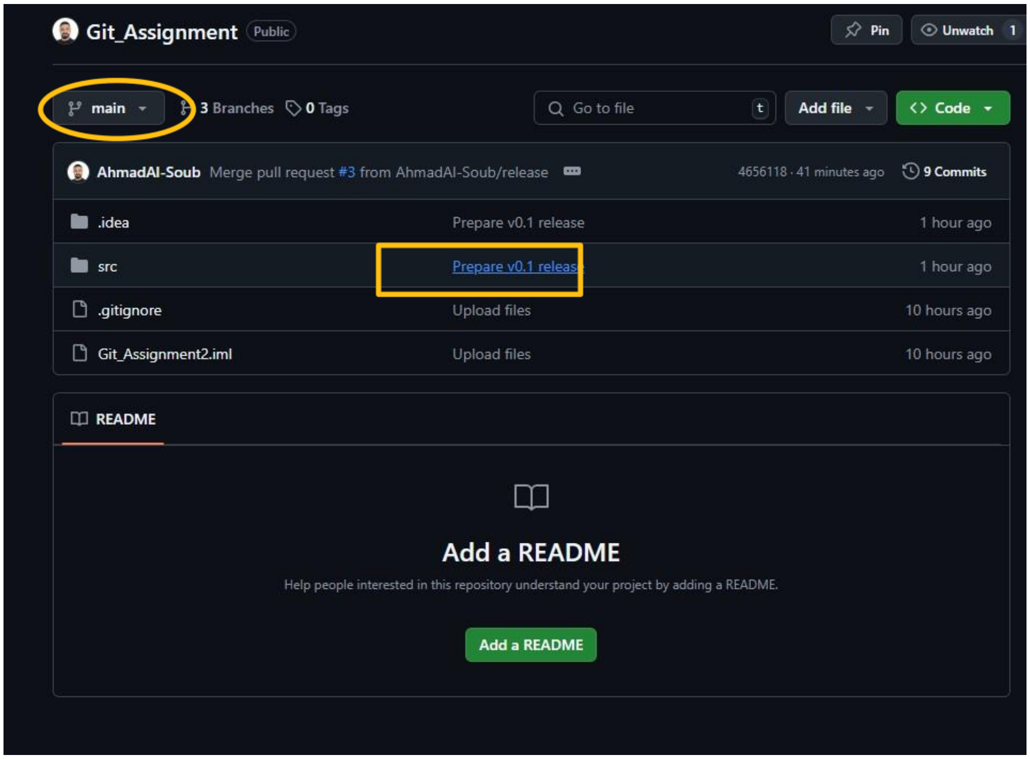
4. Now, we will push the latest release from the release branch to the main branch and sync it with the develop branch as a figure 25.



```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (release)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git merge release -m "New Version v0.1"
Updating eb7c768..f2f07f1
Fast-forward (no commit created; -m option ignored)
 .idea/.name    |  1 +
 src/Main.java | 67 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 2 files changed, 67 insertions(+), 1 deletion(-)
 create mode 100644 .idea/.name

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout develop
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git merge release
Updating 69c7dfc..f2f07f1
Fast-forward
 .idea/.name    |  1 +
 src/Main.java | 14 +++++++++++++
 2 files changed, 14 insertions(+), 1 deletion(-)
 create mode 100644 .idea/.name

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git push origin develop
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/AhmadAl-Soub/Git_Assignment.git
   69c7dfc..f2f07f1  develop -> develop

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git push origin release
Everything up-to-date
```

Figure 25

5. As we can see, the main branch and the develop branch have been modified on GitHub as a figure 26.



AhmadAl-Soub Merge pull request #3 from AhmadAl-Soub/release 4656118 · 41 minutes ago 9 Commits

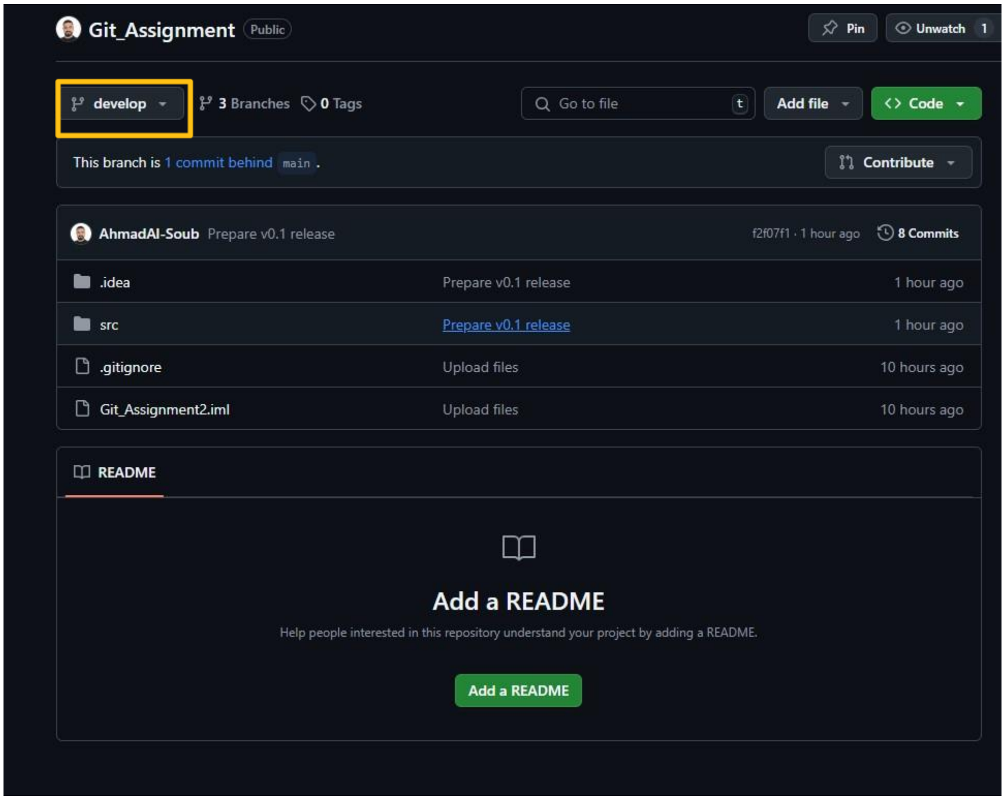
.idea	Prepare v0.1 release	1 hour ago
src	Prepare v0.1 release	1 hour ago
.gitignore	Upload files	10 hours ago
Git_Assignment2.iml	Upload files	10 hours ago

README

Add a README

Help people interested in this repository understand your project by adding a README.

Figure 26-A



This branch is 1 commit behind `main` .

AhmadAl-Soub Prepare v0.1 release f2f07f1 · 1 hour ago 8 Commits

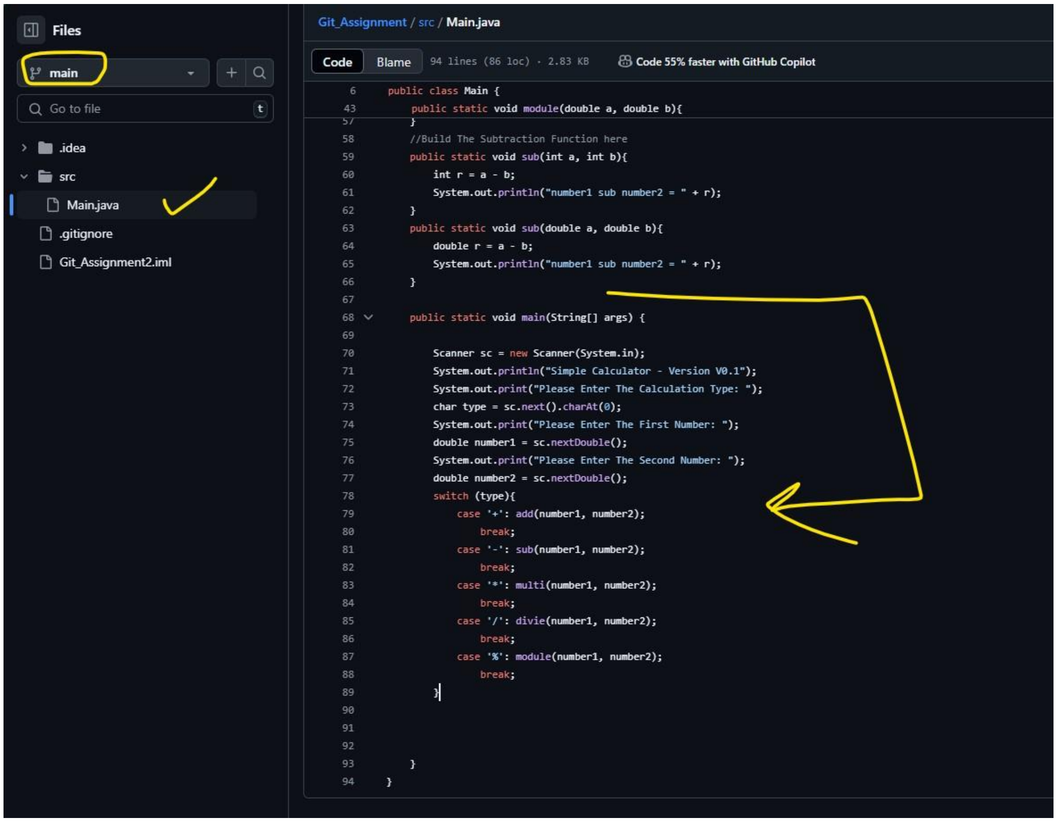
.idea	Prepare v0.1 release	1 hour ago
src	Prepare v0.1 release	1 hour ago
.gitignore	Upload files	10 hours ago
Git_Assignment2.iml	Upload files	10 hours ago

README

Add a README

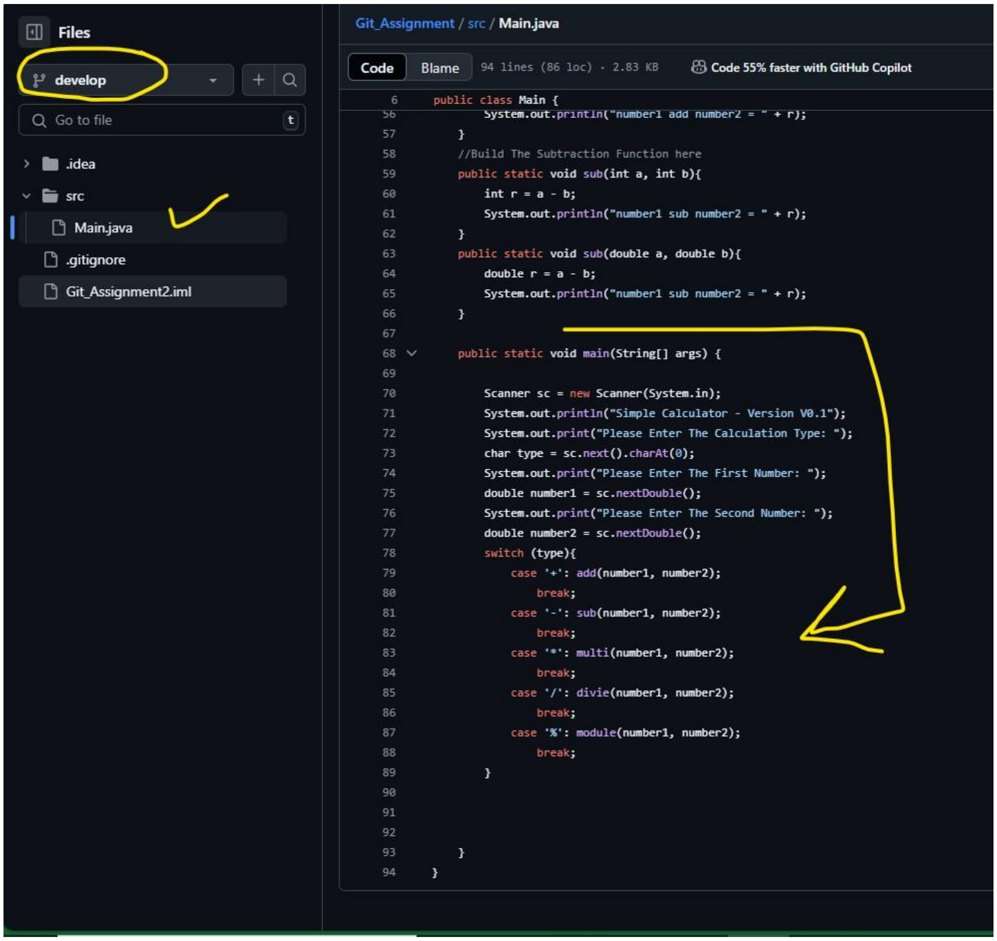
Help people interested in this repository understand your project by adding a README.

Figure 26-B


Files
main
Go to file
.idea
src
Main.java
.gitignore
Git_Assignment2.iml
Git_Assignment / src / Main.java
Code
Blame
94 lines (86 loc) · 2.83 KB
Code 55% faster with GitHub Copilot

```
public class Main {
    public static void module(double a, double b){
    }
    //Build The Subtraction Function here
    public static void sub(int a, int b){
        int r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }
    public static void sub(double a, double b){
        double r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();
        switch (type){
            case '+': add(number1, number2);
                break;
            case '-': sub(number1, number2);
                break;
            case '*': multi(number1, number2);
                break;
            case '/': divie(number1, number2);
                break;
            case '%': module(number1, number2);
                break;
        }



    }
}
```

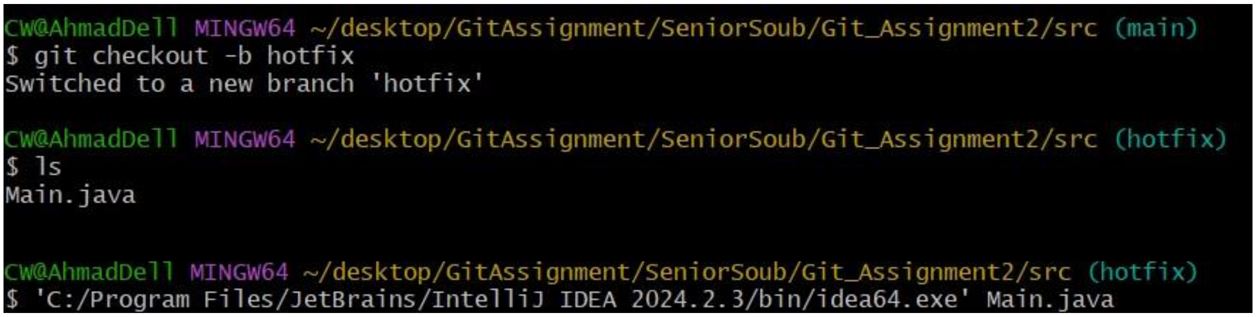
Figure 26-C


Files
develop
Go to file
.idea
src
Main.java
.gitignore
Git_Assignment2.iml
Git_Assignment / src / Main.java
Code
Blame
94 lines (86 loc) · 2.83 KB
Code 55% faster with GitHub Copilot

```
public class Main {
        System.out.println("number1 add number2 = " + r);
    }
    //Build The Subtraction Function here
    public static void sub(int a, int b){
        int r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }
    public static void sub(double a, double b){
        double r = a - b;
        System.out.println("number1 sub number2 = " + r);
    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();
        switch (type){
            case '+': add(number1, number2);
                break;
            case '-': sub(number1, number2);
                break;
            case '*': multi(number1, number2);
                break;
            case '/': divie(number1, number2);
                break;
            case '%': module(number1, number2);
                break;
        }



    }
}
```

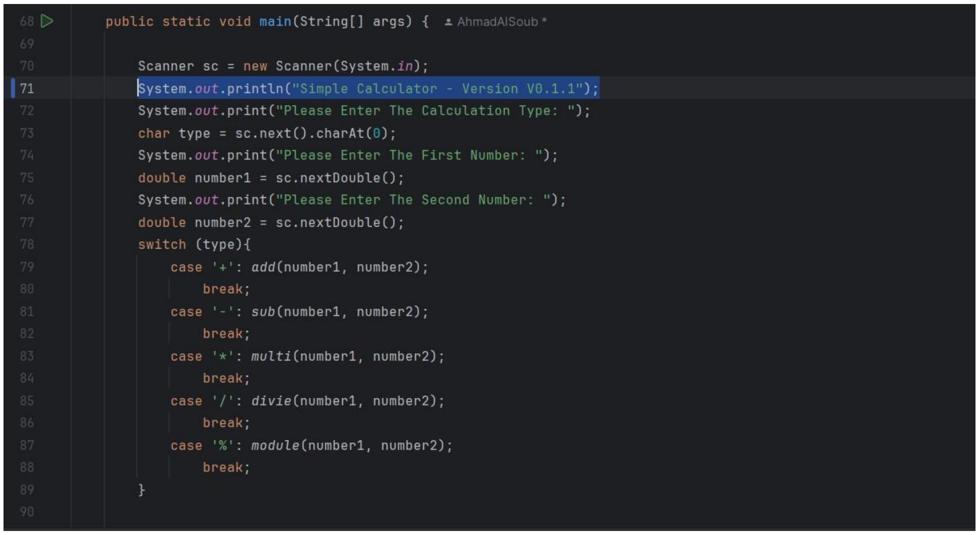
Figure 26-D

6. Finally, we will create a hotfix branch to update the version, merge it with the main branch, and push it to the main branch. At the same time, we will sync the changes or updates made in the hotfix with the develop branch as a figure 27 & 28 & 29 & 30 & 31 & 32.



```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout -b hotfix
Switched to a new branch 'hotfix'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ ls
Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ 'C:/Program Files/JetBrains/IntelliJ IDEA 2024.2.3/bin/idea64.exe' Main.java
```

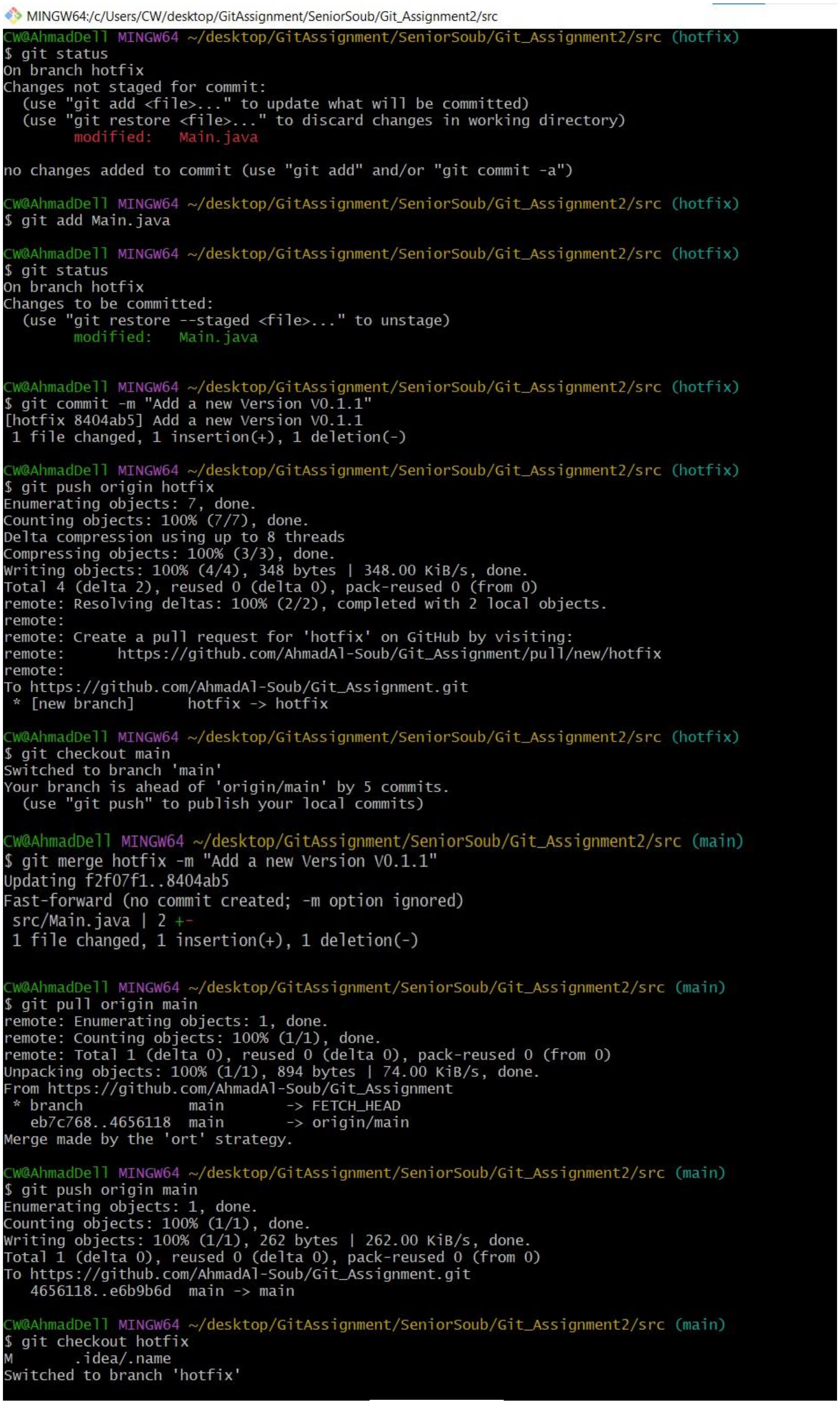
Figure 27



```
    public static void main(String[] args) {  AhmadAlSoub *

        Scanner sc = new Scanner(System.in);
        System.out.println("Simple Calculator - Version V0.1.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
        double number1 = sc.nextDouble();
        System.out.print("Please Enter The Second Number: ");
        double number2 = sc.nextDouble();
        switch (type){
            case '+': add(number1, number2);
                break;
            case '-': sub(number1, number2);
                break;
            case '*': multi(number1, number2);
                break;
            case '/': divie(number1, number2);
                break;
            case '%': module(number1, number2);
                break;
        }

```

Figure 28

Cont…

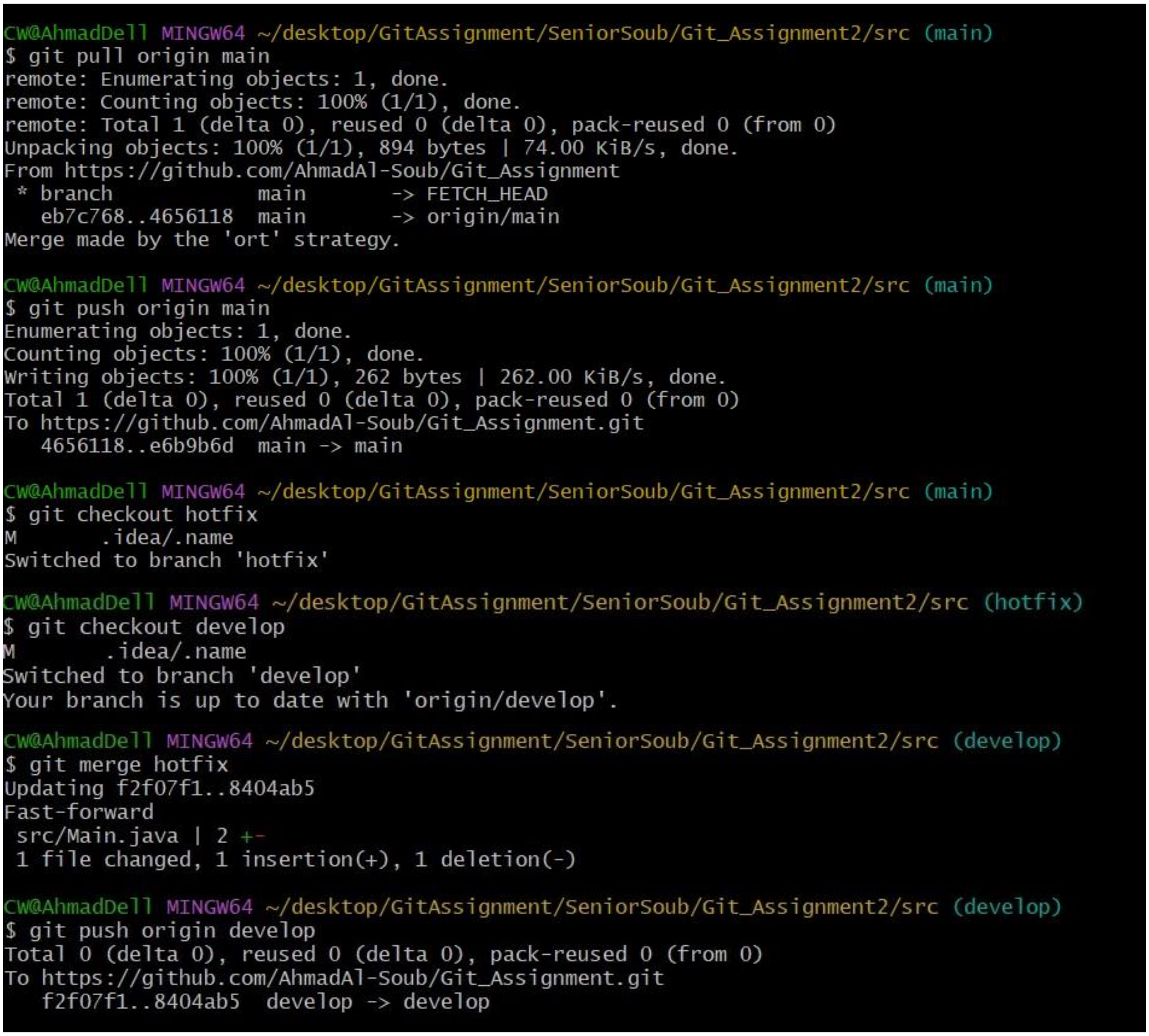


MINGW64:/c/Users/CW/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src

```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git status
On branch hotfix
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:   Main.java

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

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git add Main.java

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git status
On branch hotfix
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   Main.java


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git commit -m "Add a new Version V0.1.1"
[hotfix 8404ab5] Add a new Version V0.1.1
 1 file changed, 1 insertion(+), 1 deletion(-)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git push origin hotfix
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 348 bytes | 348.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
remote:
remote: Create a pull request for 'hotfix' on GitHub by visiting:
remote:      https://github.com/AhmadAl-Soub/Git_Assignment/pull/new/hotfix
remote:
To https://github.com/AhmadAl-Soub/Git_Assignment.git
 * [new branch]      hotfix -> hotfix

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git checkout main
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 5 commits.
  (use "git push" to publish your local commits)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git merge hotfix -m "Add a new Version V0.1.1"
Updating f2f07f1..8404ab5
Fast-forward (no commit created; -m option ignored)
 src/Main.java | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)


CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git pull origin main
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (1/1), 894 bytes | 74.00 KiB/s, done.
From https://github.com/AhmadAl-Soub/Git_Assignment
 * branch            main       -> FETCH_HEAD
   eb7c768..4656118  main       -> origin/main
Merge made by the 'ort' strategy.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git push origin main
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 262 bytes | 262.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/AhmadAl-Soub/Git_Assignment.git
   4656118..e6b9b6d  main -> main

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout hotfix
M       .idea/.name
Switched to branch 'hotfix'
```

Figure 29

Cont…

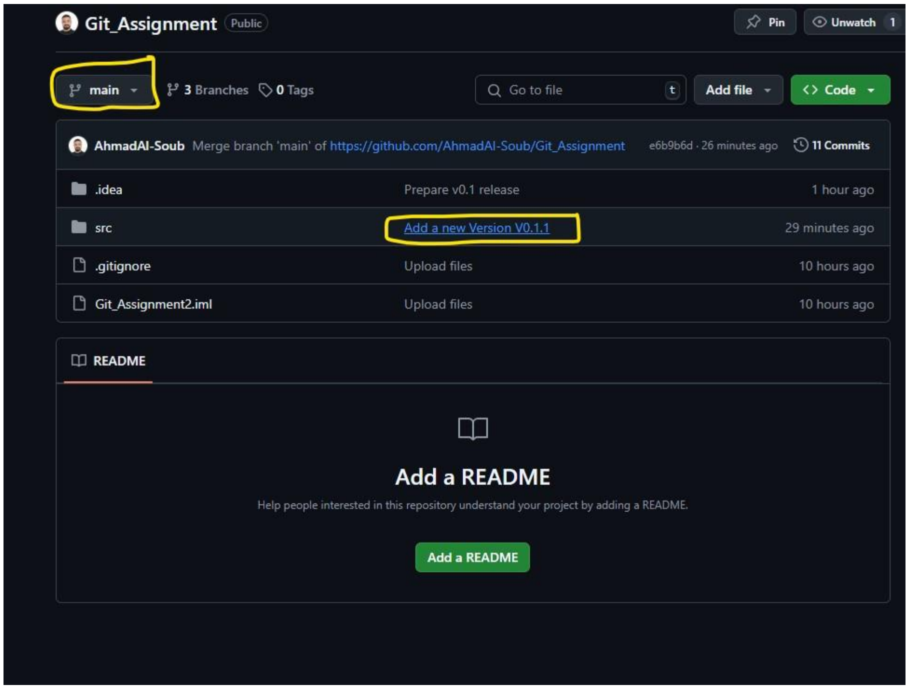


```
CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git pull origin main
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (1/1), 894 bytes | 74.00 KiB/s, done.
From https://github.com/AhmadAl-Soub/Git_Assignment
 * branch            main       -> FETCH_HEAD
   eb7c768..4656118  main       -> origin/main
Merge made by the 'ort' strategy.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git push origin main
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 262 bytes | 262.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/AhmadAl-Soub/Git_Assignment.git
   4656118..e6b9b6d  main -> main

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (main)
$ git checkout hotfix
M       .idea/.name
Switched to branch 'hotfix'

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (hotfix)
$ git checkout develop
M       .idea/.name
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git merge hotfix
Updating f2f07f1..8404ab5
Fast-forward
 src/Main.java | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)

CW@AhmadDell MINGW64 ~/desktop/GitAssignment/SeniorSoub/Git_Assignment2/src (develop)
$ git push origin develop
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/AhmadAl-Soub/Git_Assignment.git
   f2f07f1..8404ab5  develop -> develop
```

Figure 30

Cont…

Main Brnach:



Git_Assignment Public

AhmadAl-Soub Merge branch 'main' of https://github.com/AhmadAl-Soub/Git_Assignment e6b9b6d · 26 minutes ago 11 Commits

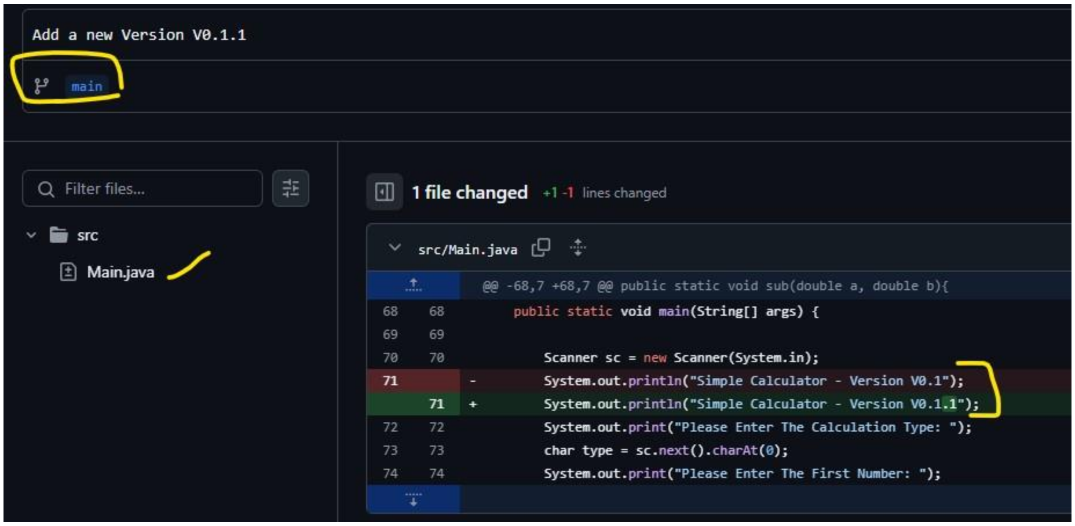
.idea	Prepare v0.1 release	1 hour ago
src	Add a new Version V0.1.1	29 minutes ago
.gitignore	Upload files	10 hours ago
Git_Assignment2.iml	Upload files	10 hours ago

README

Add a README

Help people interested in this repository understand your project by adding a README.

Figure 31 - A



Add a new Version V0.1.1

1 file changed +1 -1 lines changed

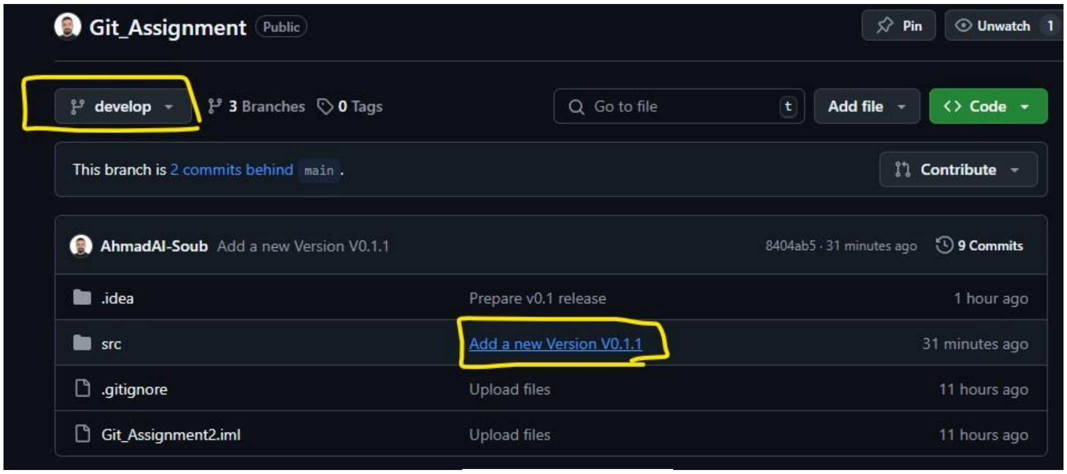
src/Main.java

```
@@ -68,7 +68,7 @@ public static void sub(double a, double b){
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
-       System.out.println("Simple Calculator - Version V0.1");
+       System.out.println("Simple Calculator - Version V0.1.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
```

Figure 31 - B

Cont…

Develop Branch:

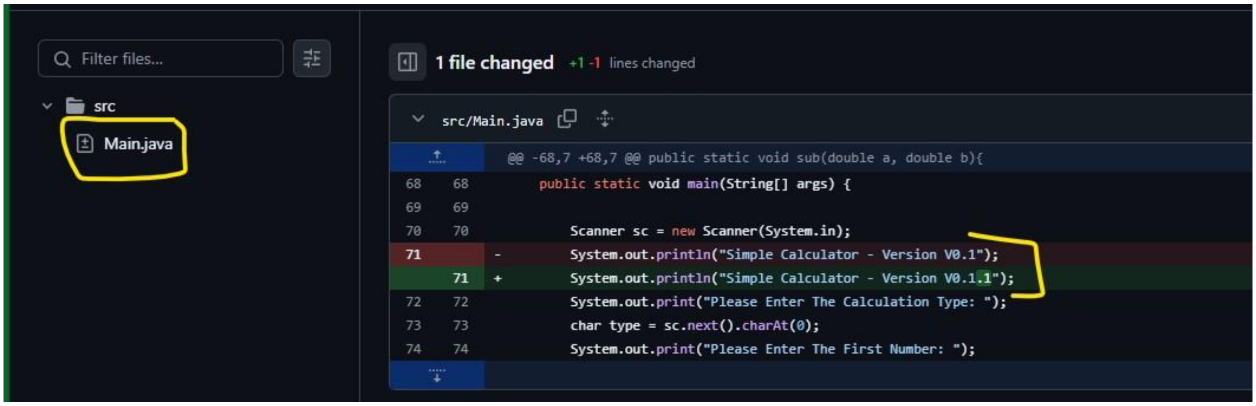


This branch is 2 commits behind main .

AhmadAl-Soub Add a new Version V0.1.1 8404ab5 · 31 minutes ago 9 Commits

.idea	Prepare v0.1 release	1 hour ago
src	Add a new Version V0.1.1	31 minutes ago
.gitignore	Upload files	11 hours ago
Git_Assignment2.iml	Upload files	11 hours ago

Figure 32 - A



1 file changed +1 -1 lines changed

src/Main.java

```
@@ -68,7 +68,7 @@ public static void sub(double a, double b){
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
-       System.out.println("Simple Calculator - Version V0.1");
+       System.out.println("Simple Calculator - Version V0.1.1");
        System.out.print("Please Enter The Calculation Type: ");
        char type = sc.next().charAt(0);
        System.out.print("Please Enter The First Number: ");
```

Figure 32 - B

Results:

The hotfix and release workflows ensured a stable production environment and traceable version history. The final versions were tagged as v0.1.1 for the hotfix and v0.1 for the release.

Challenges:

One challenge was managing multiple branches while ensuring consistency. This emphasized the importance of clear communication and testing before merging.

Conclusion:

The Gitflow Workflow provided an organized approach to development and deployment. Future enhancements could include integrating CI/CD pipelines for automated testing and deployment.

The End …