VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

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Registration No.: 19BIT0346

Course Code: ITE1008

Course Name: Open Source Programming

Course Faculty: Prof. Jayakumar S.

Course Slot: B1 + TB1

Assignment No.: 1 [Theory]

Case Study on GitHub Version Control

Question 1

Write down the step by step process of GitHub working methodology and different ways to access GitHub.

Answer

Working Methodology

GitHub is a web-based platform used for version control. Git simplifies the process of working with other people and makes it easy to collaborate on projects. Team mates can work on files and easily merge their changes in with the master branch of the project.

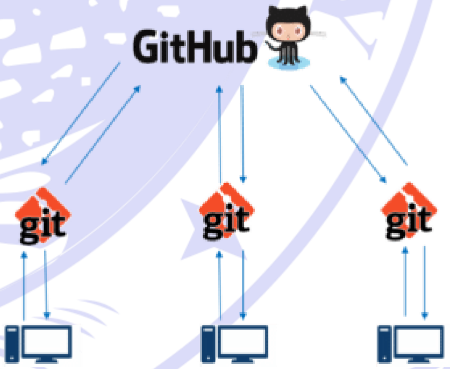
Step 1: What is GitHub?

GitHub is a file or code-sharing service to collaborate with different people. GitHub is a highly used software that is typically used for version control. It is helpful when more than just one person is working on a project. For example, a software developer team wants to build a website and everyone has to update their codes simultaneously while working on the project. In this case, GitHub helps them to build a centralized repository where everyone can upload, edit, and manage the code files.

Why is GitHub so popular?

GitHub has various advantages but many people often have a doubt as to why not use dropbox or any cloud-based system? Say more than two software developers are working on the same file and they want to update it simultaneously. Unfortunately, the person who save the file first will get precedence over the others. While in GitHub, this is not the case. GitHub document the changes and reflect them in an organized manner to avoid any chaos between any of the files uploaded. Therefore, using GitHub centralized repository, it avoids all the confusion and working on the same code becomes very easy.

If you look at the image on the right, GitHub is a central repository and Git is a tool which allows you to create a local repository. Now people usually get confused between git and GitHub but it’s actually very different. Git is a version control tool that will allow you to perform all kinds of operations to fetch data from the central server or push data to it whereas GitHub is a core hosting platform for version control collaboration. GitHub is a company that allows you to host a central repository in a remote server.



Now, ways in which GitHub makes git simple:

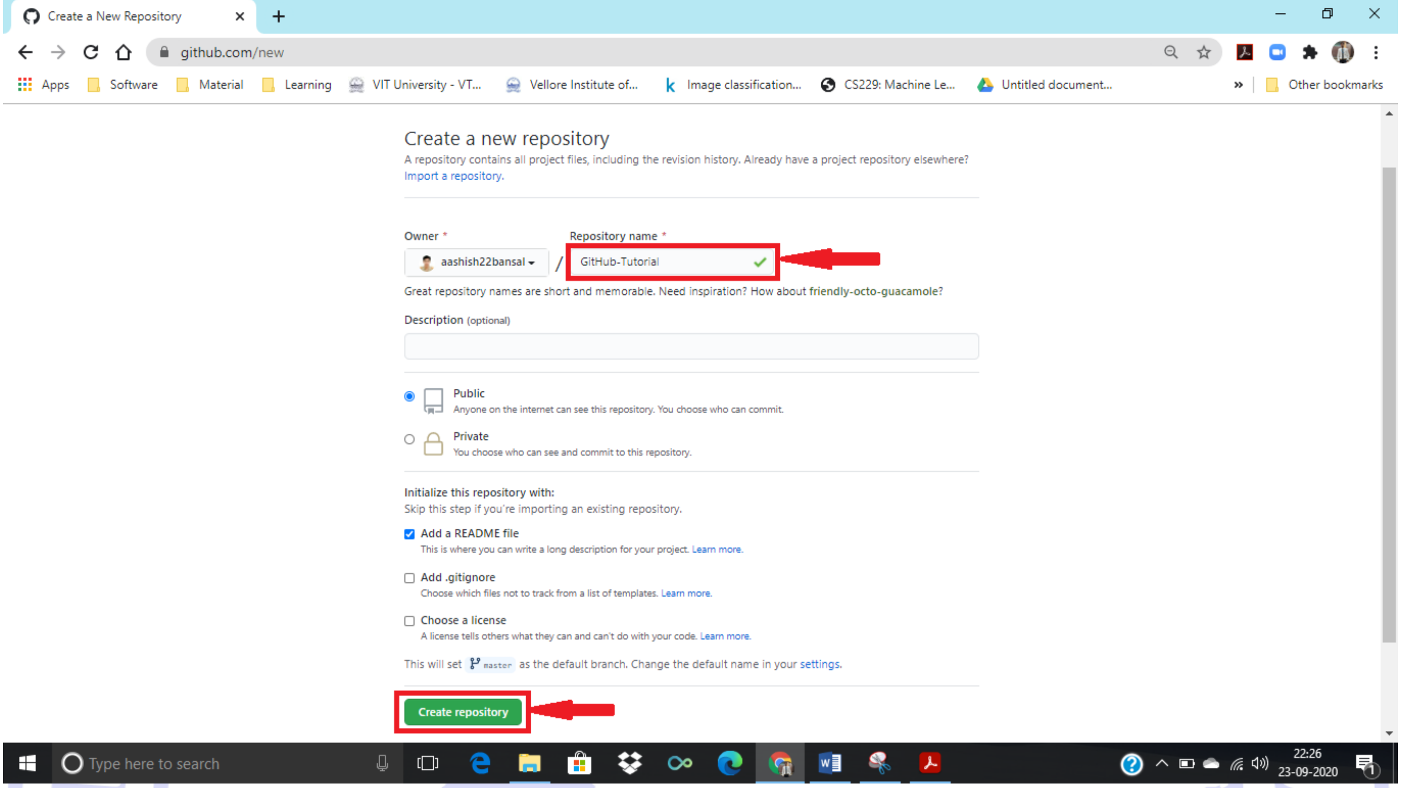
- GitHub provides you a beautiful visual interface which helps you to track or manage your version-controlled projects locally.
- Once you register on GitHub, you can connect with social network and build a strong profile.

Step 2: How to create a GitHub Repository?

A repository is a storage space where your project lives. It can be local to a folder on your computer, or it can be a storage space on GitHub or another online host. You can keep code files, text files, images or any kind of a file in a repository. You need a GitHub repository when you have done some changes and are ready to be uploaded. This GitHub repository acts as your remote repository. So, let me make your task easy, just follow these simple steps to create a GitHub repository:

- Go to the link: https://github.com/ . Fill the sign-up form and click on “Sign up for GitHub”.
- Click on ‘New’ in the ‘Repositories’ Section.

- Enter any repository name and click on “Create Repository”. You can also give a description to your repository (optional).



Create a new repository

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

Owner * aashish22bansal / Repository name * GitHub-Tutorial ✓

Great repository names are short and memorable. Need inspiration? How about friendly-octo-guacamole?

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:
Skip this step if you're importing an existing repository.

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

□ Add .gitignore
Choose which files not to track from a list of templates. Learn more.

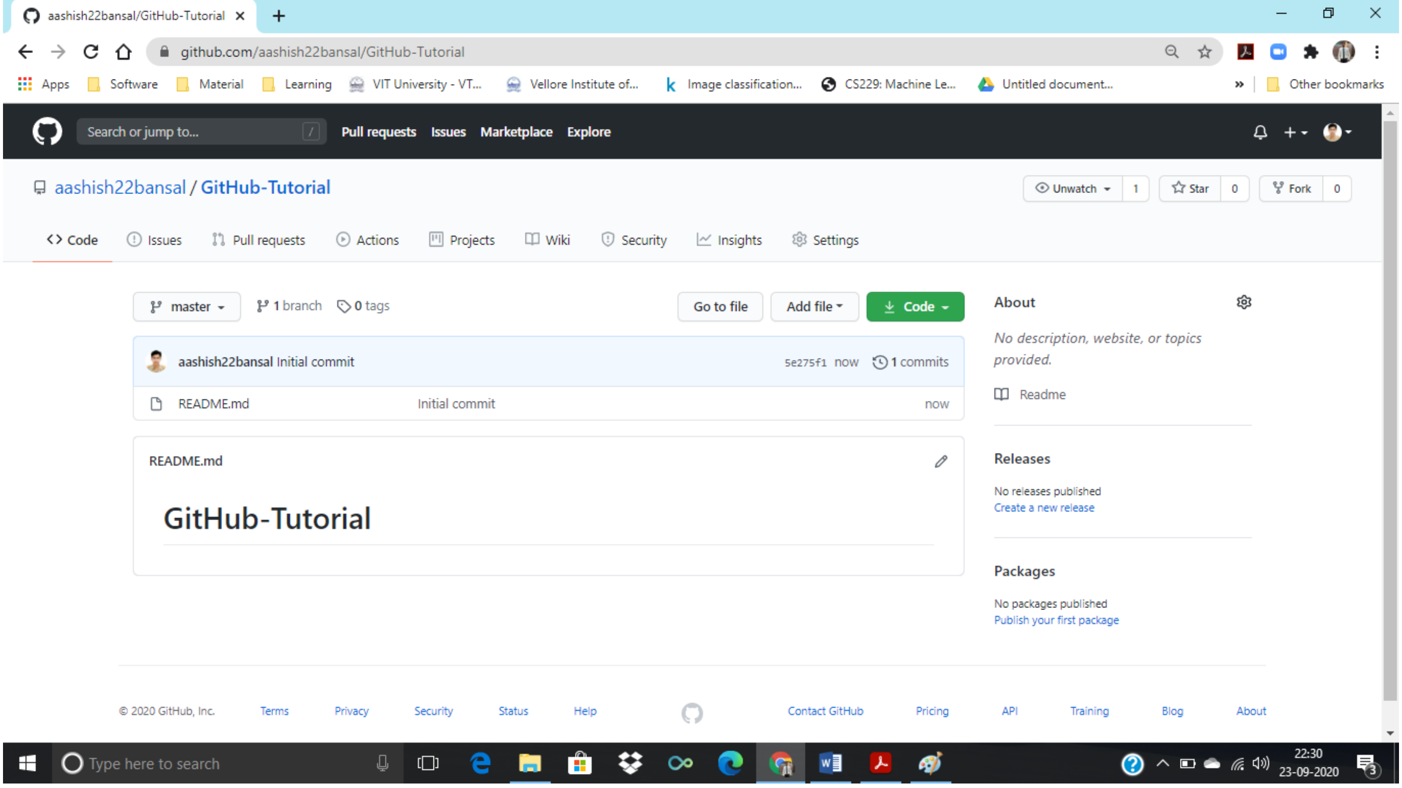
□ Choose a license
A license tells others what they can and can't do with your code. Learn more.

This will set master as the default branch. Change the default name in your settings.

Create repository

Now, if you noticed by default a GitHub repository is public which means that anyone can view the contents of this repository whereas in a private repository, you can choose who can view the content. Also, private repository is a paid version. Also, if you refer the above screenshot, initialize the repository with a README file. This file contains the description of the file and once you check this box, this will be the first file inside your repository.

Your repository is successfully created! It will look like the below screenshot:



aashish22bansal / GitHub-Tutorial

master 1 branch 0 tags

aashish22bansal Initial commit 5e275f1 now 1 commits

README.md Initial commit now

README.md

GitHub-Tutorial

About
No description, website, or topics provided.
Readme

Releases
No releases published
Create a new release

Packages
No packages published
Publish your first package

So now a central repository has been successfully created! Once this is done, you are ready to commit, pull, push and perform all the other operations.

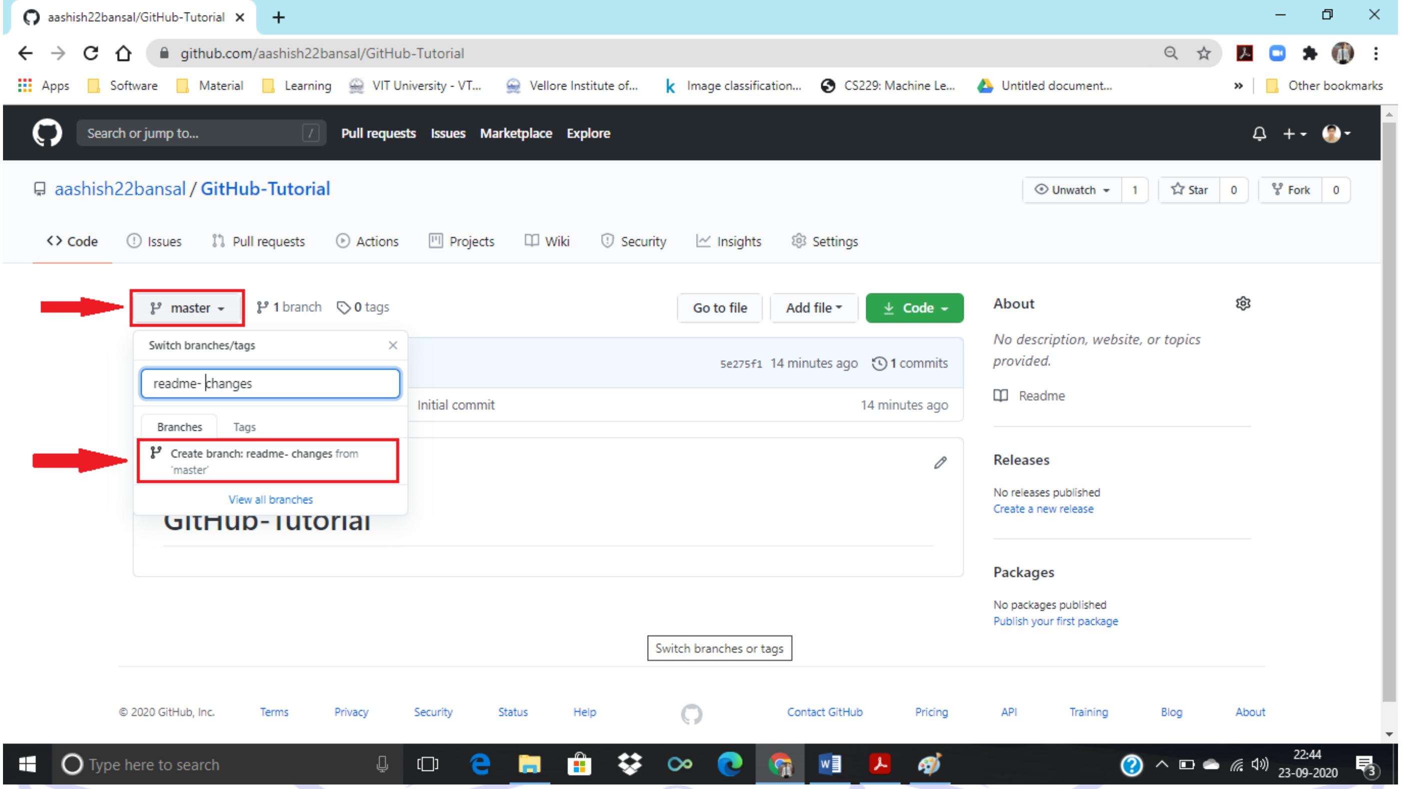
Step 3: Create Branches and Perform Operations

Branching: Branches help you to work on different versions of a repository at one time. Let's say you want to add a new feature (which is in the development phase), and you are afraid at the same time whether to make changes to your main project or not. This is where git branching comes to rescue. Branches allow you to move back and forth between the different states/versions of a project. In the above scenario, you can create a new branch and test the new feature without affecting the main branch. Once you are done with it, you can merge the changes from new branch to the main branch. Here the main branch is the master branch, which is there in your repository by default.

There is a master branch which has a new branch for testing. Under this branch, two set of changes are done and once it completed, it is merged back to the master branch. This is how branching works.

To create a branch in GitHub, follow the below steps:

- Click on the dropdown "Branch: master"
- As soon as you click on the branch, you can find an existing branch or you can create a new one. In my case, I am creating a new branch with a name "readme- changes". Refer to the below screenshot for better understanding.



Once you have created a new branch, you have two branches in your repository now i.e. read-me (master branch) and 'readme- changes'. The new branch is just the copy of master branch. So, let's perform some changes in our new branch and make it look different from the master branch.

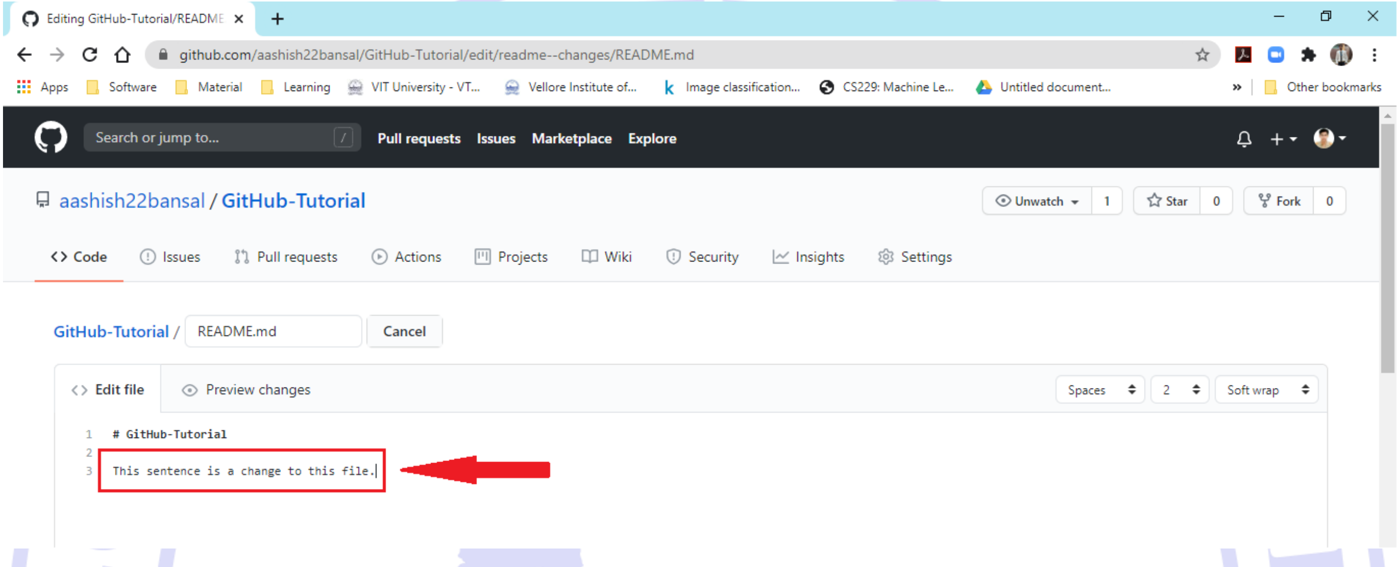
How to use GitHub: Operations

Commit Command:

This operation helps you to save the changes in your file. When you commit a file, you should always provide the message, just to keep in the mind the changes done by you. Though this message is not compulsory but it is always recommended so that it can differentiate the various versions or commits you have done so far to your repository. These commit messages maintain the history of changes which in turn help other contributors to understand the file better. Now let's make our first commit, follow the below steps:

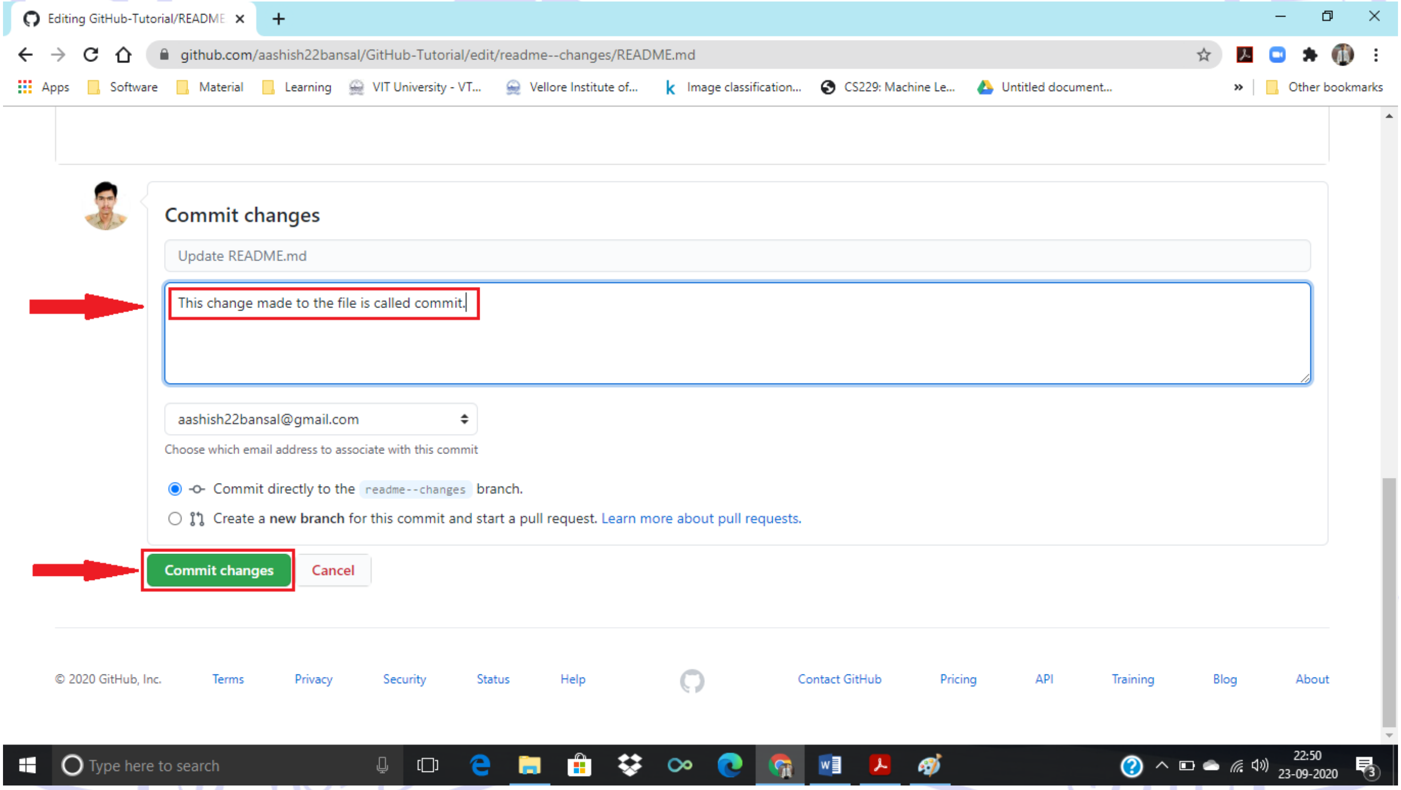
- Click on “readme- changes” file which we have just created.
- Click on the “edit” or a pencil icon in the rightmost corner of the file.
- Once you click on that, an editor will open where you can type in the changes or anything.
- Write a commit message which identifies your changes.
- Click commit changes in the end.

Refer to the below screenshot for better understanding:



```
# GitHub-Tutorial

This sentence is a change to this file.
```



This change made to the file is called commit.

aashish22bansal@gmail.com

Choose which email address to associate with this commit

● Commit directly to the `readme--changes` branch.

○ Create a **new branch** for this commit and start a pull request. Learn more about pull requests.

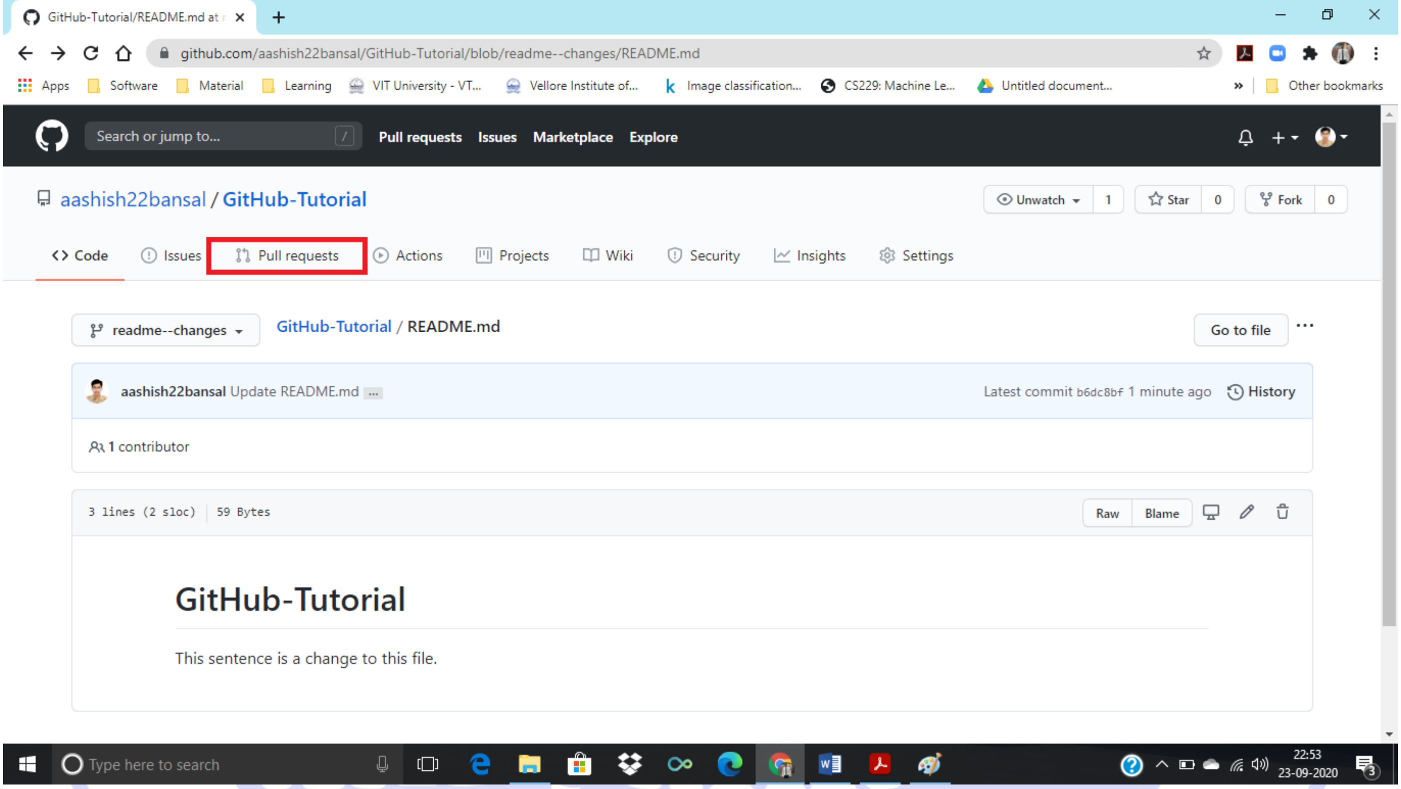
Next

We have successfully made our first commit. Now this “readme- changes” file is different from the master branch. Next, let us see how can we open a pull request.

Pull Command

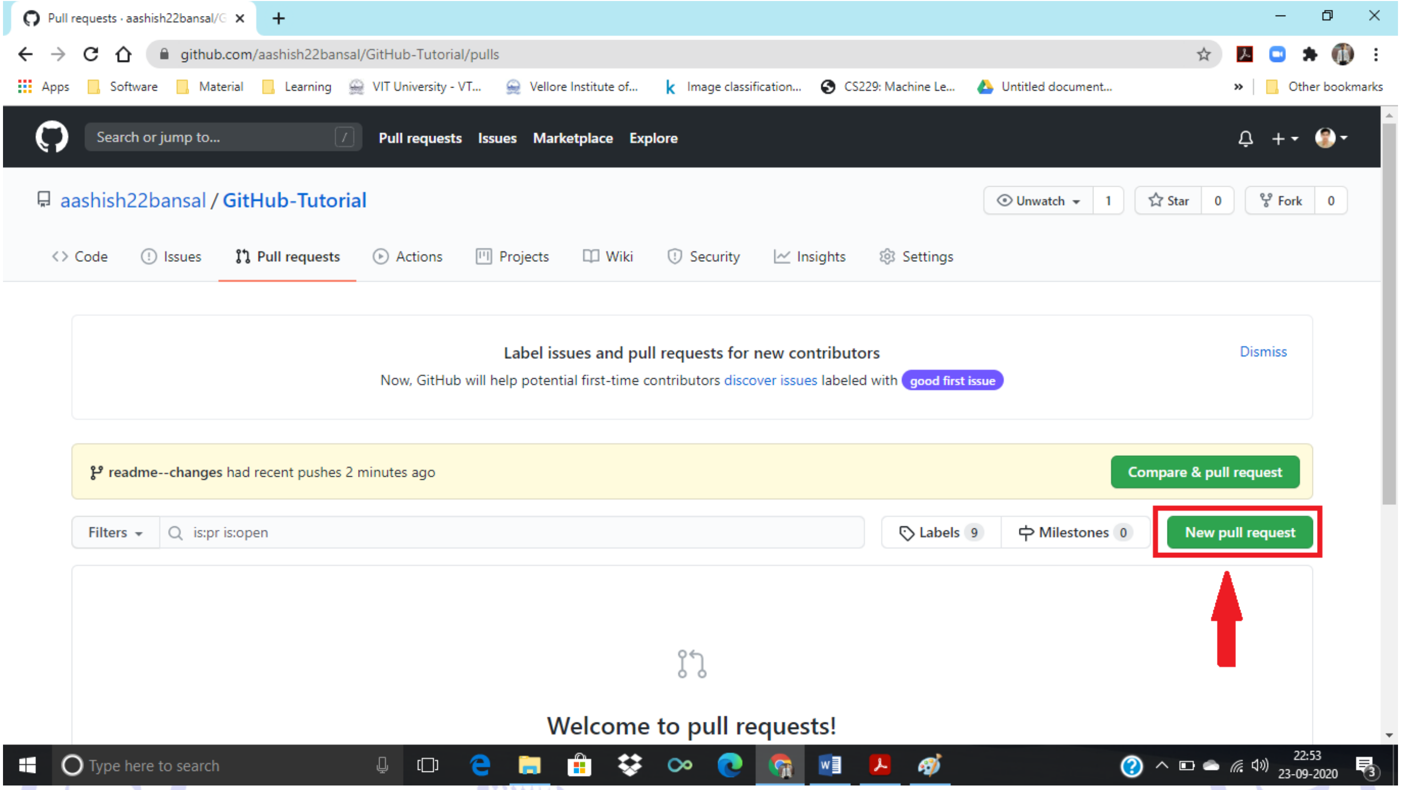
Pull command is the most important command in GitHub. It tells the changes done in the file and request other contributors to view it as well as merge it with the master branch. Once the commit is done, anyone can pull the file and can start a discussion over it. Once it’s all done, you can merge the file. Pull command compares the changes which are done in the file and if there are any conflicts, you can manually resolve it. Now let us see different steps involved to pull request in GitHub.

- Click the ‘Pull requests’ tab.
- Click ‘New pull request’.
- Once you click on pull request, select the branch and click ‘readme- changes’ file to view changes between the two files present in our repository.
- Click “Create pull request”.
- Enter any title, description to your changes and click on “Create pull request”. Refer to the below screenshots.



GitHub-Tutorial

This sentence is a change to this file.

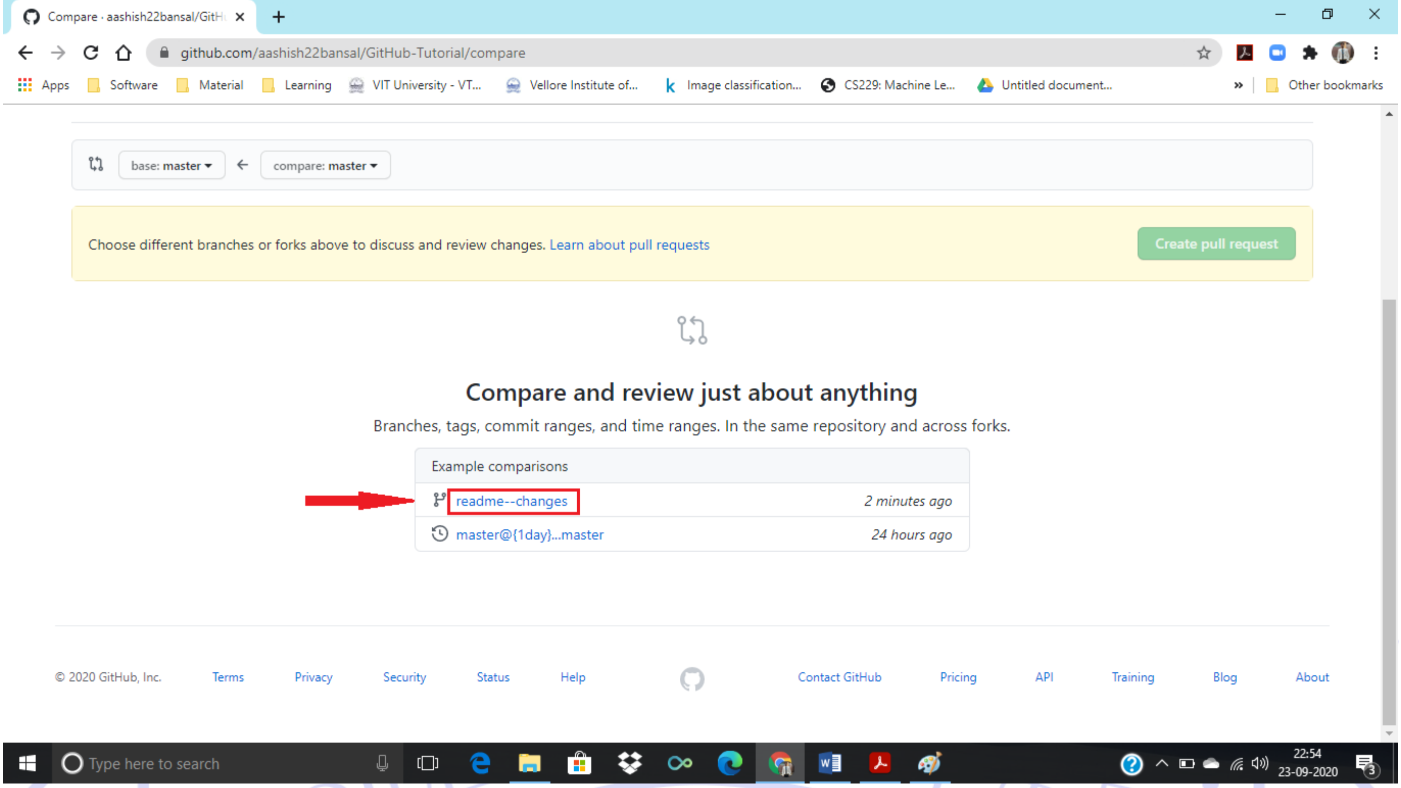

Pull requests · aashish22bansal/G
github.com/aashish22bansal/GitHub-Tutorial/pulls
Apps Software Material Learning VIT University - VT... Vellore Institute of... Image classification... CS229: Machine Le... Untitled document... Other bookmarks
Search or jump to...
Pull requests Issues Marketplace Explore
aashish22bansal / GitHub-Tutorial
Unwatch 1 Star 0 Fork 0
Code Issues Pull requests Actions Projects Wiki Security Insights Settings
Dismiss
Compare & pull request
Filters is:pr is:open
Labels 9 Milestones 0
New pull request
Type here to search
22:53
23-09-2020

Label issues and pull requests for new contributors

Now, GitHub will help potential first-time contributors discover issues labeled with good first issue

readme--changes had recent pushes 2 minutes ago

Welcome to pull requests!

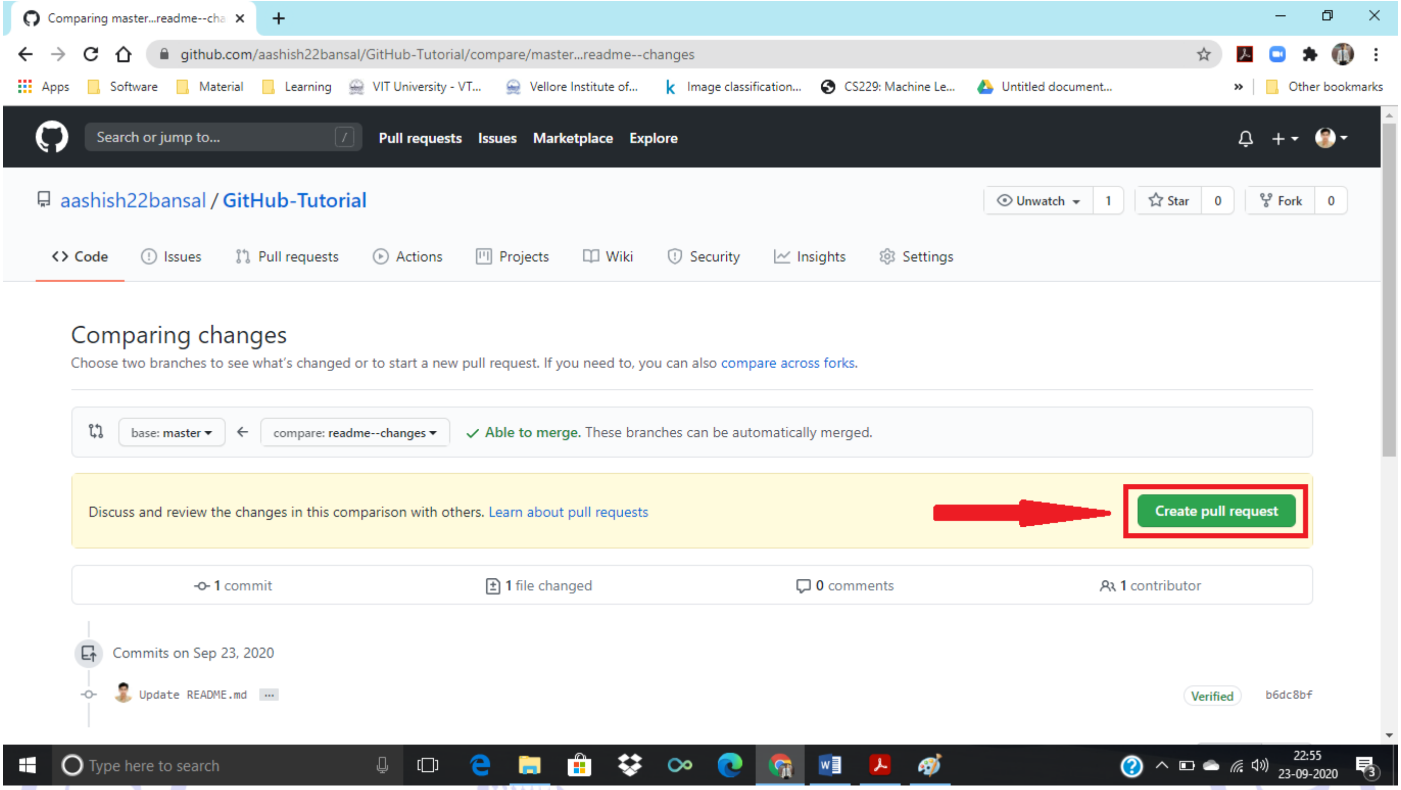

Compare · aashish22bansal/GitH
github.com/aashish22bansal/GitHub-Tutorial/compare
Apps Software Material Learning VIT University - VT... Vellore Institute of... Image classification... CS229: Machine Le... Untitled document... Other bookmarks
base: master
compare: master
Create pull request
© 2020 GitHub, Inc. Terms Privacy Security Status Help Contact GitHub Pricing API Training Blog About
Type here to search
22:54
23-09-2020

Choose different branches or forks above to discuss and review changes. Learn about pull requests

Compare and review just about anything

Branches, tags, commit ranges, and time ranges. In the same repository and across forks.

Example comparisons	
readme--changes	2 minutes ago
master@{1day}...master	24 hours ago



github.com/aashish22bansal/GitHub-Tutorial/compare/master...readme--changes

aashish22bansal / GitHub-Tutorial

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.

base: master ← compare: readme--changes ✓ Able to merge. These branches can be automatically merged.

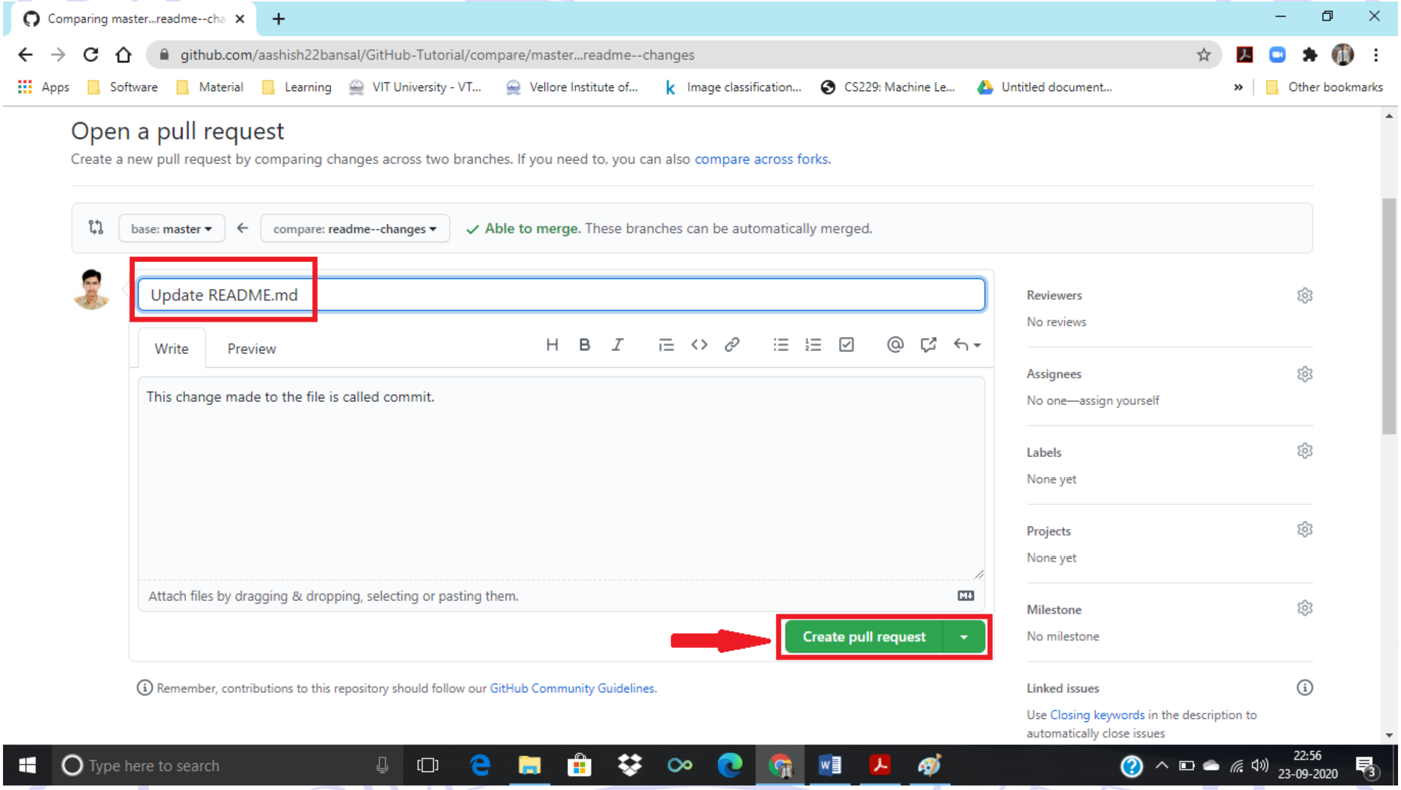
Discuss and review the changes in this comparison with others. Learn about pull requests

Create pull request

1 commit | 1 file changed | 0 comments | 1 contributor

Commits on Sep 23, 2020

Update README.md — Verified — b6dc8bf



github.com/aashish22bansal/GitHub-Tutorial/compare/master...readme--changes

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.

base: master ← compare: readme--changes ✓ Able to merge. These branches can be automatically merged.

Update README.md

This change made to the file is called commit.

Attach files by dragging & dropping, selecting or pasting them.

Create pull request

Remember, contributions to this repository should follow our GitHub Community Guidelines.

Reviewers: No reviews

Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

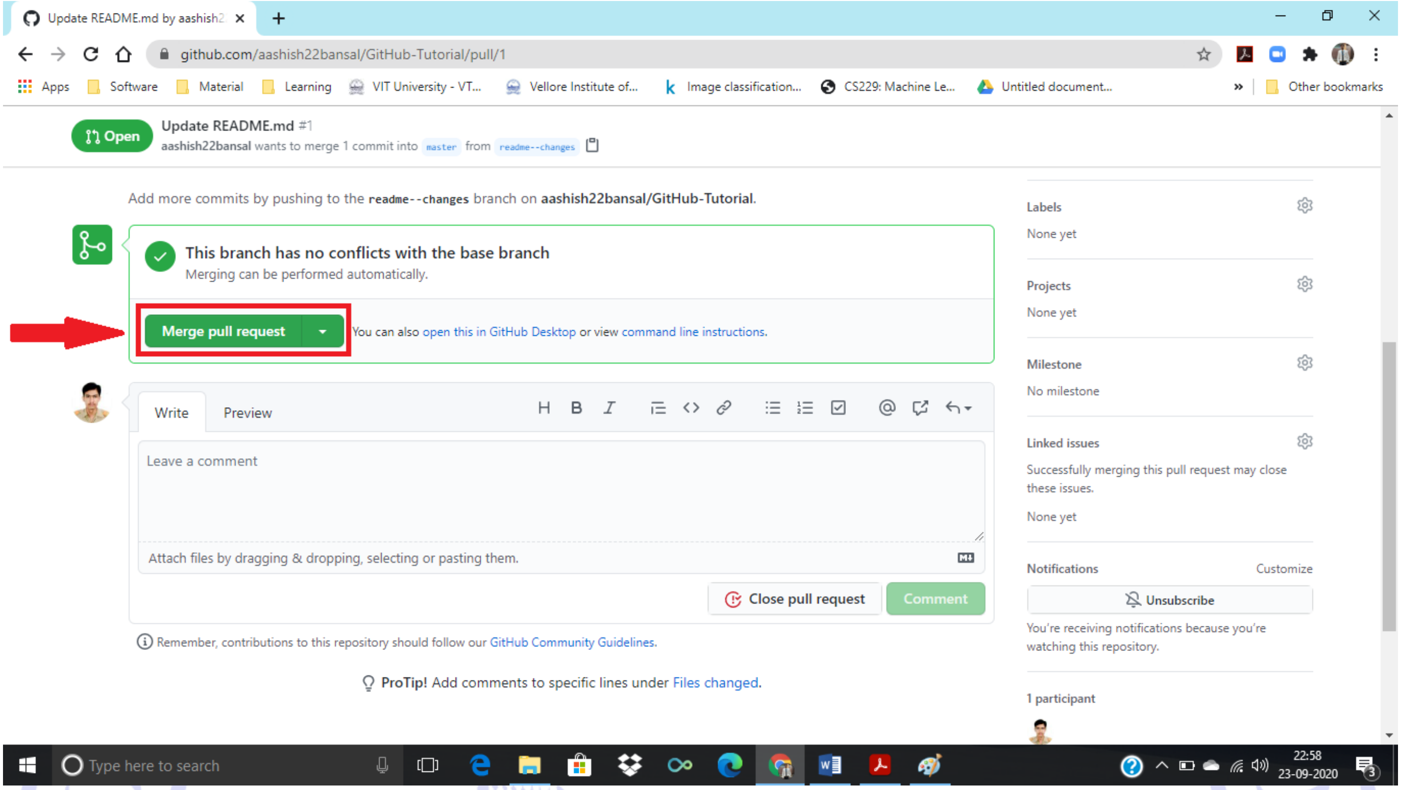
Milestone: No milestone

Linked issues: Use Closing keywords in the description to automatically close issues

Merge Command

Here comes the last command which merge the changes into the main master branch. We saw the changes in pink and green colour, now let's merge the "readme- changes" file with the master branch/ read-me. Go through the below steps to merge pull request.

- Click on "Merge pull request" to merge the changes into master branch.
- Click "Confirm merge".
- You can delete the branch once all the changes have been incorporated and if there are no conflicts. Refer to the below screenshots.



Update README.md #1

aashish22bansal wants to merge 1 commit into master from readme--changes

Add more commits by pushing to the readme--changes branch on aashish22bansal/GitHub-Tutorial.

This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request

You can also open this in GitHub Desktop or view command line instructions.

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Close pull request

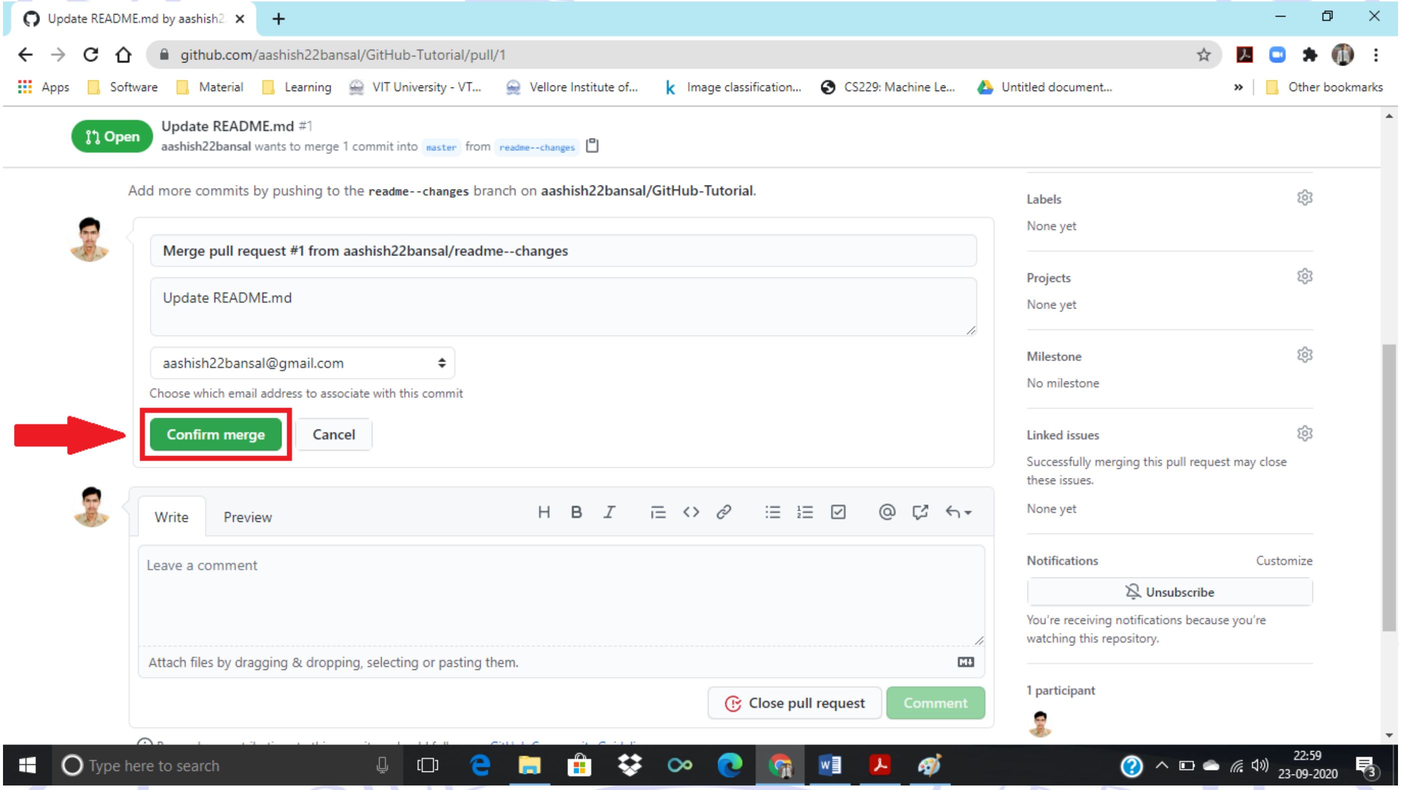
Comment

Successfully merging this pull request may close these issues.

You're receiving notifications because you're watching this repository.

Remember, contributions to this repository should follow our GitHub Community Guidelines.

ProTip! Add comments to specific lines under Files changed.



Update README.md #1

aashish22bansal wants to merge 1 commit into master from readme--changes

Add more commits by pushing to the readme--changes branch on aashish22bansal/GitHub-Tutorial.

Merge pull request #1 from aashish22bansal/readme--changes

Update README.md

aashish22bansal@gmail.com

Choose which email address to associate with this commit

Confirm merge

Cancel

Leave a comment

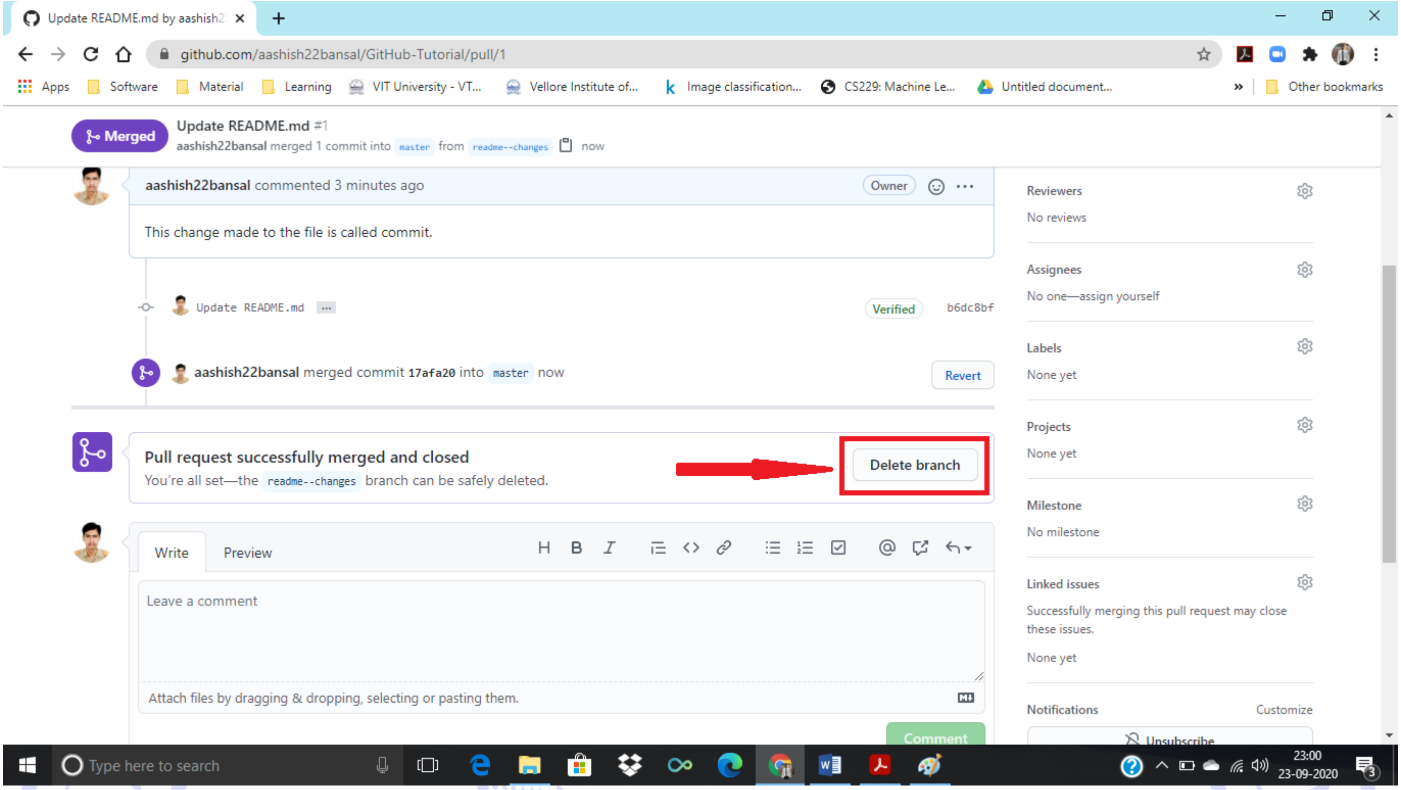
Attach files by dragging & dropping, selecting or pasting them.

Close pull request

Comment

Successfully merging this pull request may close these issues.

You're receiving notifications because you're watching this repository.



Update README.md #1

aashish22bansal merged 1 commit into `master` from `readme--changes` now

aashish22bansal commented 3 minutes ago

This change made to the file is called commit.

Update README.md

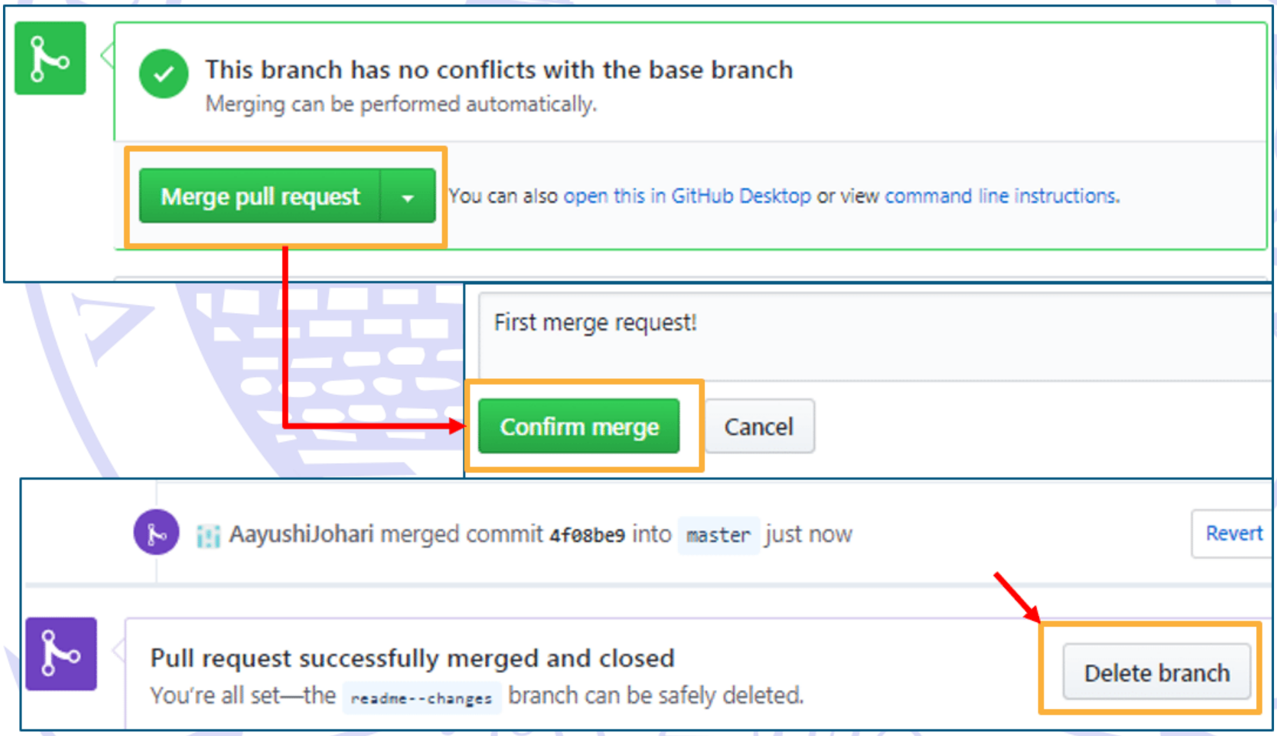
aashish22bansal merged commit `17afa20` into `master` now

Pull request successfully merged and closed

You're all set—the `readme--changes` branch can be safely deleted.

Attach files by dragging & dropping, selecting or pasting them.

Successfully merging this pull request may close these issues.



This branch has no conflicts with the base branch

Merging can be performed automatically.

You can also open this in GitHub Desktop or view command line instructions.

First merge request!

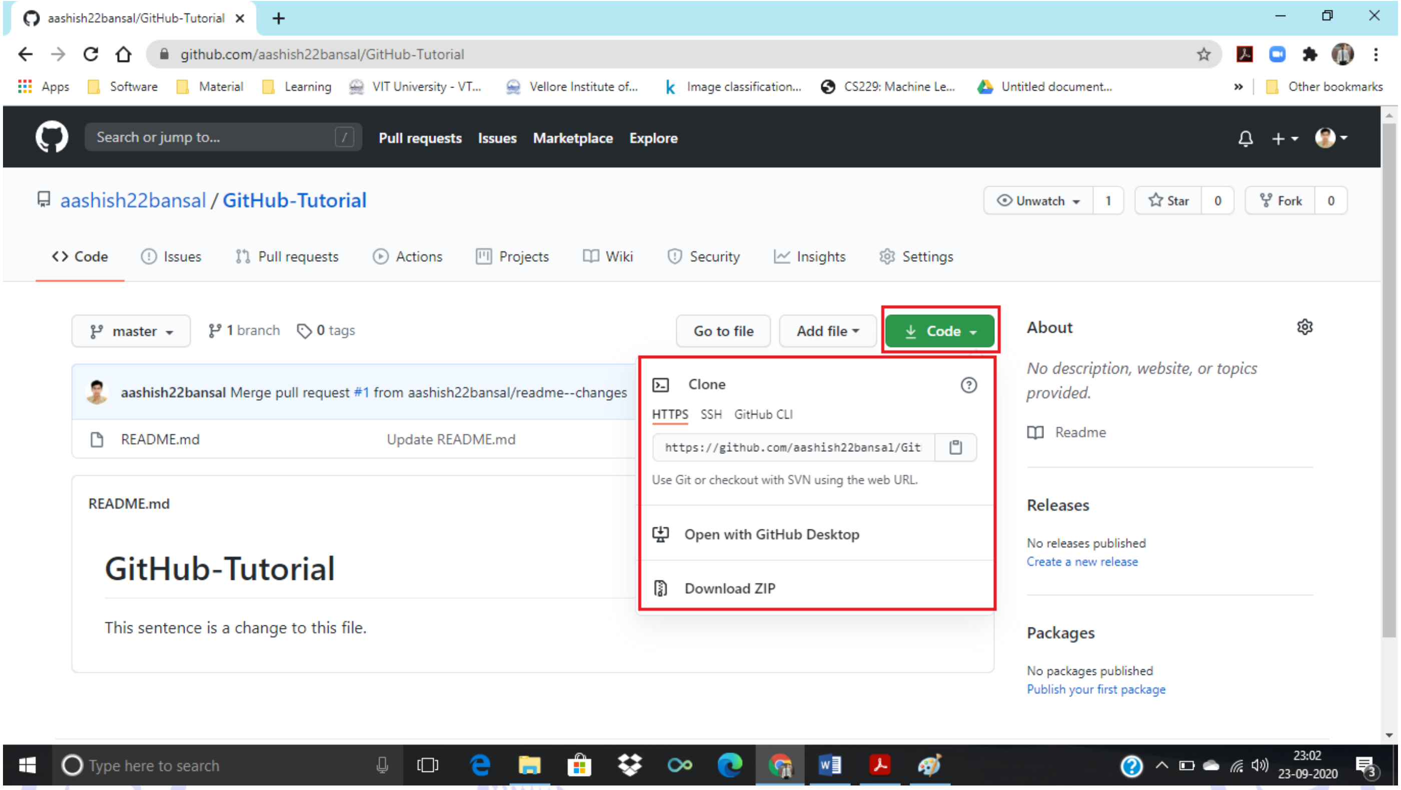
AayushiJohari merged commit `4f08be9` into `master` just now

Pull request successfully merged and closed

You're all set—the `readme--changes` branch can be safely deleted.

Step 4: Cloning and Forking GitHub Repository

Cloning: Suppose you want to use some code which is present in a public repository, you can directly copy the contents by cloning or downloading.



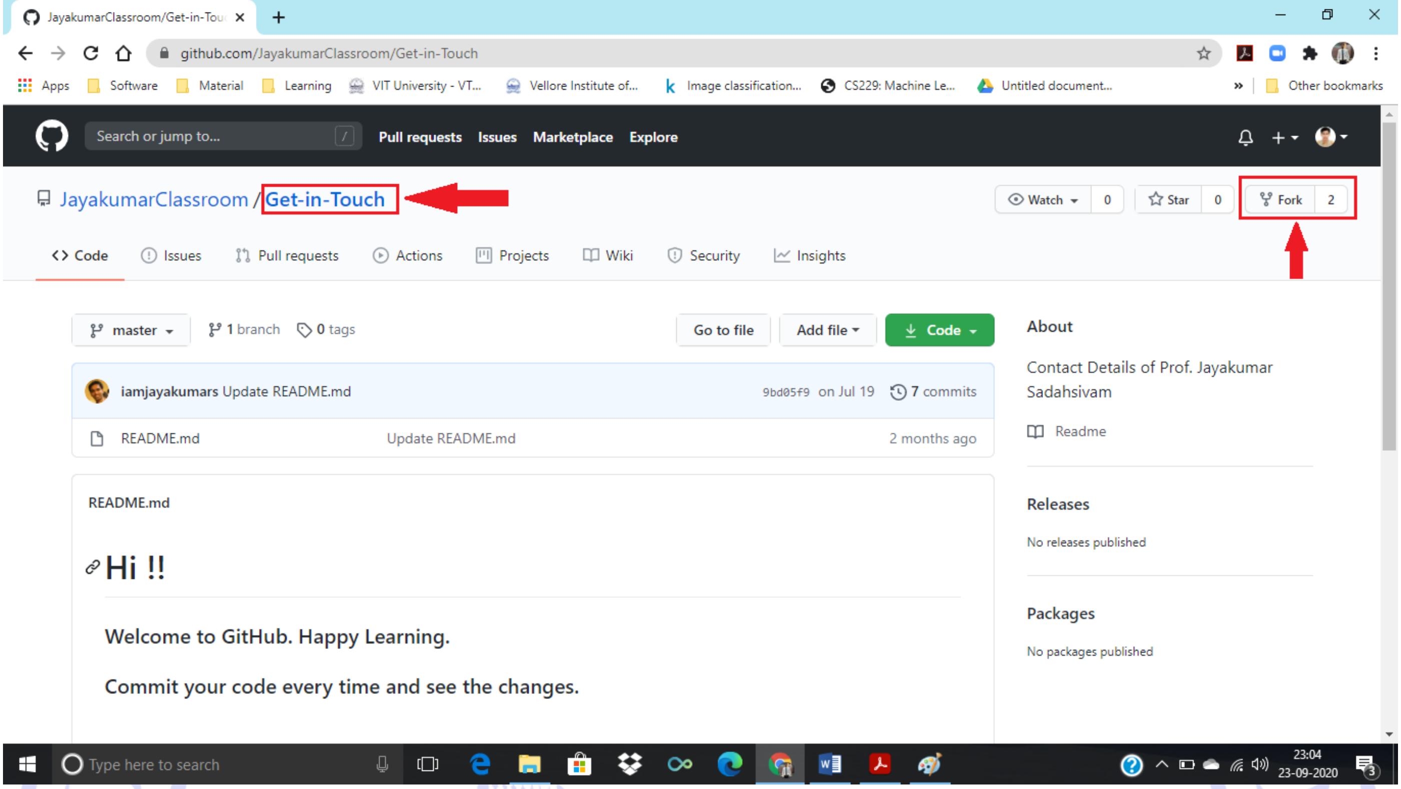
Forking: Suppose, you need some code which is present in a public repository, under your repository and GitHub account. For this, we need to fork a repository.

Before we get started with forking, there are some important points which you should always keep in mind.

- Changes done to the original repository will be reflected back to the forked repository.
- If you make a change in forked repository, it will not be reflected to the original repository until and unless you have made a pull request.

Now let’s see how can you want to fork a repository. For that, follow the below steps:

- Click “fork”. Note that this “Get-in-Touch” repository is already forked 2 times and it is under “google” account.



iamjayakumars Update README.md 9bd05f9 on Jul 19 7 commits

README.md Update README.md 2 months ago

README.md

Hi !!

Welcome to GitHub. Happy Learning.

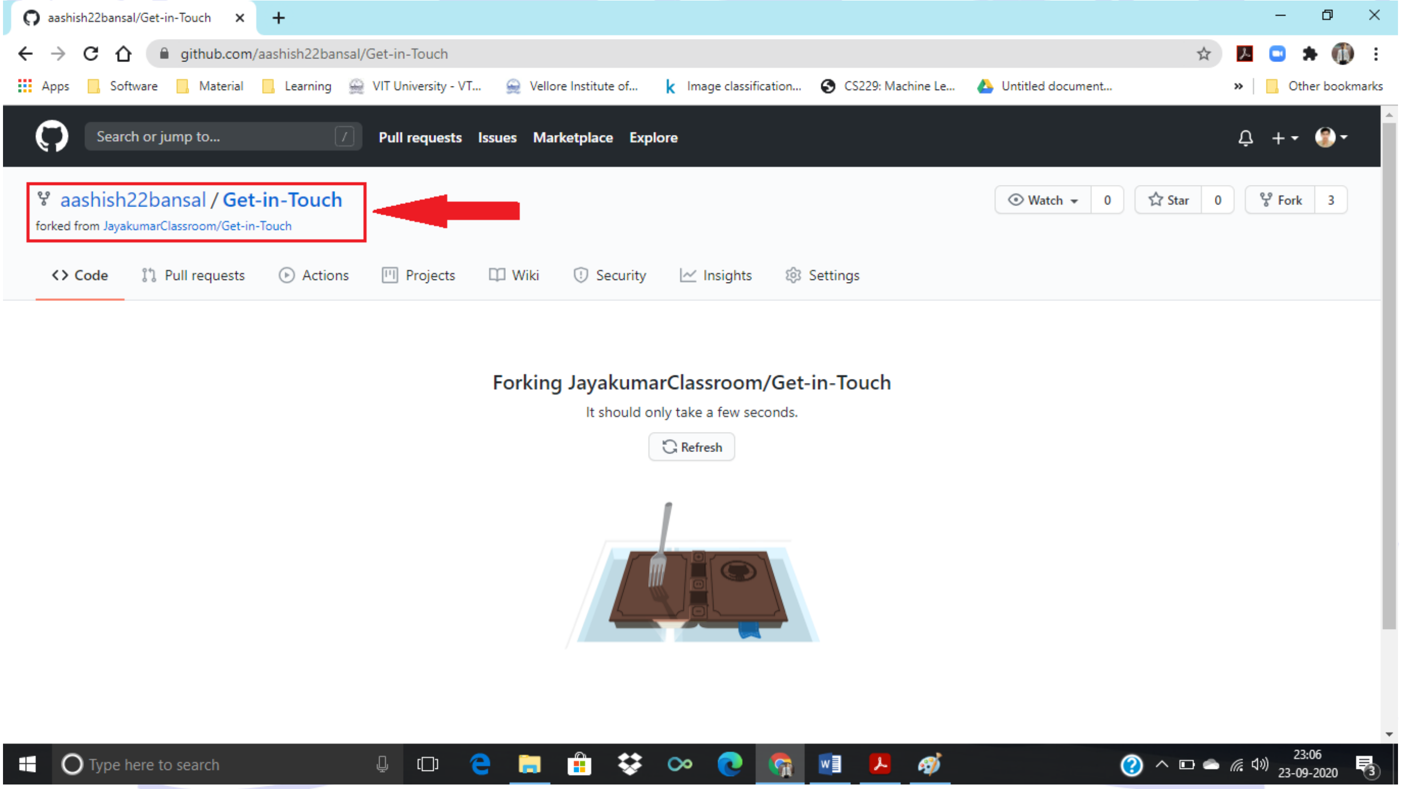
Commit your code every time and see the changes.

Contact Details of Prof. Jayakumar Sadahsivam

No releases published

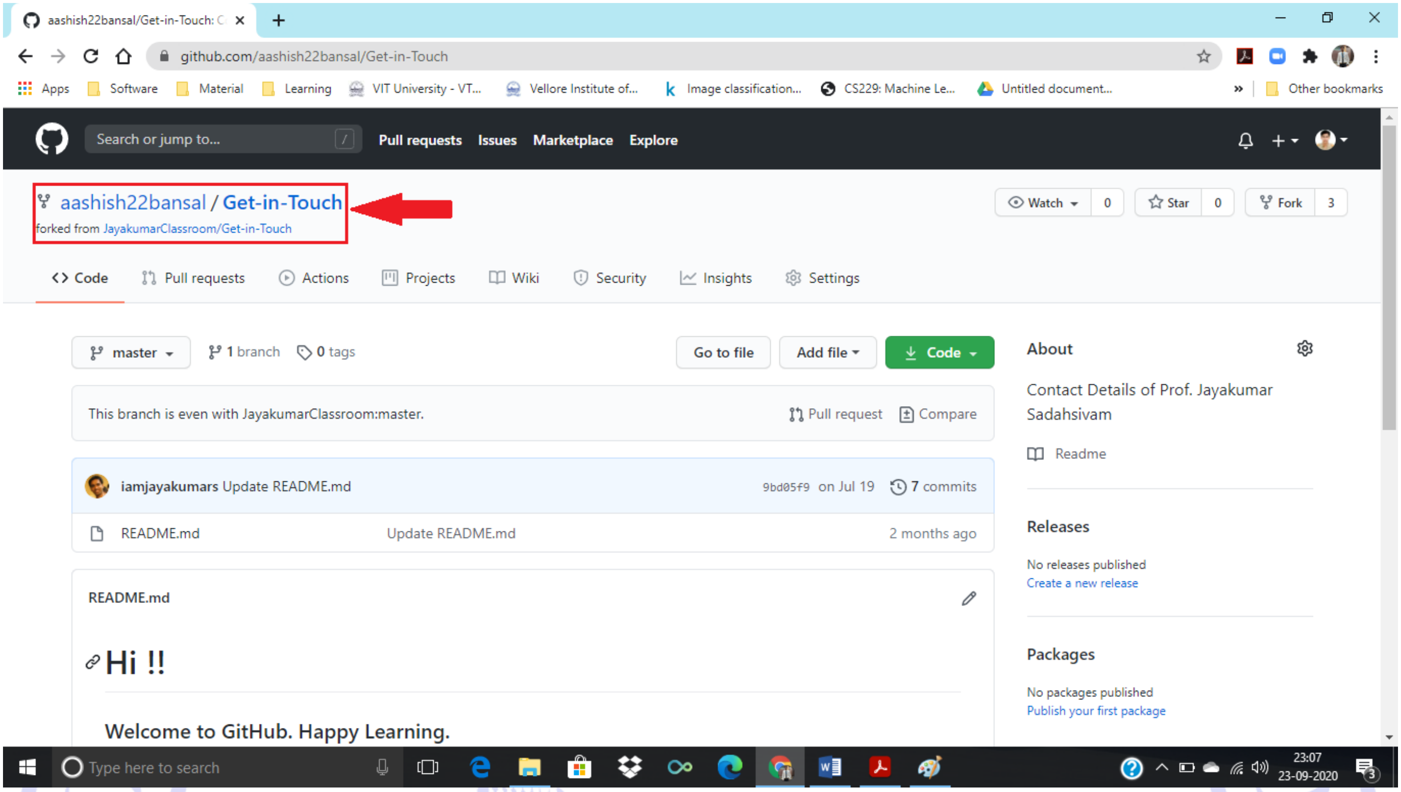
No packages published

As soon as you click on “Fork”, it will take some time to fork the repository. Once done you will notice that the repository name is under your account.



Forking JayakumarClassroom/Get-in-Touch

It should only take a few seconds.



aashish22bansal / Get-in-Touch

forked from JayakumarClassroom/Get-in-Touch

This branch is even with JayakumarClassroom:master.

iamjayakumars Update README.md 9bd05f9 on Jul 19 7 commits

README.md Update README.md 2 months ago

README.md

Hi !!

Welcome to GitHub. Happy Learning.

About

Contact Details of Prof. Jayakumar Sadahsivam

Readme

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Different Ways to Access GitHub

While you can grant read/write access to collaborators on a personal repository, members of an organization can have more granular access permissions for the organization's repositories.

Personal user accounts

A repository owned by a user account has two permission levels: the *repository owner* and *collaborators*.

Organization accounts

Organization members can have *owner*, *billing manager*, or *member* roles. Owners have complete administrative access to your organization, while billing managers can manage billing settings. Member is the default role for everyone else. You can manage access permissions for multiple members at a time with teams

Enterprise accounts

Enterprise owners have ultimate power over the enterprise account and can take every action in the enterprise account. *Billing managers* can manage your enterprise account's billing settings. Members and outside collaborators of organizations owned by your enterprise account are automatically members of the enterprise account, although they have no access to the enterprise account itself or its settings. Enterprise accounts are available with GitHub Enterprise Cloud and GitHub Enterprise Server.

Question 2

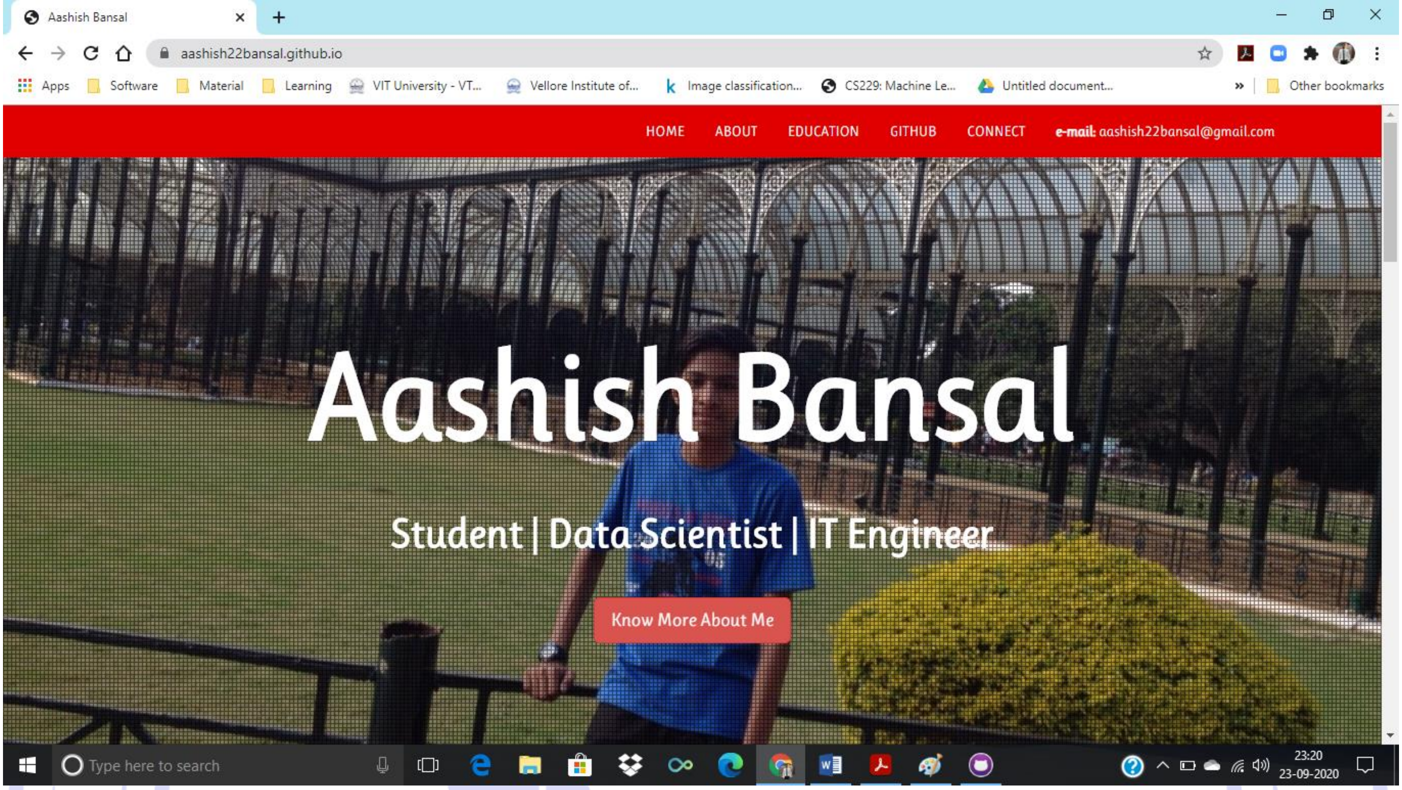
Host your Personal Portfolio in GitHub and provide the screenshot of the project and version history.

Answer

Website: https://aashish22bansal.github.io

Project Portfolio Website

Home Page

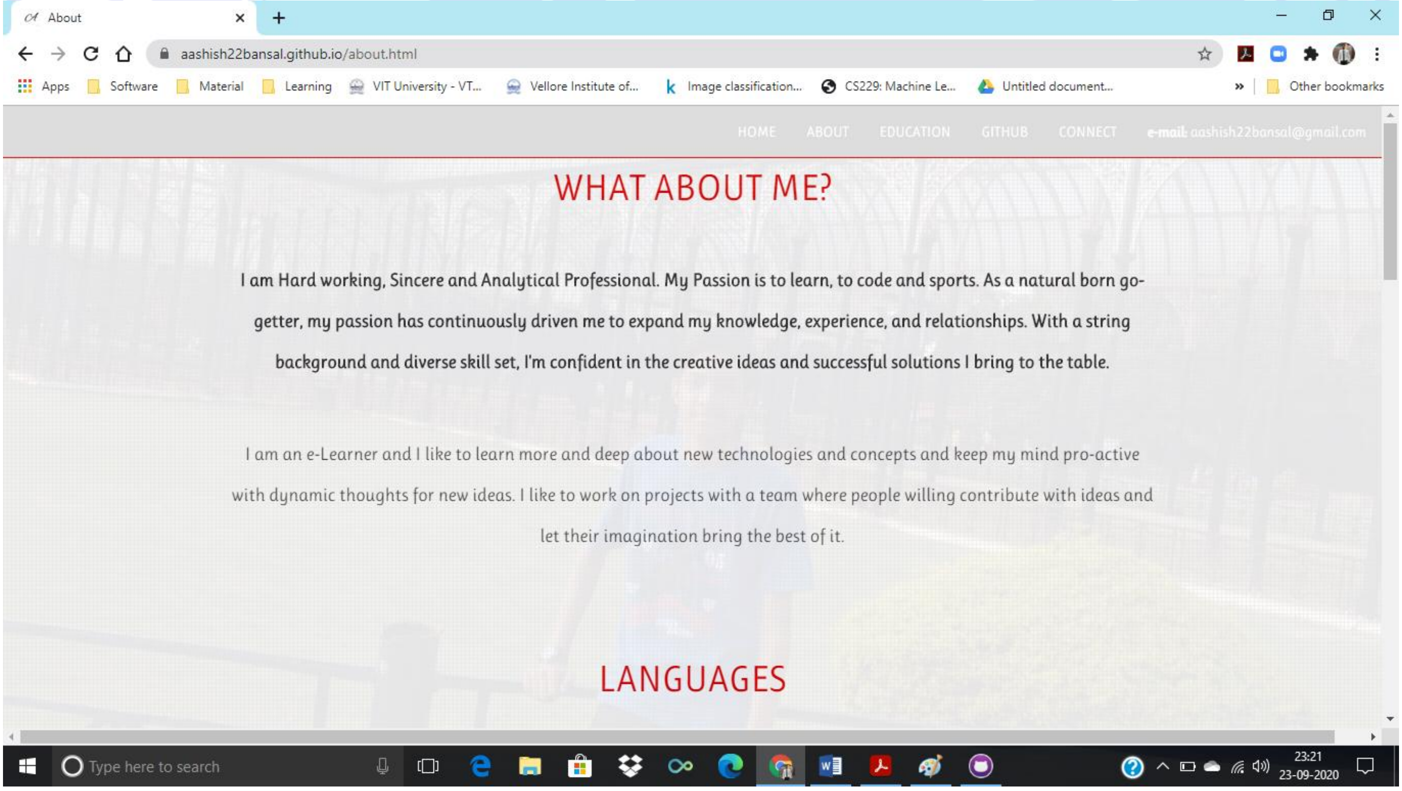


e-mail: aashish22bansal@gmail.com

Aashish Bansal

Student | Data Scientist | IT Engineer

About Page



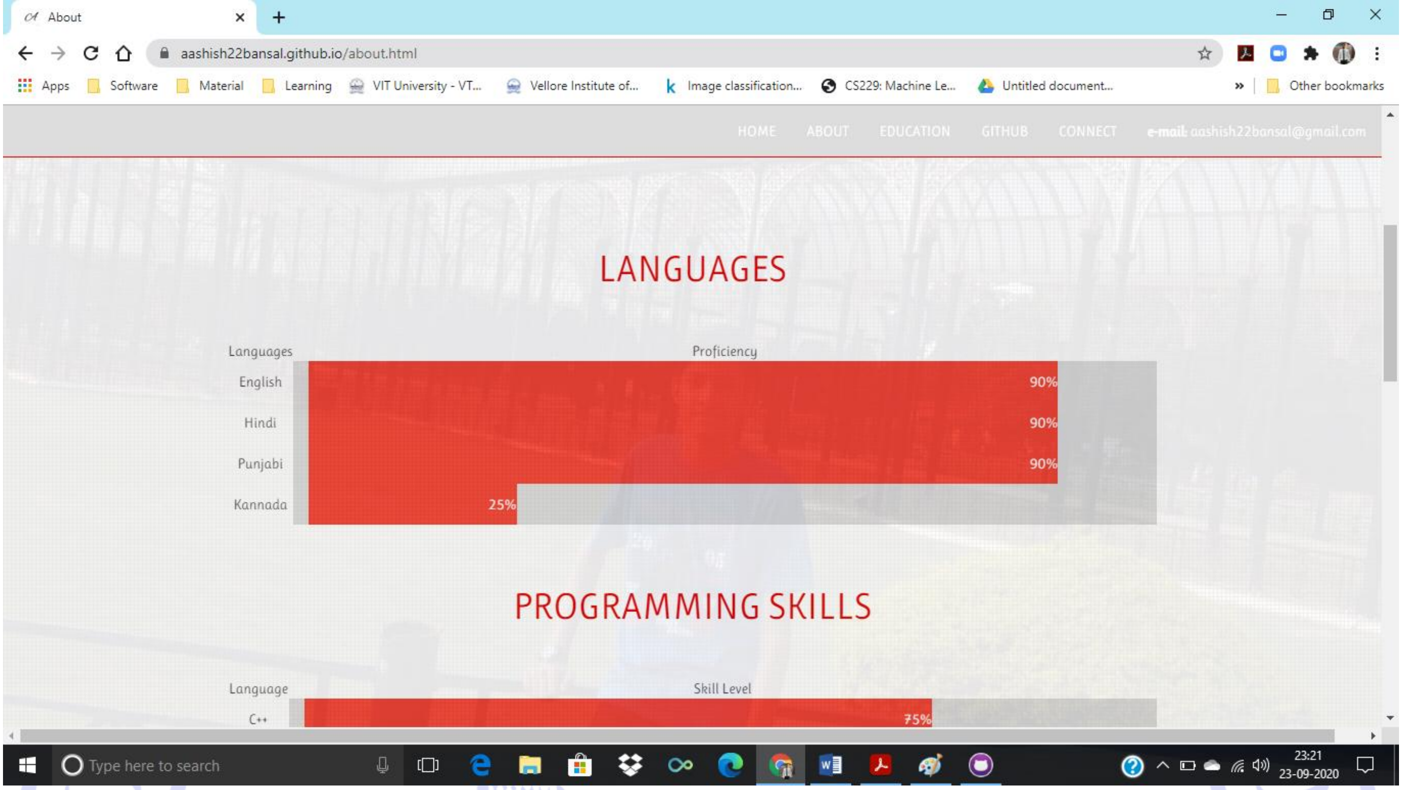
e-mail: aashish22bansal@gmail.com

WHAT ABOUT ME?

I am Hard working, Sincere and Analytical Professional. My Passion is to learn, to code and sports. As a natural born go-getter, my passion has continuously driven me to expand my knowledge, experience, and relationships. With a string background and diverse skill set, I'm confident in the creative ideas and successful solutions I bring to the table.

I am an e-Learner and I like to learn more and deep about new technologies and concepts and keep my mind pro-active with dynamic thoughts for new ideas. I like to work on projects with a team where people willing contribute with ideas and let their imagination bring the best of it.

LANGUAGES

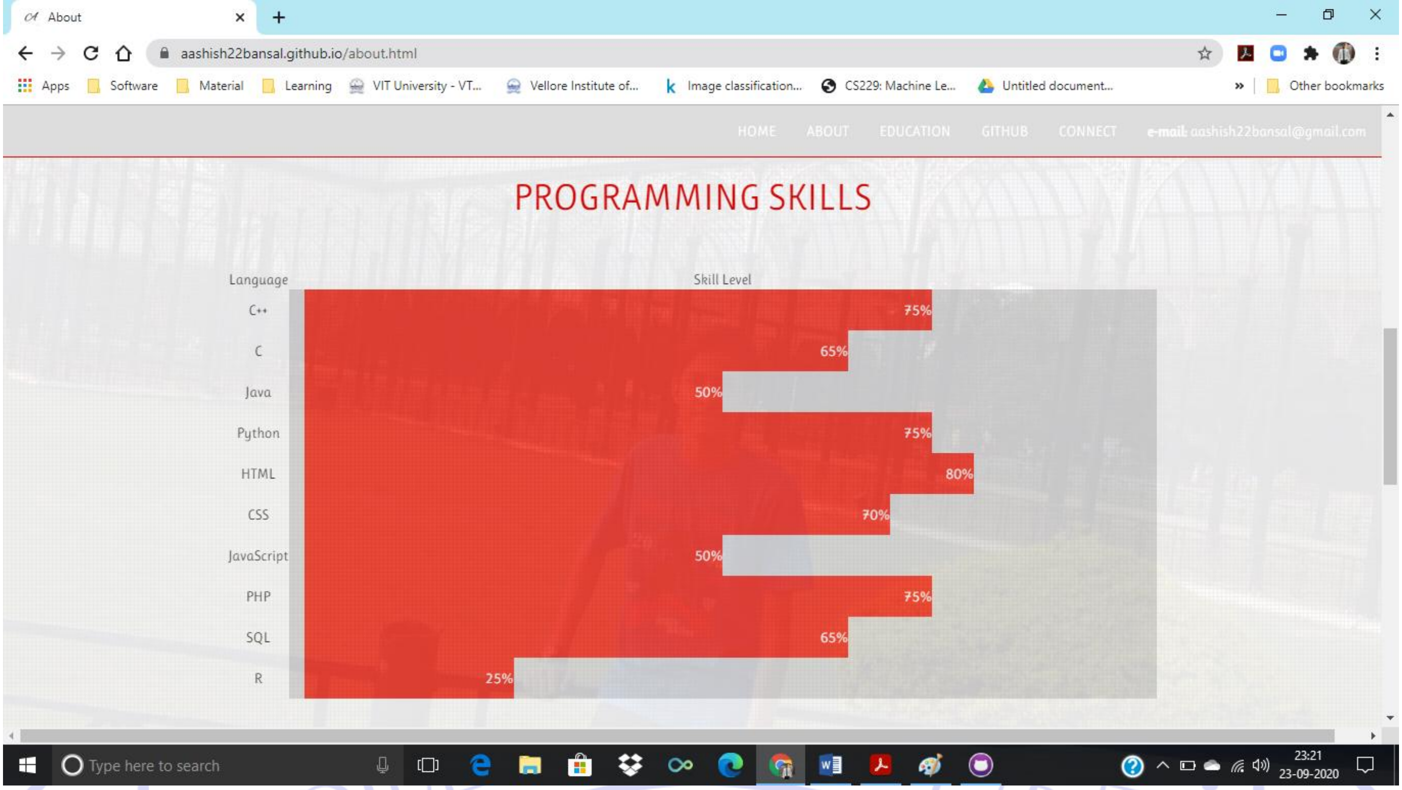


LANGUAGES

Languages	Proficiency
English	90%
Hindi	90%
Punjabi	90%
Kannada	25%

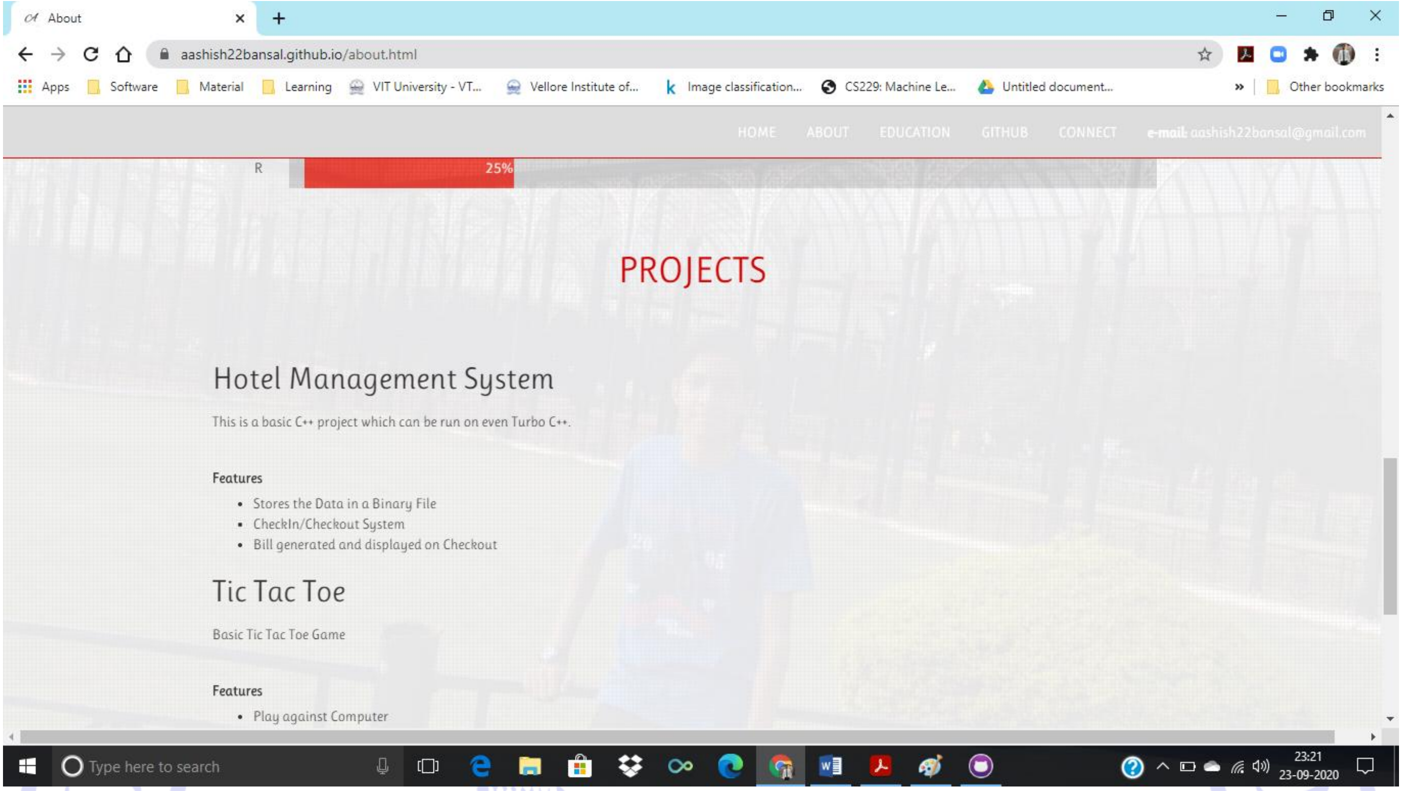
PROGRAMMING SKILLS

Language	Skill Level
C++	75%



PROGRAMMING SKILLS

Language	Skill Level
C++	75%
C	65%
Java	50%
Python	75%
HTML	80%
CSS	70%
JavaScript	50%
PHP	75%
SQL	65%
R	25%



PROJECTS

Hotel Management System

This is a basic C++ project which can be run on even Turbo C++.

Features

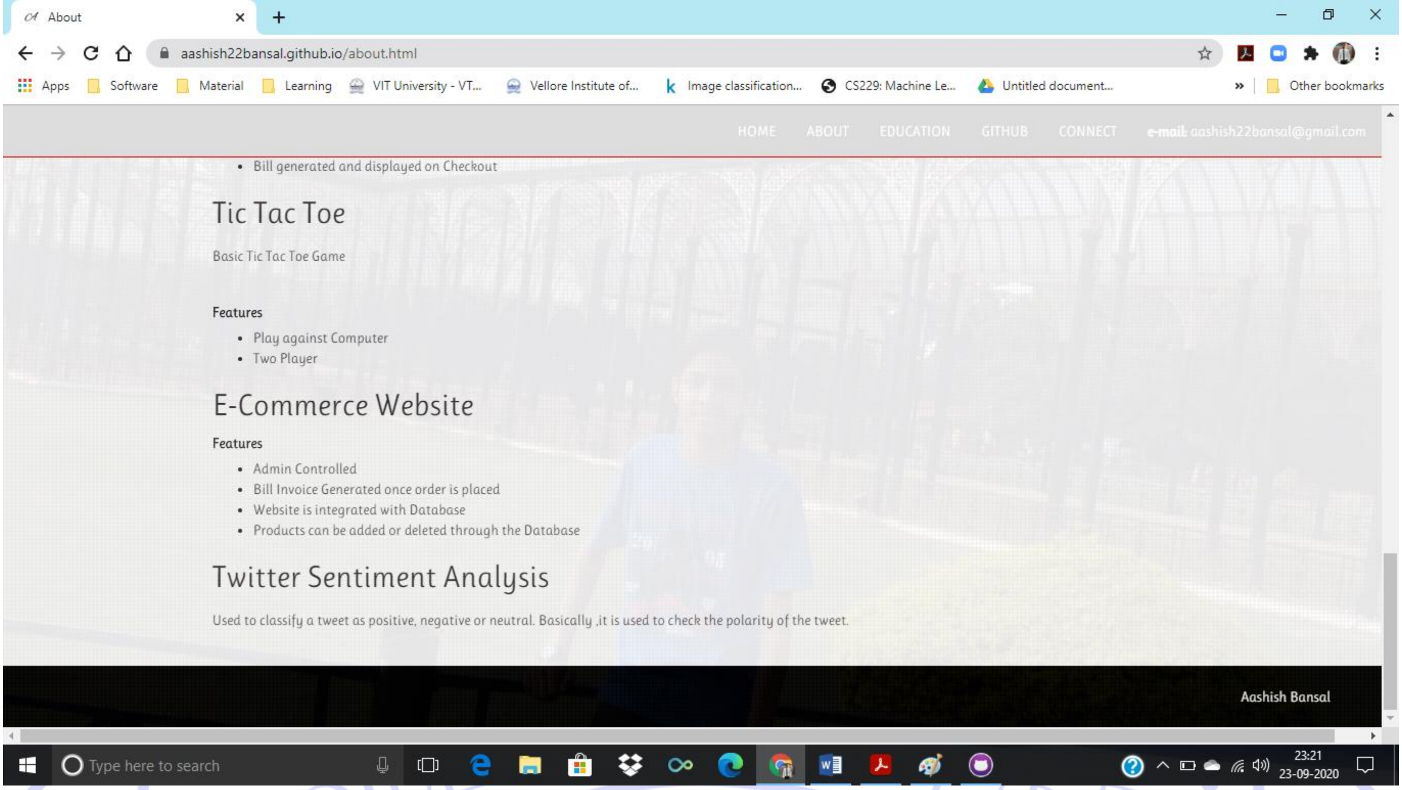
- Stores the Data in a Binary File
- CheckIn/Checkout System
- Bill generated and displayed on Checkout

Tic Tac Toe

Basic Tic Tac Toe Game

Features

- Play against Computer



- Bill generated and displayed on Checkout

Tic Tac Toe

Basic Tic Tac Toe Game

Features

- Play against Computer
- Two Player

E-Commerce Website

Features

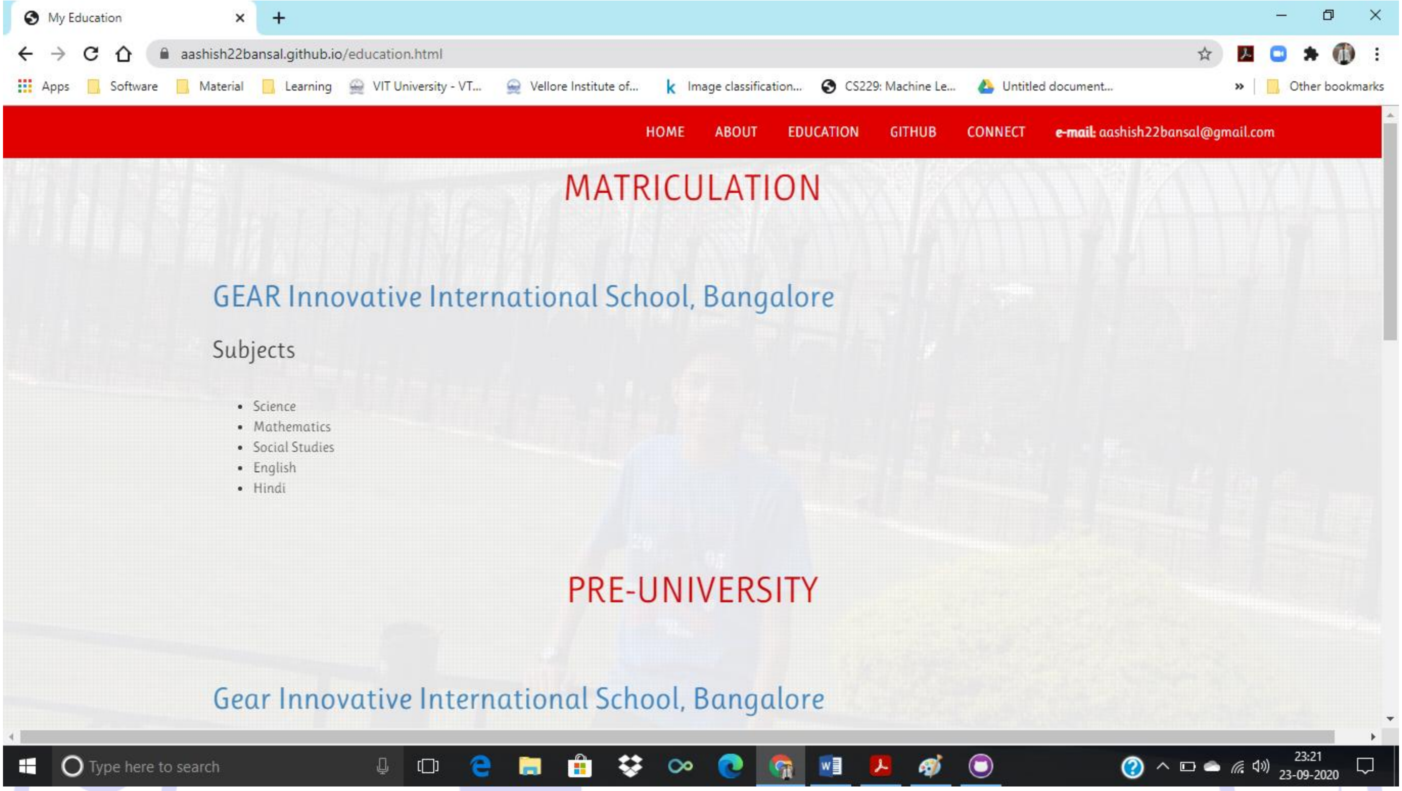
- Admin Controlled
- Bill Invoice Generated once order is placed
- Website is integrated with Database
- Products can be added or deleted through the Database

Twitter Sentiment Analysis

Used to classify a tweet as positive, negative or neutral. Basically ,it is used to check the polarity of the tweet.

Aashish Bansal

Education



MATRICULATION

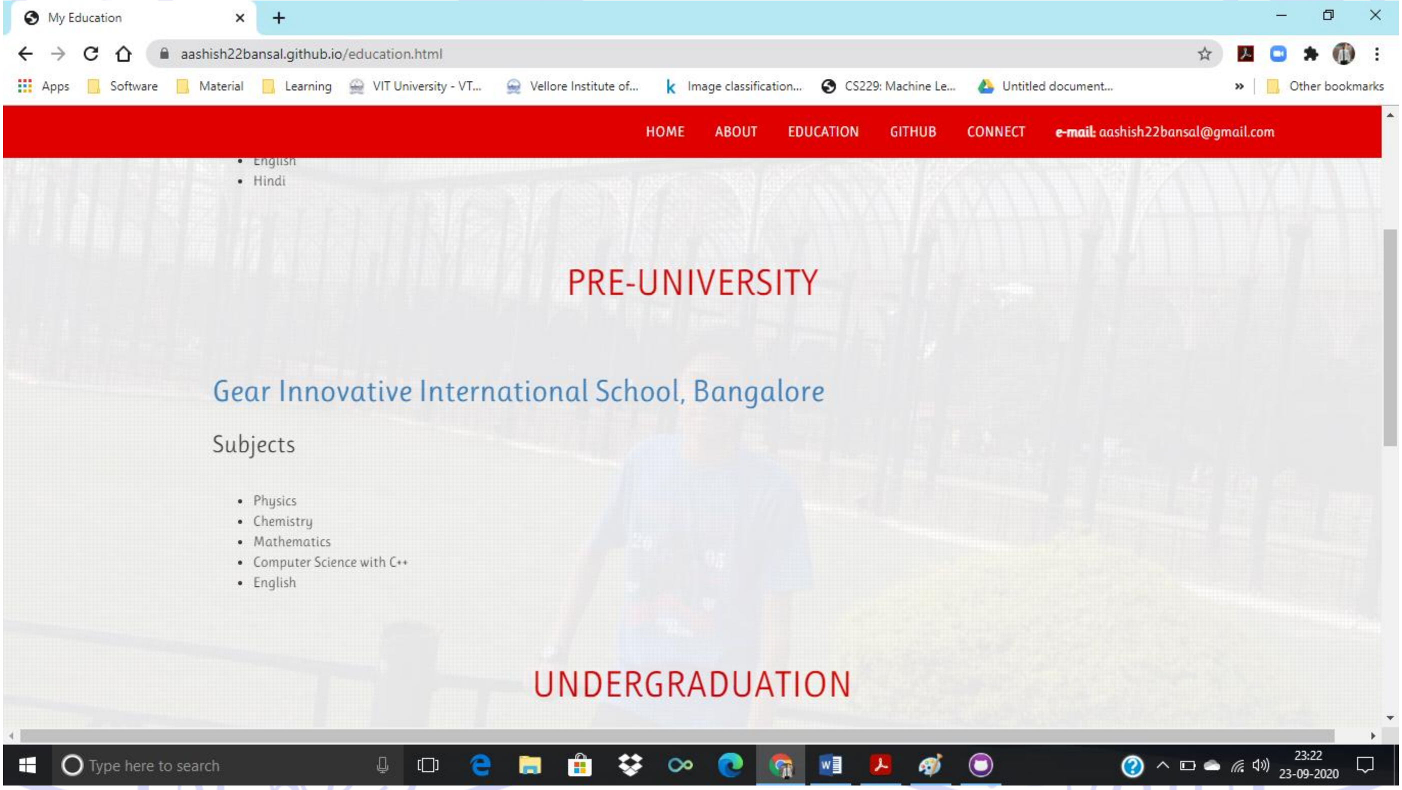
GEAR Innovative International School, Bangalore

Subjects

- Science
- Mathematics
- Social Studies
- English
- Hindi

PRE-UNIVERSITY

Gear Innovative International School, Bangalore



- English
- Hindi

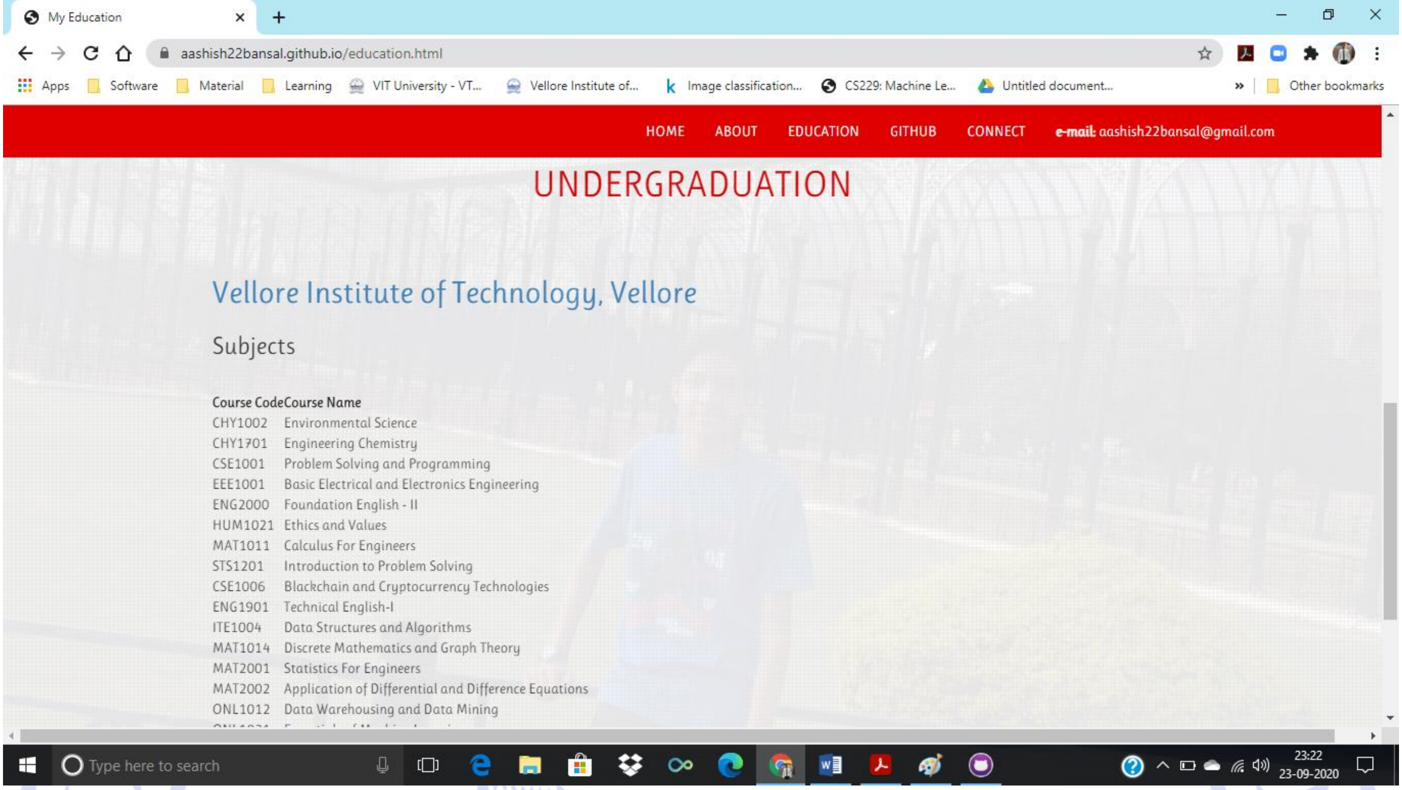
PRE-UNIVERSITY

Gear Innovative International School, Bangalore

Subjects

- Physics
- Chemistry
- Mathematics
- Computer Science with C++
- English

UNDERGRADUATION



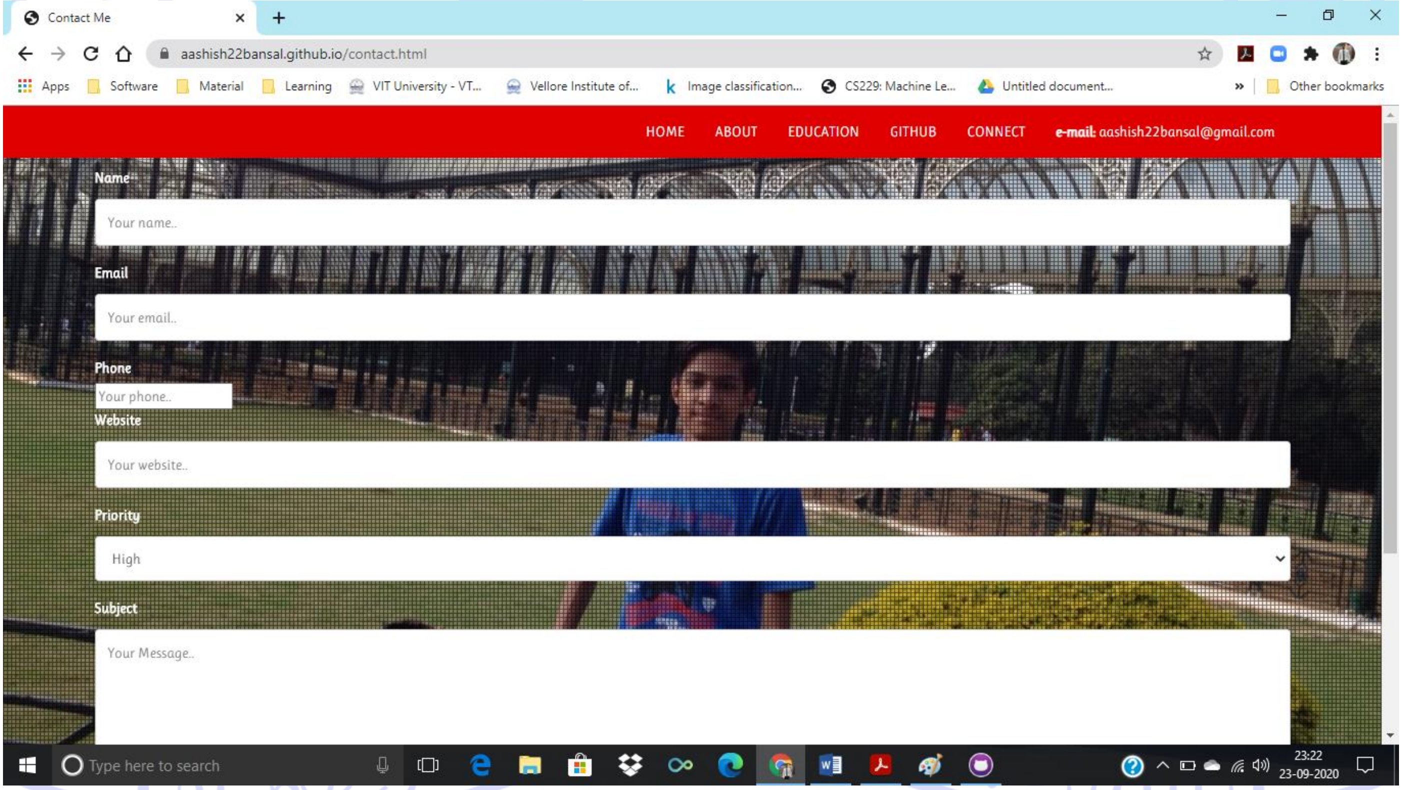
UNDERGRADUATION

Vellore Institute of Technology, Vellore

Subjects

Course Code	Course Name
CHY1002	Environmental Science
CHY1701	Engineering Chemistry
CSE1001	Problem Solving and Programming
EEE1001	Basic Electrical and Electronics Engineering
ENG2000	Foundation English - II
HUM1021	Ethics and Values
MAT1011	Calculus For Engineers
STS1201	Introduction to Problem Solving
CSE1006	Blackchain and Cryptocurrency Technologies
ENG1901	Technical English-I
ITE1004	Data Structures and Algorithms
MAT1014	Discrete Mathematics and Graph Theory
MAT2001	Statistics For Engineers
MAT2002	Application of Differential and Difference Equations
ONL1012	Data Warehousing and Data Mining

Connect



Name

Your name..

Email

Your email..

Phone

Your phone..

Website

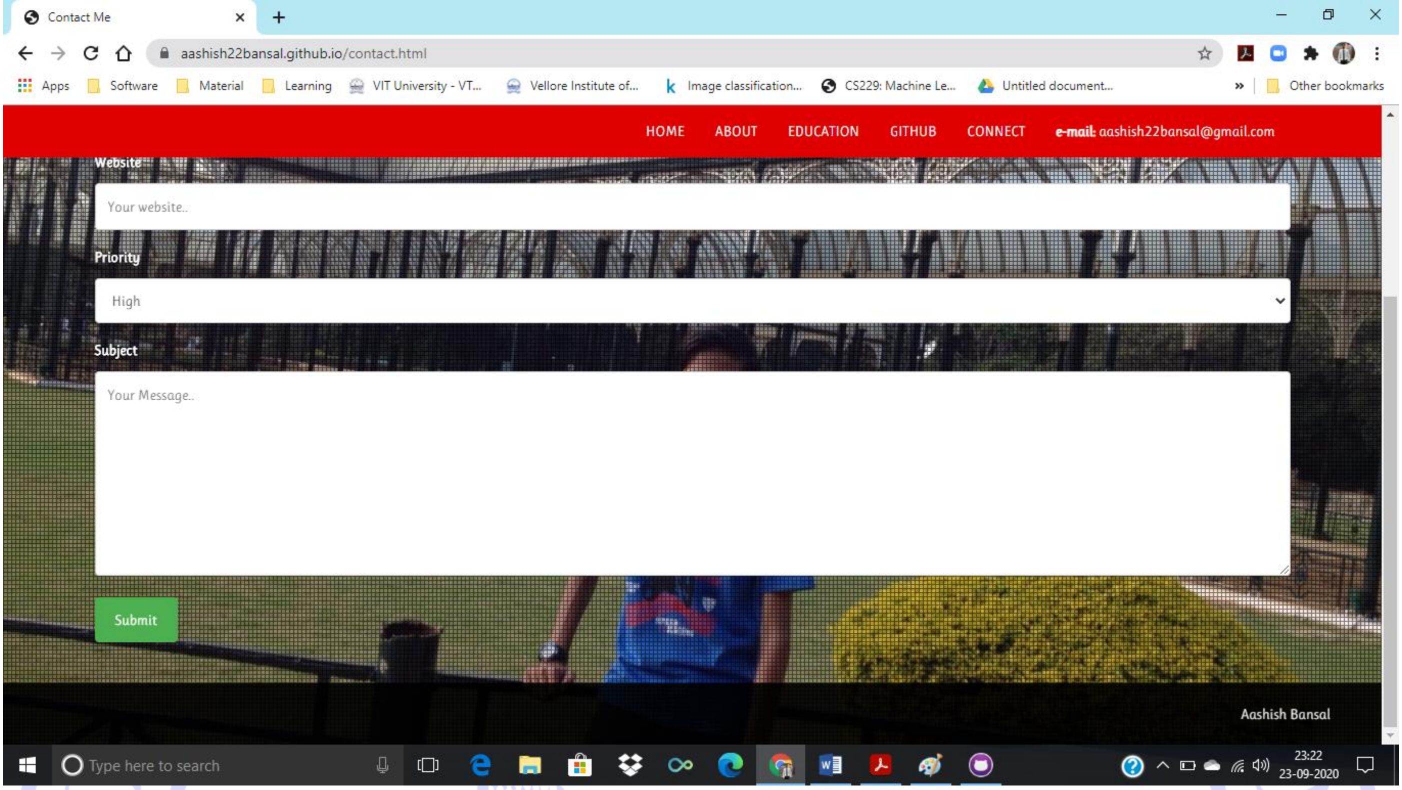
Your website..

Priority

High

Subject

Your Message..



e-mail: aashish22bansal@gmail.com

Website

Your website..

Priority

High

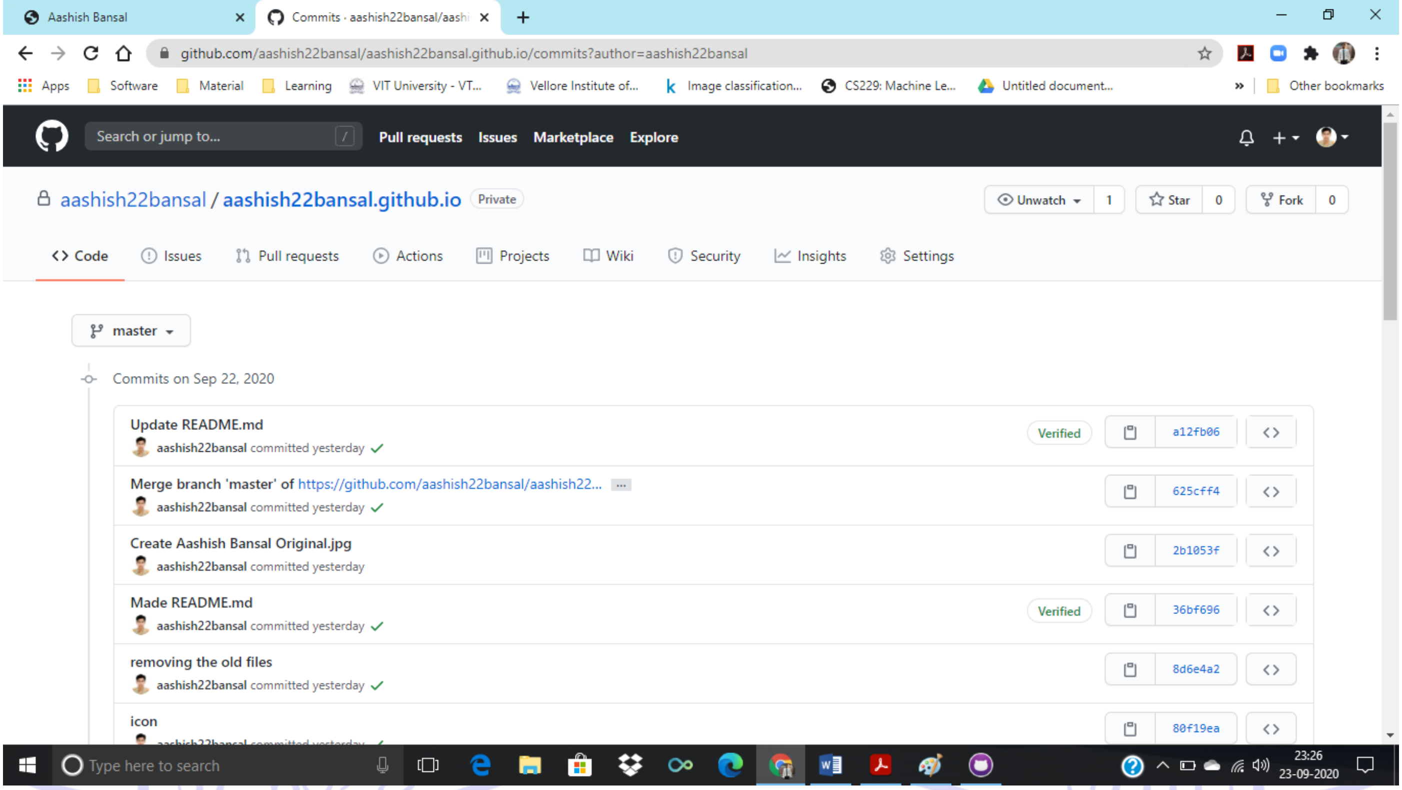
Subject

Your Message..

Submit

Aashish Bansal

Version History



aashish22bansal / aashish22bansal.github.io Private

Commits on Sep 22, 2020

Update README.md
aashish22bansal committed yesterday ✓ Verified a12fb06

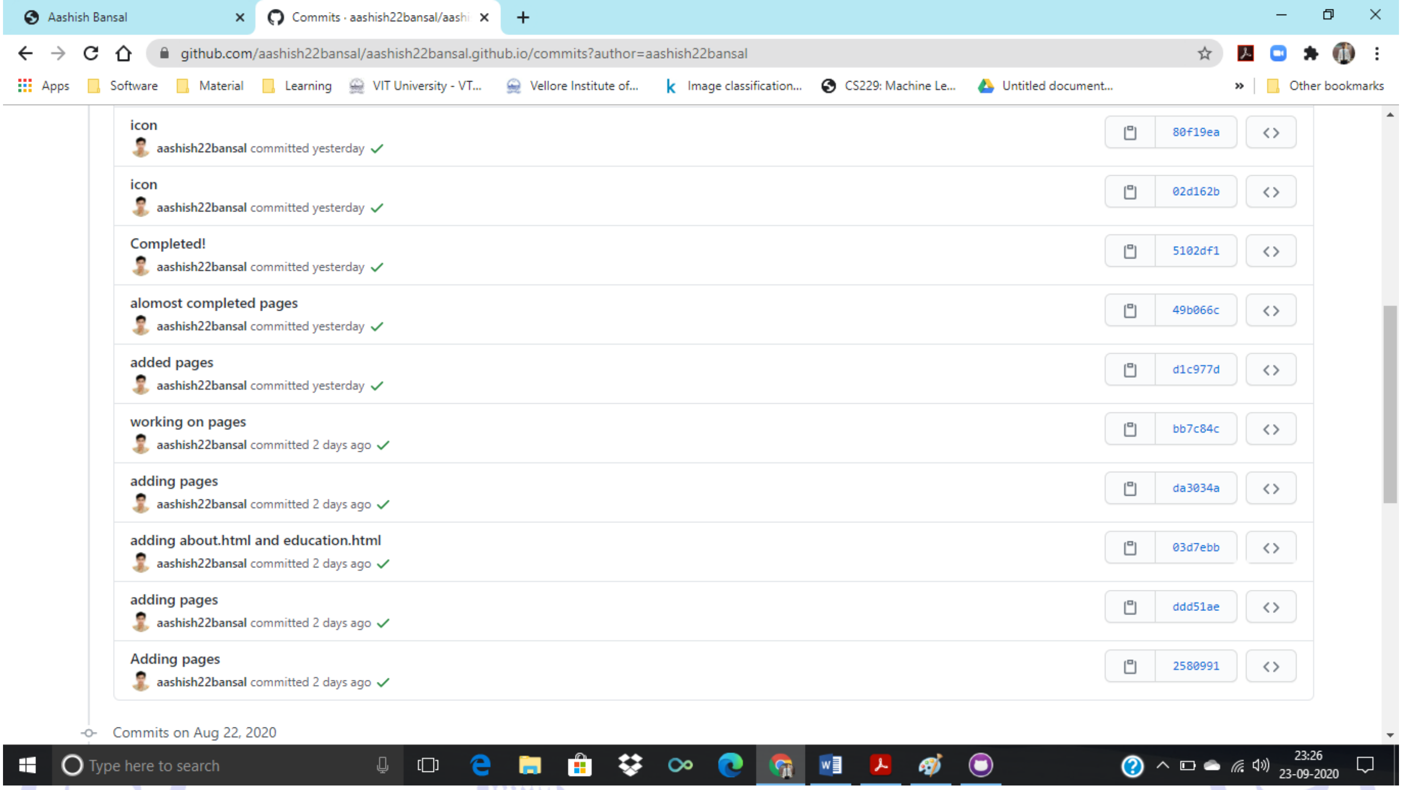
Merge branch 'master' of https://github.com/aashish22bansal/aashish22...
aashish22bansal committed yesterday ✓ 625cff4

Create Aashish Bansal Original.jpg
aashish22bansal committed yesterday 2b1053f

Made README.md
aashish22bansal committed yesterday ✓ Verified 36bf696

removing the old files
aashish22bansal committed yesterday ✓ 8d6e4a2

icon
aashish22bansal committed yesterday ✓ 80f19ea



icon
aashish22bansal committed yesterday ✓ 80f19ea

icon
aashish22bansal committed yesterday ✓ 02d162b

Completed!
aashish22bansal committed yesterday ✓ 5102df1

alomost completed pages
aashish22bansal committed yesterday ✓ 49b066c

added pages
aashish22bansal committed yesterday ✓ d1c977d

working on pages
aashish22bansal committed 2 days ago ✓ bb7c84c

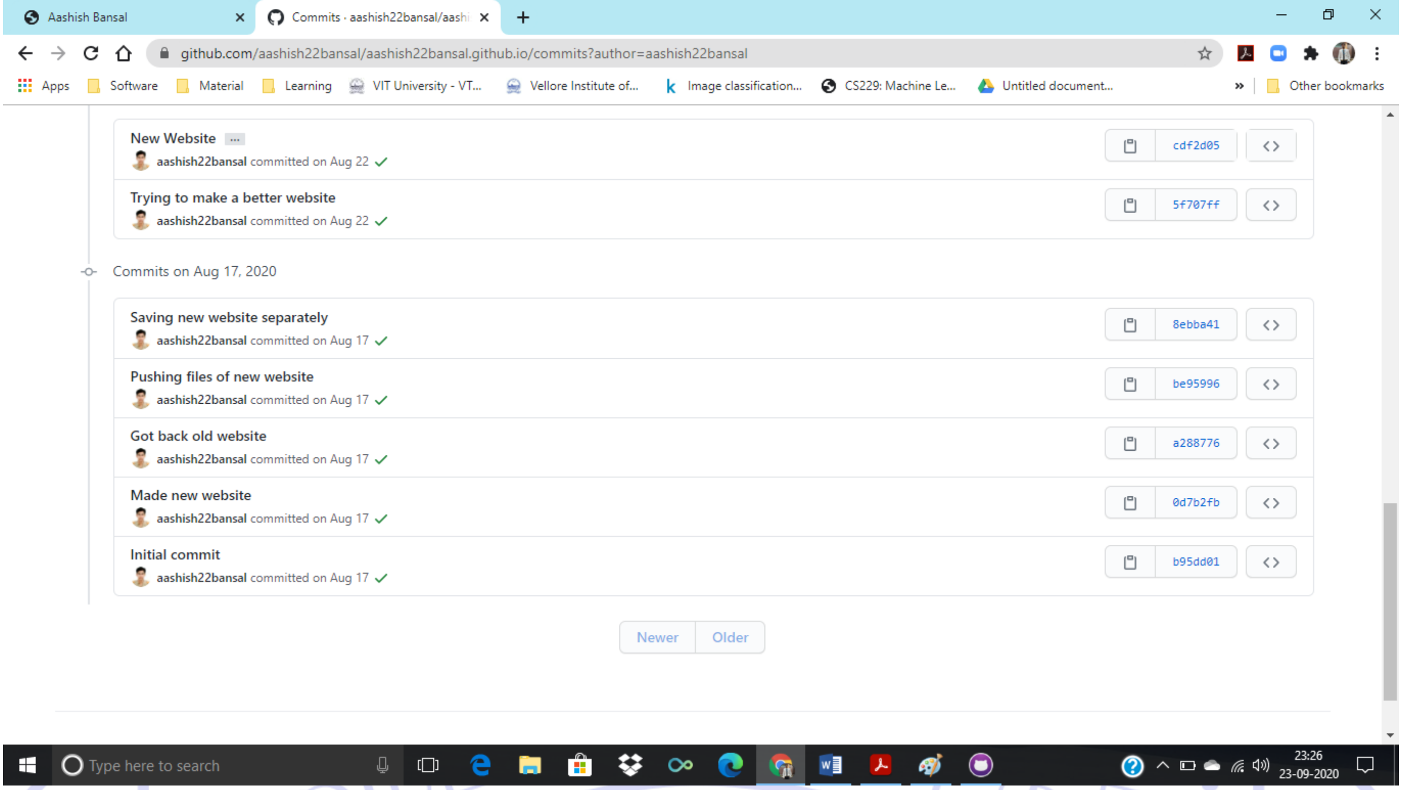
adding pages
aashish22bansal committed 2 days ago ✓ da3034a

adding about.html and education.html
aashish22bansal committed 2 days ago ✓ 03d7ebb

adding pages
aashish22bansal committed 2 days ago ✓ ddd51ae

Adding pages
aashish22bansal committed 2 days ago ✓ 2580991

Commits on Aug 22, 2020



New Website …
aashish22bansal committed on Aug 22 ✓ cdf2d05

Trying to make a better website
aashish22bansal committed on Aug 22 ✓ 5f707ff

Commits on Aug 17, 2020

Saving new website separately
aashish22bansal committed on Aug 17 ✓ 8ebba41

Pushing files of new website
aashish22bansal committed on Aug 17 ✓ be95996

Got back old website
aashish22bansal committed on Aug 17 ✓ a288776

Made new website
aashish22bansal committed on Aug 17 ✓ 0d7b2fb

Initial commit
aashish22bansal committed on Aug 17 ✓ b95dd01

Question 3

Write down the pros and cons of GitHub.

Answer

#	Pros	Cons
1	Different offering for continous providers	Lack of Command line configuration options

2	brings social aspect of programming into future	Reviewing large pull requests can be tedious and it can be tough to identify recent changes in new files or files with a lot of changes.
3	It makes it fast and easy to develop projects in versions/branches and easily to previous versions when necessary	It is hard to push unresolved merge conflicts
4	GitHub has a powerful UI for creating pull requests, with useful tools like inline commenting and suggested changes	we have to be careful with merge operations because a bad reverse will be painful to reverse
5	Pull History is always maintained and easy to search	when browsing the history of a file, GitHub could make it easier to see the file after a particular commit instead of just being able to quickly view the commit
6	It is easy for multiple team members to work on the same project and merge changes. All contributors are tracked so it is easy to identify contributors.	Better handling or notification of deleted forked repos. If you delete the repo, the pull request will show up as "unknown repository" which creates odd dead ends
7	GitHub makes it easy to find what code has been changed and when	There's so much you can do with GitHub that it's fairly common for a user to possibly only use a small fraction of what GitHub can do. Improving GitHub's discovery features would help surface some of the non-essential features that are quite useful.
8	It is easy to integrate with other tools	Lacks first-party support for mobile

Question 4

List down the features needs to be added in GitHub.

Answer

Some of the features which need to be added to GitHub are:

- Ability to move an issue from one project to another
- A way to distinguish the most active fork in a project
- Something to preview HTML based gists
- Ability to star issues
- A way to prioritize issues and sort by priority
- Prevent co-editing an issue comment
- Prevent editing another author comment/issue
- A Google group like or forum about a particular project

Question 5

Compare the minimum of three version control applications.

Answer

Concurrent Versions System (CVS)

CVS has been around since the 80s, and has been very popular with both commercial and open source developers.

It is released under the GNU license, and uses a system to let users “check out” the code they are going to work on and “check in” their changes.

Originally, CVS handled conflicts between two programmers by only allowing for the latest version of the code to be worked on and updated. As such, it was a first come, first serve system where the user must publish changes quickly to ensure that other users haven’t beat them to the punch.

Now, CVS can handle branching projects so the developed software can diverge into different products with unique features and will be reconciled at a later time.

The CVS server runs on Unix-like systems with client software that runs on multiple operating systems. It is considered the most mature version control system because it has been developed for such a long time and does not receive many requests for new features at this time.

A fork project of CVS, CVSNT was created to run CVS on Windows servers, and it is currently being actively developed to increase functionality.

Pros:

- Has been in use for many years and is considered mature technology

Cons:

- Moving or renaming files does not include a version update
- Security risks from symbolic links to files
- No atomic operation support, leading to source corruption
- Branch operations are expensive as it is not designed for long-term branching

Apache Subversion (SVN)

SVN was created as an alternative to CVS that would fix some bugs in the CVS system while maintaining high compatibility with it.

Like CVS, SVN is free and open source with the difference of being distributed under the Apache license as opposed to GNU.

To prevent corruption in the database from being corrupted, SVN employs a concept called atomic operations. Either all of the changes made to the source are applied or none are applied, meaning that no partial changes will break the original source.

Many developers have switched to SVN as it is a newer technology that takes the best features of CVS and improves upon them.

While CVS's branch operations are expensive and do not really lend themselves to long-term forks in the project, SVN is designed to allow for it, lending itself better to large, forked projects with many directions.

Criticism of SVN includes slower comparative speed and the lack of distributed revision control. Distributed revision control uses a peer-to-peer model rather than using a centralized server to store code updates. While a peer-to-peer model would work better for world-wide, open source projects, it may not be ideal in other situations. The downside to a dedicated server approach is that when the server is down, no clients are able to access the code.

Pros:

- Newer system based on CVS
- Includes atomic operations
- Cheaper branch operations
- Wide variety of plug-ins for IDEs
- Does not use peer-to-peer model

Cons:

- Still contains bugs relating to renaming files and directories
- Insufficient repository management commands
- Slower comparative speed

Mercurial

Mercurial began close to the same time as Git and is also a distributed revision control tool.

It was originally made to compete with Git for Linux kernel development, and as Git was selected, Mercurial has seen less success in that area. However, that is not to say that it is not used as many major developments use it, including OpenOffice.org.

It's different from other revision control systems in that Mercurial is primarily implemented in Python as opposed to C, but there are some instances where C is used.

Due to its distributed nature and its creation in Python, the Python language developers are considering a switch to Mercurial as it would allow non-core developers to have easier access to creating new trees and reverting changes.

Users have noted that Mercurial shares some features with SVN as well as being a distributed system, and because of the similarities, the learning curve for those already familiar with SVN will be less steep. The documentation for Mercurial also is more complete and will facilitate learning the differences faster.

Some of the major drawbacks to Mercurial include that it doesn't allow for two parents to be merged and unlike Git, it uses an extension system rather than being scriptable. That may be ideal for some programmers, but many find the power of Git to be a feature they don't want to trade off.

Pros:

- Easier to learn than Git
- Better documentation
- Distributed model

Cons:

- No merging of two parents
- Extension-based rather than script ability
- Less out of the box power