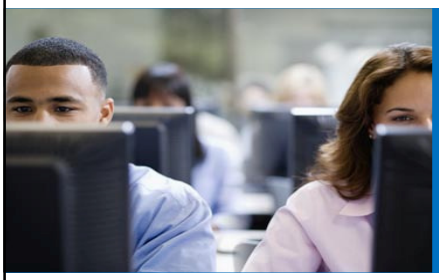
Foundation Series



Git, GitHub

Version Control Systems

1

Manoj Kumar Sharma

- Freelance Consultant / Corporate Trainer
- 31+ years of Experience in the Software Industry
  - 23+ years as a Software Architect / Systems Analyst / Project Lead
  - Last Designation held: *Director of Technology* at ExamRoom.AI
- 17+ years of Corporate Training Experience.
  - Delivered over 1600 in-person trainings across India, US, China, Oman and Thailand, and over 700+ remote trainings
  - Microsoft Certified Trainer (2012-2025)

www.manojkumarsharma.com
mailme@manojkumarsharma.com

2

Introduction

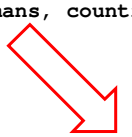
Understanding Version Control systems

3

3

Version Control

```
Friends, Romans, countrymen, lend me your ears;
```



```
Friends, Romans, countrymen, lend me your ears;
I come to bury Caesar, not to praise him.
Bring me a shovel, and a bucket
```

```
Friends, Romans, countrymen, lend me your ears;
I come to bury Caesar, not to praise him.
The evil that men do lives after them;
The good is oft interred with their bones;
```

4

4

Progressive Saving Options

- Save and overwrite
  - Only have the latest version
  - Can't backtrack

```
caesar.txt
```

- Save to new files
  - Full history
  - Lots of duplication
  - No partial backtracking

```
caesar_1.txt
caesar_2.txt
caesar_3.txt
```

5

5

Version Control

Store differences to the last version:

Version 1

```
+ Friends, Romans, countrymen, lend me your ears;
```

Version 2

```
+ I come to bury Caesar, not to praise him.
+ Bring me a shovel, and a bucket
```

Version 3

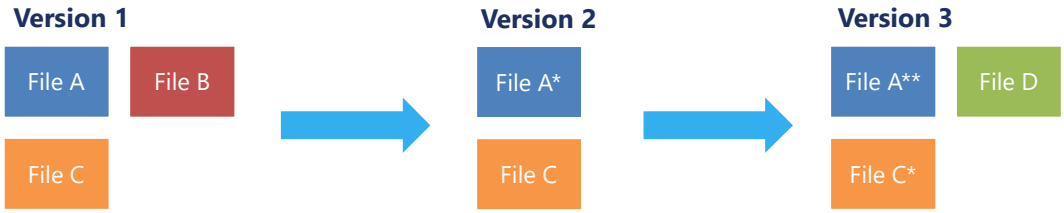
```
- Bring me a shovel, and a bucket
+ The evil that men do lives after them;
+ The good is oft interred with their bones;
```

6

6

Project Management

Managing a development project is complex, difficult and requires version control



- Files edited
- Files added
- Files removed
- How to best manage this?

- Version control records each version of the project
- Previous versions can be accessed as and when required
- A great way to track of how and why scripts were modified

Is also useful because:

- Back-up capabilities
- Collaboration
- Sharing

7

7

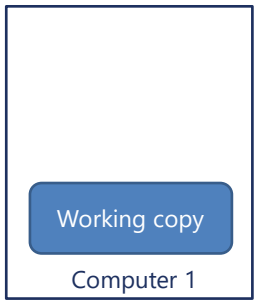
What's Git and GitHub

Understanding Version Control systems

8

8

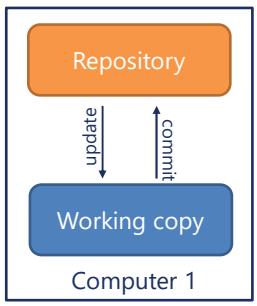
Distributed Version Control



9

9

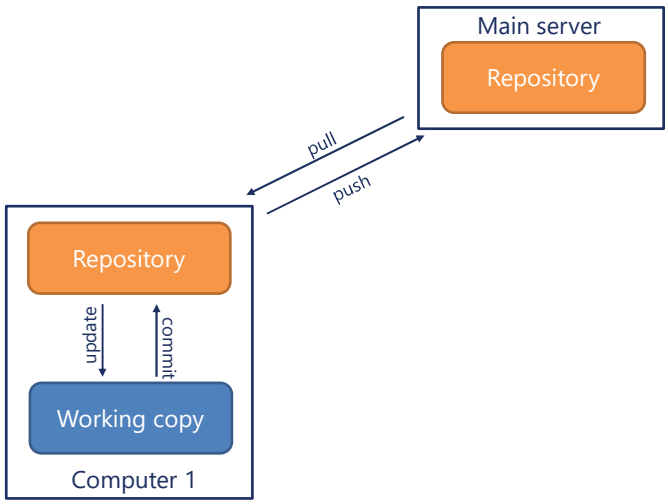
Distributed Version Control



10

10

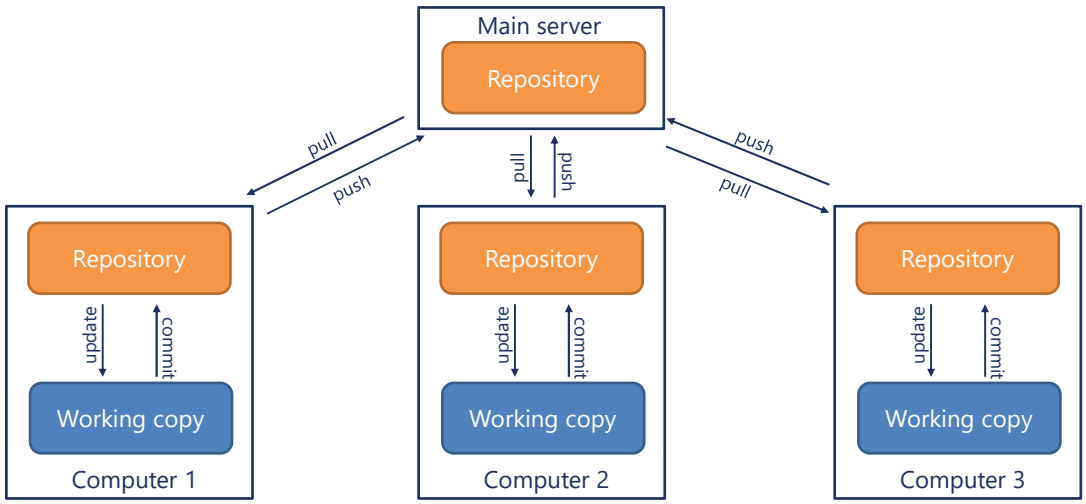
Distributed Version Control



11

11

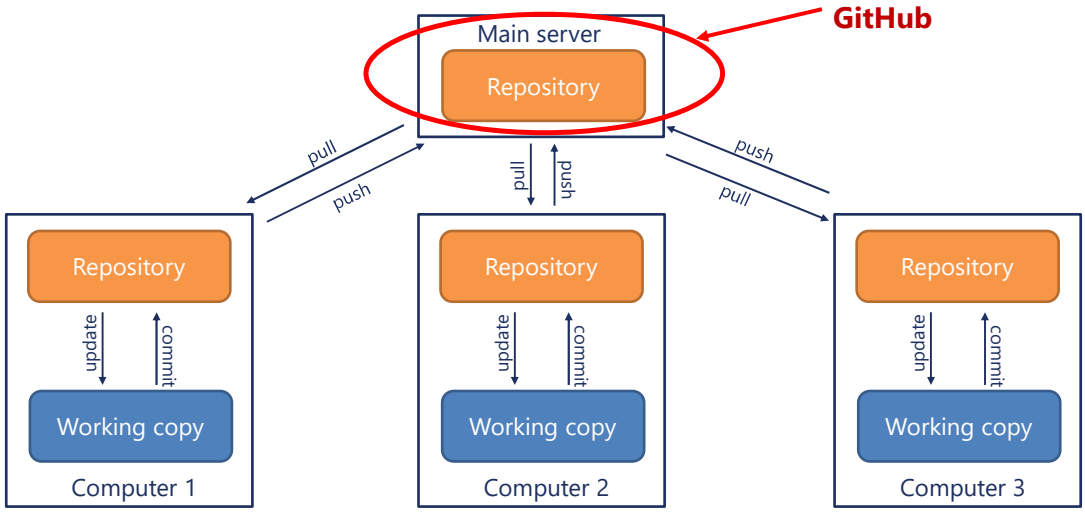
Distributed Version Control



12

12

Distributed Version Control



13

13

How does it work?

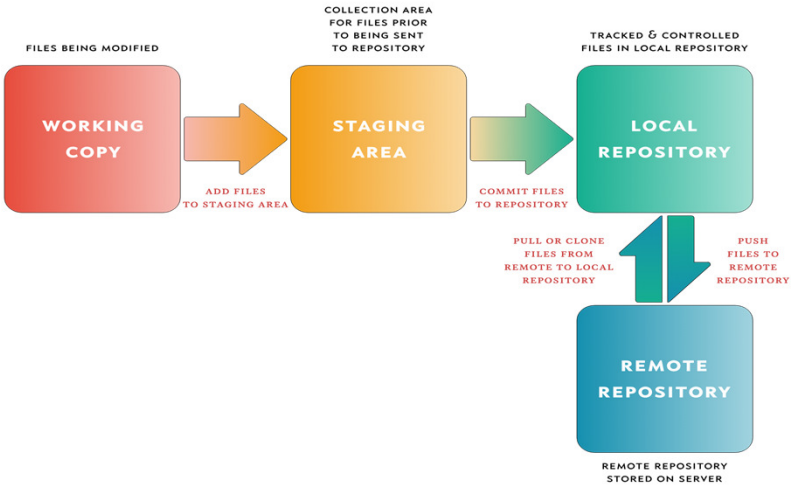
Understanding Version Control systems

14

14

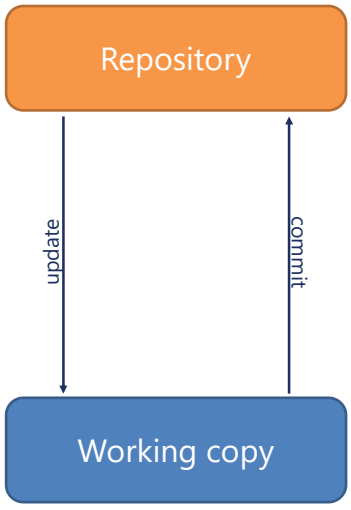
What is a Repository (Repo)

- A collection of all the files
  and the history of those files which consist of all your commits.



15

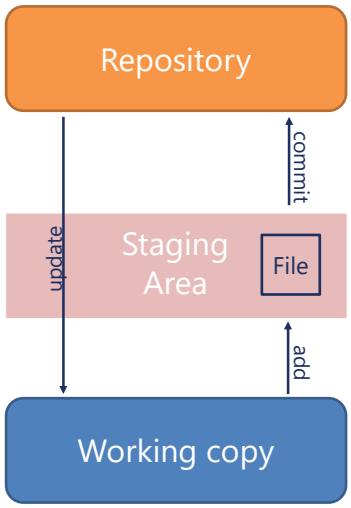
Committing files to a Git repository



16

16

Committing files to a Git repository



17

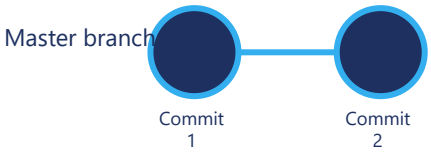
17

Branches

18

18

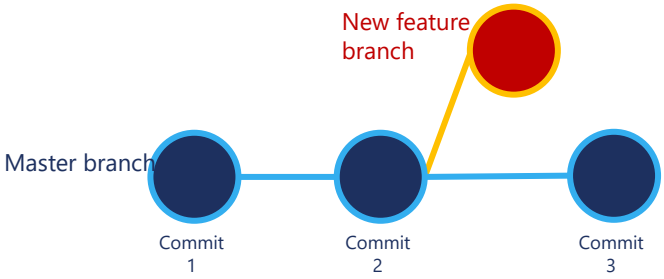
Branches



19

19

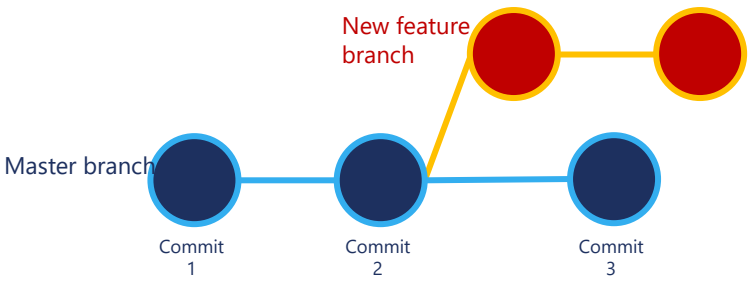
Branches



20

20

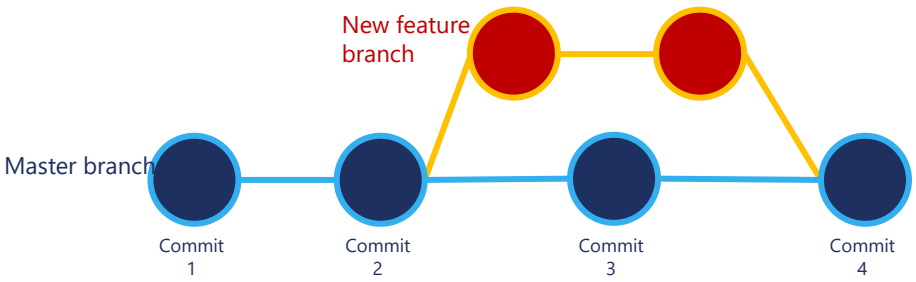
Branches



21

21

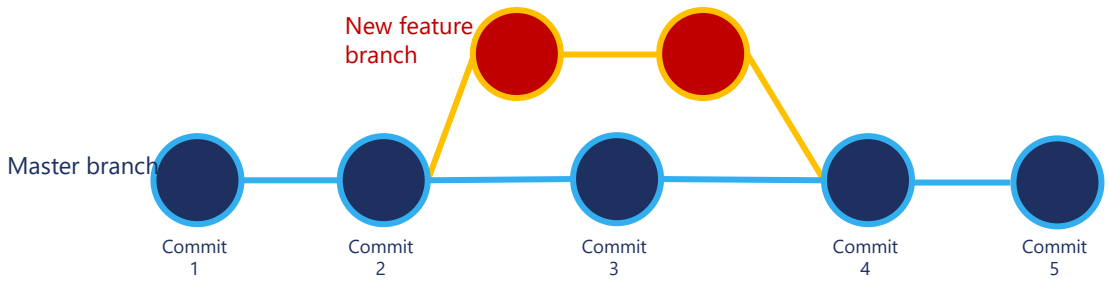
Branches



22

22

Branches



23

23

Git Commands

Understanding Version Control systems

24

24

Important Terms and Commands

git init *newrepo*

- To initialize the git repo

Working Directory

- Contains all the files and folders

Staging Area

- files/folders that are added (or changes are made to the content) to git but not committed yet.

Git Repository

- Contains all the saved changes and modified/updated files and commit history.

25

25

Important Terms and Commands

git add **.txt*

- To add the file to staging area

git commit **.txt*

- To commit changes to the remote repo

git clone

- To clone a remote repo to local store

git checkout –b *newbranchname*

- To create a branch

26

26

In conclusion...

Understanding Version Control systems

27

27

What is Version Control?

- A system that keeps records of your changes.
- Users keep entire code and history on their local machines.
- Allows for collaborative development.
- Allows you to know who made what changes and when.
- Allows you to revert any changes
  and go back to a previous state.

28

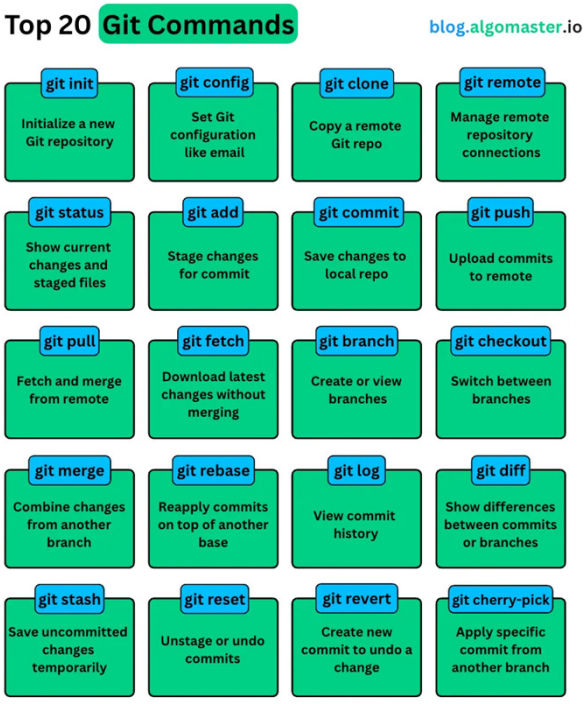
28

What is Git?

- A tool which allows you to manage and track changes to files over time.
- When you create a repository, you will see a **.git** directory.
- It keeps track of a file's history
  – its tracks changes and who made those changes.
- Each version of a file is called a **commit**.

29

29



30

30

Additional References

- Git Basics
  https://www.techwithchay.com/posts/git-basics/

31

31

MANOJ KUMAR SHARMA
Developer Evangelist - .NET & Web Technologies
www.manojkumarsharma.com
mailme@manojkumarsharma.com

Thank You

Windows Azure

32