Week 1 Day 1

Welcome to Revature

Get to know your trainer

Ethan McGill

- Graduated SE from Iowa State University
- During my free time
  - Spend time with my wife and dog
  - Video Games
  - Side projects
  - Wood working

What to expect during training

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- Training M-F 9AM to 5PM CST
- Training Consists of
  - Three Projects
  - Weekly Quizzes
  - Weekly One on One interviews
  - Quality Control (QC)
  - Content Delivery

Tentative Training Schedule

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Mondays

- Morning:
  - Quiz
  - One on one
  - Personal work
- Afternoon
  - Content

Tuesday – Friday

- Morning
  - Content
  - Hands on
- Afternoon
  - Personal work
  - Office Hours
  - Study/Review

Projects and QC

- Three projects
  - P1 Foundations API
  - P2 Team based full stack
  - P3 Full group full stack
- Quality Control
  - Roughly once a week
  - Group interview prep

Training Expectations

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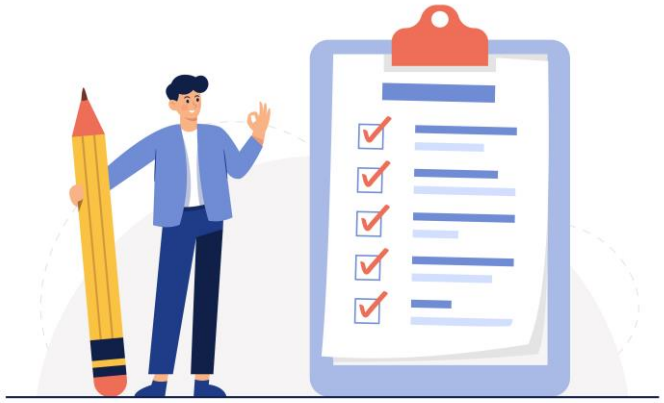
- Hard work pays off
  - Try your best
  - Ask Questions
- Interaction
  - Cameras on as much as possible
  - Use your mic to ask questions
- Professionalism
- Teamwork



Full Stack Overview

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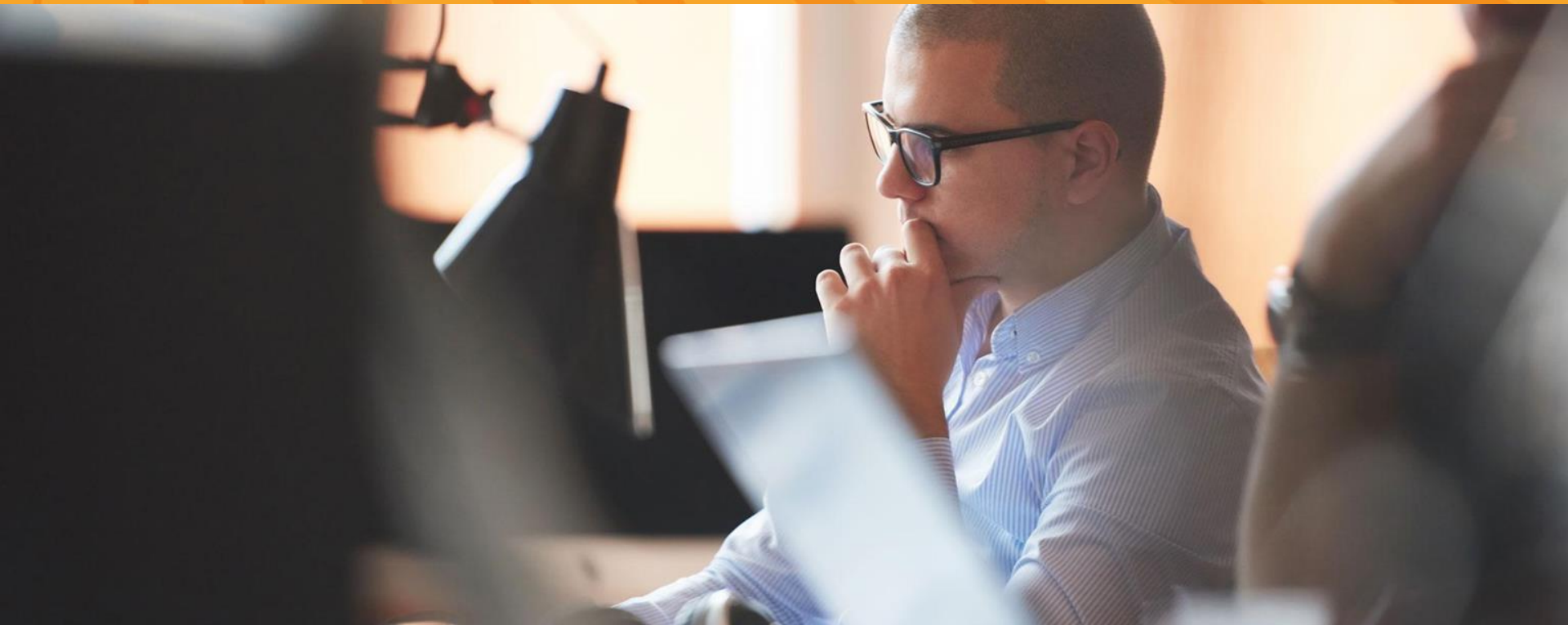
Setting up our environments



Software Development LifeCycle

SDLC

Introduction to SDLC

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- Software Development LifeCycle

1. Requirements
2. Analysis
3. Design
4. Development
5. Testing
6. Integration/Deployment
7. Maintenance

SDLC: Waterfall

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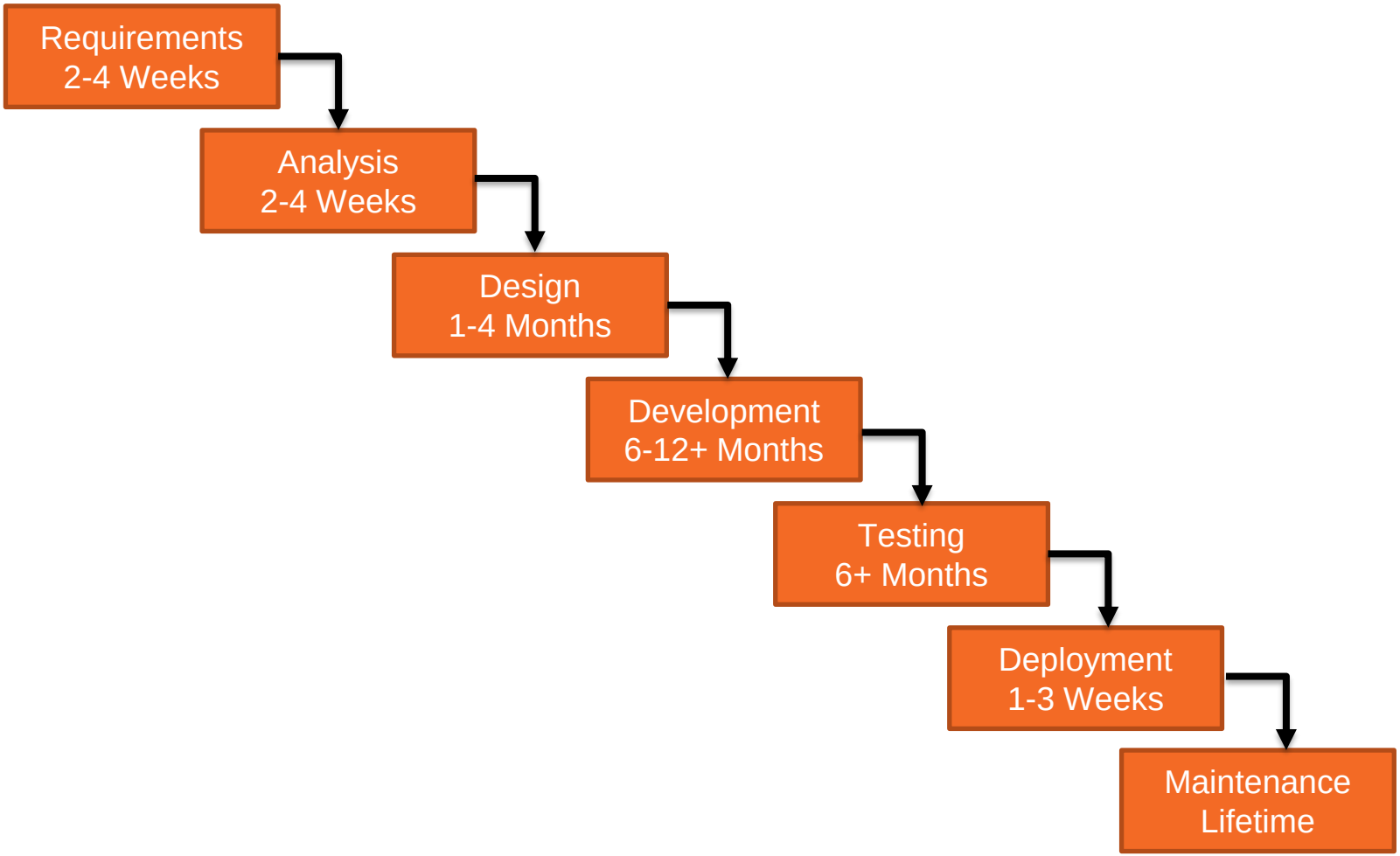

Waterfall Pros and Cons

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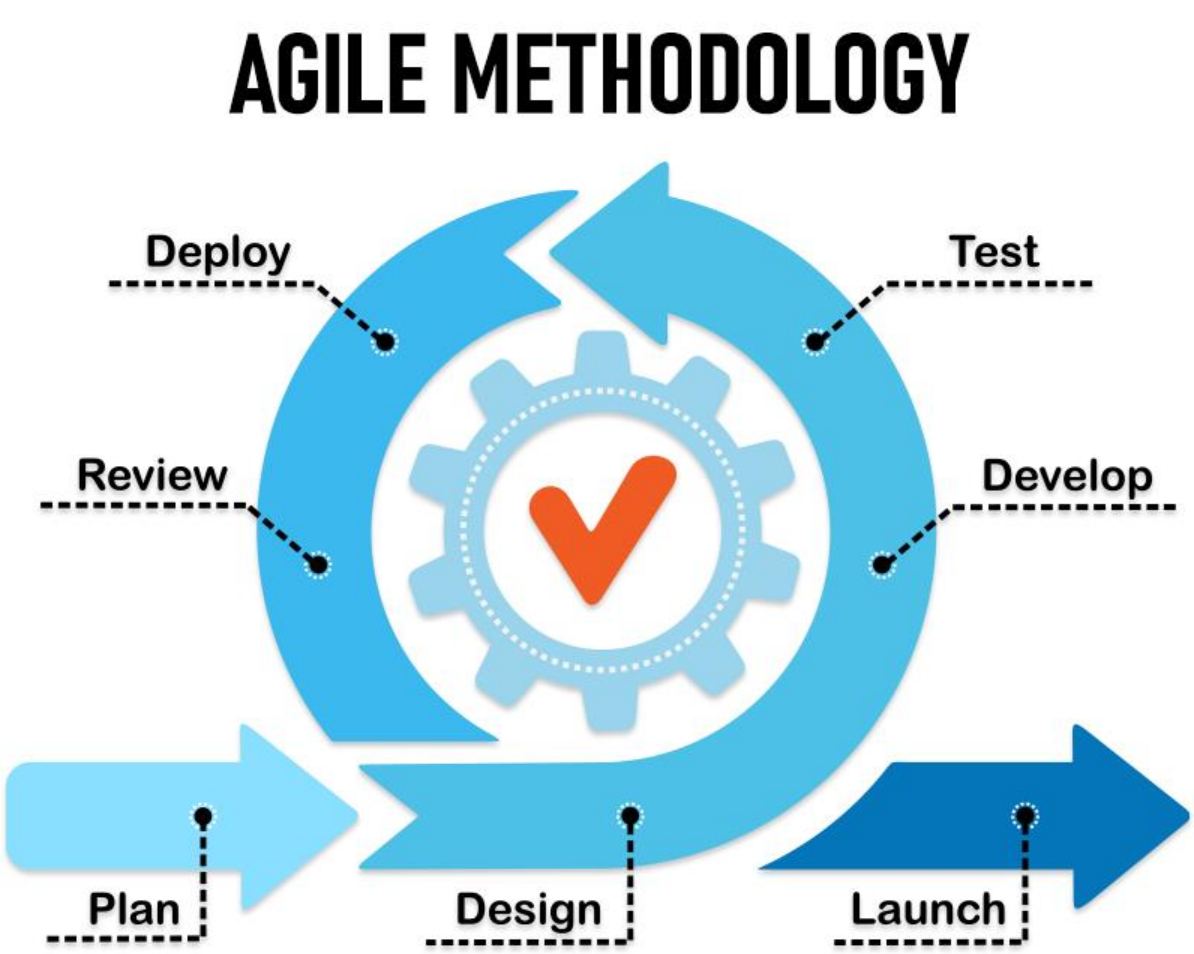
- Pros
  - Easy to manage
  - Small teams or projects
  - Generally faster
  - Documentation
  - Easily adapted to changing teams
- Cons
  - Inflexible
  - Inefficient
  - Not ideal for large teams or project
  - No testing until completion

SDLC: Agile



Source: https://pimages.toolbox.com/wp-content/uploads/2021/09/02062539/Agile-Methodology.png

Agile: Pros and Cons

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- Pros
  - Client collaboration
  - Self-organized
  - Self-motivated
  - Higher quality product
  - Less risk
- Cons
  - Not well suited for small projects
  - Higher costs
  - Development time bloat
  - More experience across the board

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Project 1 Rundown

Operating Systems

Fundamentals

Operating Systems: Fundamentals

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- Software which aids humans in interacting with a computer

- Software which manages the resources available to the computer

Persistence vs Ephemeral Storage

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- Ephemeral Storage will be erased on reset
  - Registers/Caches on the CPU
  - Random Access Memory
  - Read Only Memory
- Persistent Storage will be persisted on reset
  - Hard Drives
  - Solid State Drives

Operating Systems: Families

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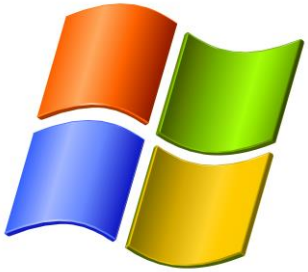

- Windows
  - XP
  - Vista
  - 7
  - 8
  - 10
  - 11

- MacOS
  - High Seirra
  - Mojave
  - Catalina
  - Big Sur
  - Monterey
  - Ventura

- Unix
  - MacOS
  - Linux
    - Ubuntu
    - RedHat
    - Fedora
    - Arch

Operating Systems: Unix/Linux

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- Unix
  - Open source, family of OS's
  - Terminal based
  - Tree based file system
  - Built off of the sh shell, now know as bash
- Linux
  - Most well known (non-MacOS) Unix distribution
  - Open Sourced by Linus Torvalds
  - Many distributions

Unix: Directory Structure

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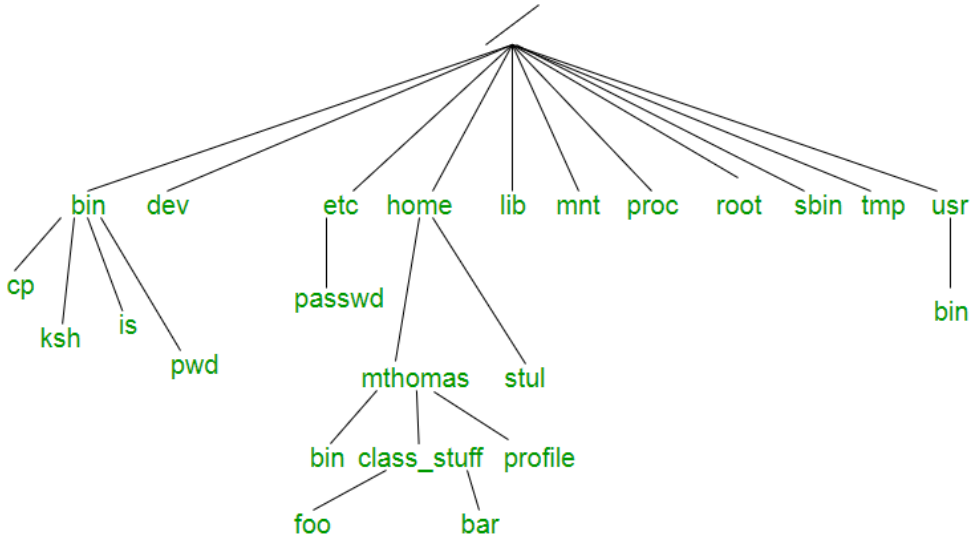
- Everything in Unix is a file
  - Even directories (folders)
- Root directory:
  - /
- Home directory
  - ~



Source: geeksforgeeks.com/unix-file-system

Unix Commands: Arguments and Flags

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- Arguments are given after the command
  - Variables expected by the command
- Flags are built in arguments for a command
  - Denoted with a single dash (-) or double dash(--)
  - Single denotes short hand
  - Double denotes long hand
  - Typically used to enable or disable options for the command

Unix Commands: The most important command

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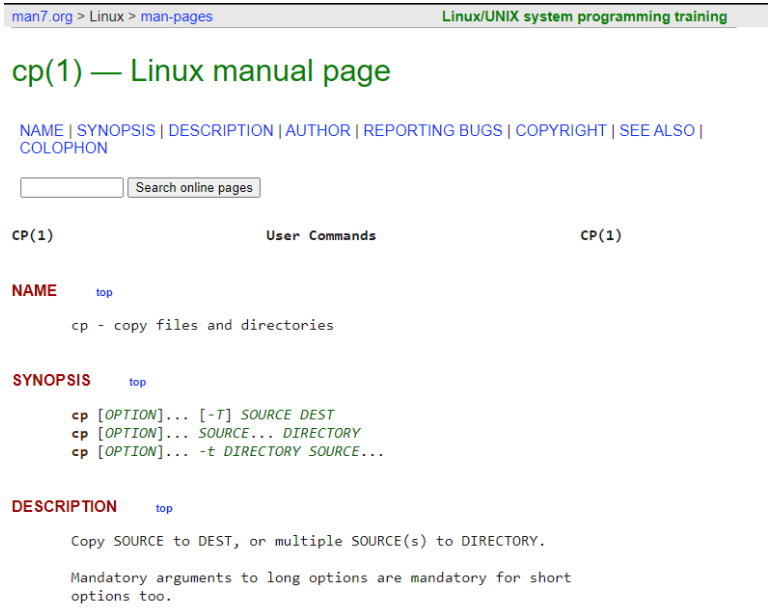
- The command `man`
  - Short for manual
  - Prints useful information about unix commands
  - Can also visit man7.org



man7.org > Linux > man-pages Linux/UNIX system programming training

cp(1) — Linux manual page

NAME | SYNOPSIS | DESCRIPTION | AUTHOR | REPORTING BUGS | COPYRIGHT | SEE ALSO | COLOPHON

Search online pages

CP(1) User Commands CP(1)

NAME top

cp - copy files and directories

SYNOPSIS top

cp [*OPTION*]... [*-T*] *SOURCE DEST*
cp [*OPTION*]... *SOURCE... DIRECTORY*
cp [*OPTION*]... *-t DIRECTORY SOURCE...*

DESCRIPTION top

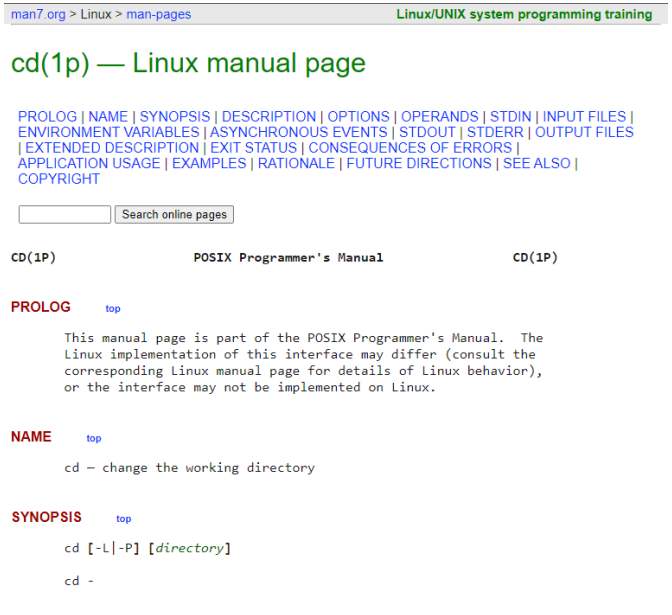
Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY.

Mandatory arguments to long options are mandatory for short options too.

Unix Commands: Change Directory

REVATURE

- Change directory command `cd`
  - Change to root `cd /`
  - Change to home `cd` or `cd ~`
  - Change to previous directory `cd ..`
  - Change to a specific directory `cd /directory/sub`



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cd(1p) — Linux manual page

PROLOG | NAME | SYNOPSIS | DESCRIPTION | OPTIONS | OPERANDS | STDIN | INPUT FILES | ENVIRONMENT VARIABLES | ASYNCHRONOUS EVENTS | STDOUT | STDERR | OUTPUT FILES | EXTENDED DESCRIPTION | EXIT STATUS | CONSEQUENCES OF ERRORS | APPLICATION USAGE | EXAMPLES | RATIONALE | FUTURE DIRECTIONS | SEE ALSO | COPYRIGHT

Search online pages

CD(1P) POSIX Programmer's Manual CD(1P)

PROLOG top

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

NAME top

cd — change the working directory

SYNOPSIS top

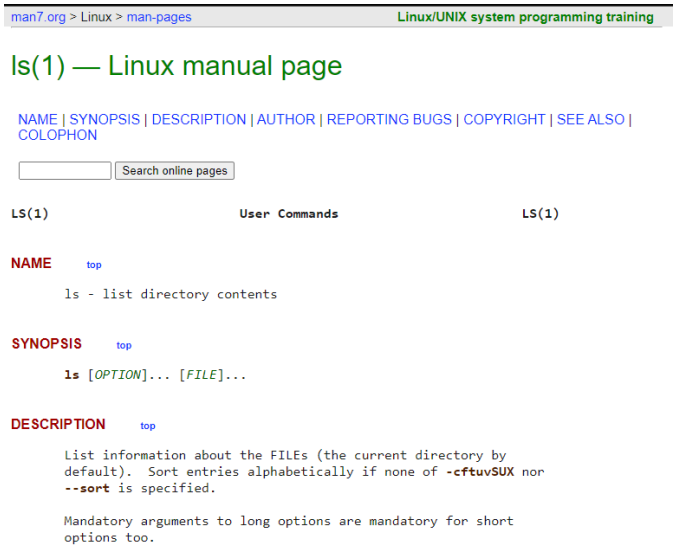
cd [-L|-P] [*directory*]

cd -

Unix Commands: List Directory Content

REVATURE

- List directory command `ls`
  - View the contents of the directory
  - View the content of the current directory `ls`
  - View hidden files with the –a flag
  - View the content of any directory with a path `ls /some/directory`



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ls(1) — Linux manual page

NAME | SYNOPSIS | DESCRIPTION | AUTHOR | REPORTING BUGS | COPYRIGHT | SEE ALSO | COLOPHON

Search online pages

LS(1) User Commands LS(1)

NAME top

ls - list directory contents

SYNOPSIS top

ls [*OPTION*]... [*FILE*]...

DESCRIPTION top

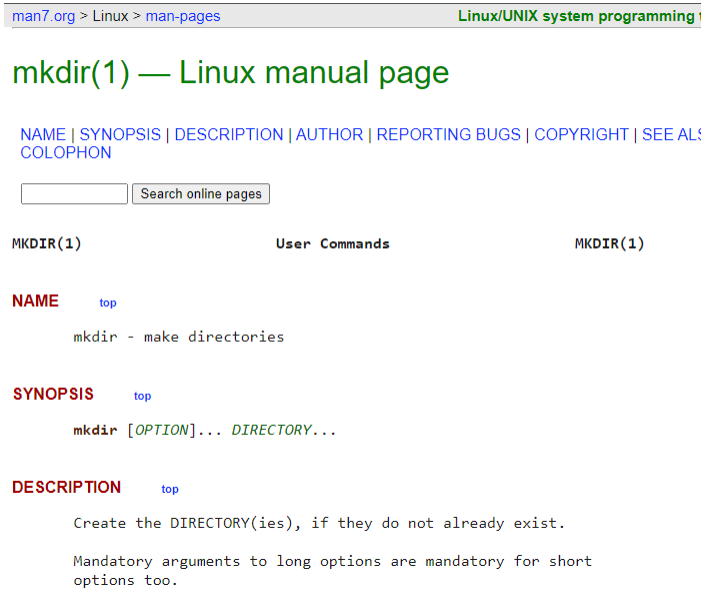
List information about the FILEs (the current directory by default). Sort entries alphabetically if none of **-cftuvSUX** nor **--sort** is specified.

Mandatory arguments to long options are mandatory for short options too.

Unix Commands: Make a directory

REVATURE

- Make a new directory command `mkdir`
  - Makes a directory with a specific name
  - `mkdir directoryname`
  - Make a directory in a specific directory `mkdir /path/to/newdirectory`



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mkdir(1) — Linux manual page

NAME | SYNOPSIS | DESCRIPTION | AUTHOR | REPORTING BUGS | COPYRIGHT | SEE ALS
COLOPHON

Search online pages

MKDIR(1) User Commands MKDIR(1)

NAME top

mkdir - make directories

SYNOPSIS top

mkdir [*OPTION*]... *DIRECTORY*...

DESCRIPTION top

Create the DIRECTORY(ies), if they do not already exist.

Mandatory arguments to long options are mandatory for short options too.

Unix Commands: Elevate Privileges

REVATURE

- Substitute user is a command which allows you to run a command as another user
  - Command `su`
  - When given no arguments, defaults to root
- Super User Do is the preferred way of running commands as root user
  - Command `sudo`
  - `sudo commandname` runs the command as root

Unix Commands: Create and View file contents

REVATURE

- The command `touch` allows users to create a new file
  - `touch file.extension` will create the file in the current directory
  - Specify certain directories by path
- The `cat` command will print the contents of the file to the terminal
  - `cat hello.txt`

Unix Commands: Copying Files

REVATURE

- Copy the contents of a file with `cp` command
- Copy the contents of a directory with `cp –r` command
  - `cp hello.txt goodbye.txt` copies the hello file into the goodbye file
  - `cp hello goodbye` copies the content of the hello directory to the goodbye directory

Unix Commands: Moving Files

REVATURE

- Move a file to a new directory `mv`
- Move an entire directory to a new directory `mv –r`
  - This allows you to move and rename files and directories
  - `mv hello.txt goodbye.txt` renames the file
  - `mv hello.txt goodbye/.` moves the file to a new location
  - `mv hello goodbye` renames the directory

Unix Commands: Deleting Files

REVATURE

- To delete a file `rm`
- To delete a directory `rm –r`
- To delete your entire computer `rm –rf .`
  - `rm hello.txt` removes the hello.txt file
  - `rm –r goodbye` removes the goodbye directory and all its contents

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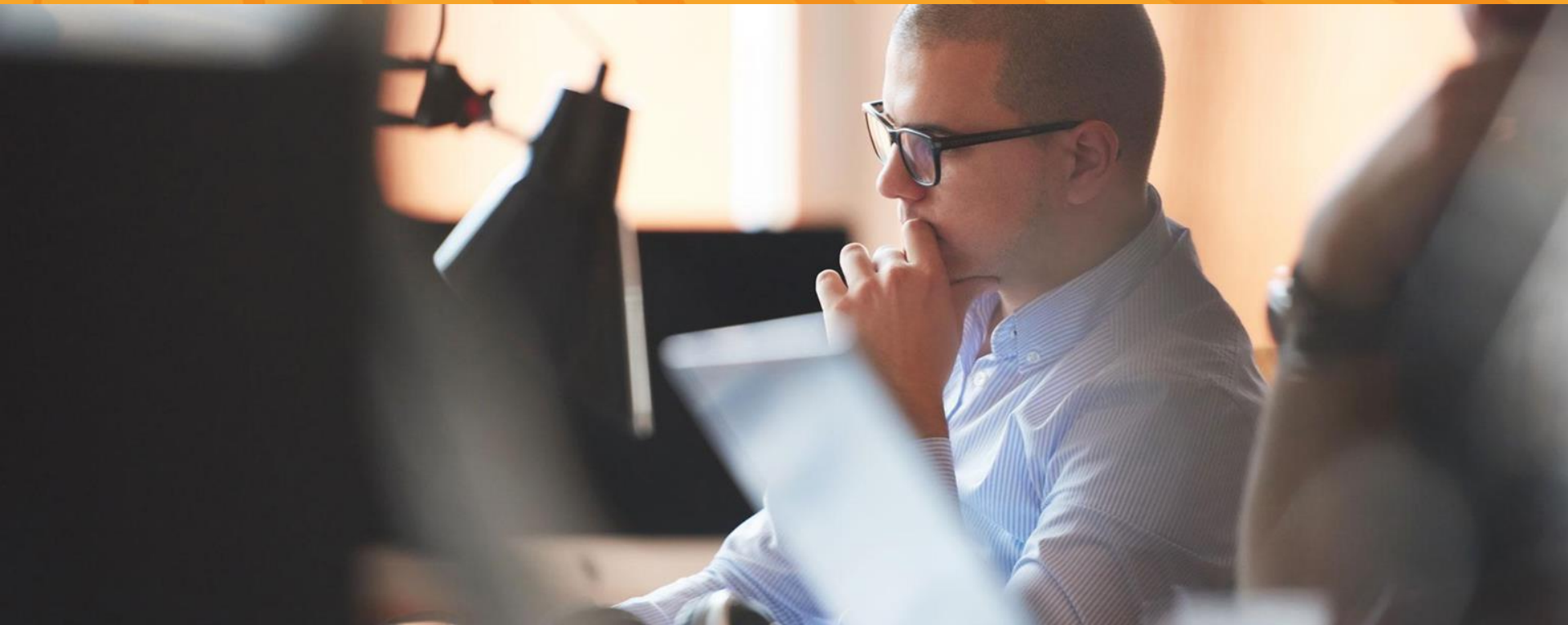
Let’s Use Unix Commands



Git

Version Control System

Version Control Systems

- Keep track of code changes
- Collaboration Tool

Two Types of Version Control Systems

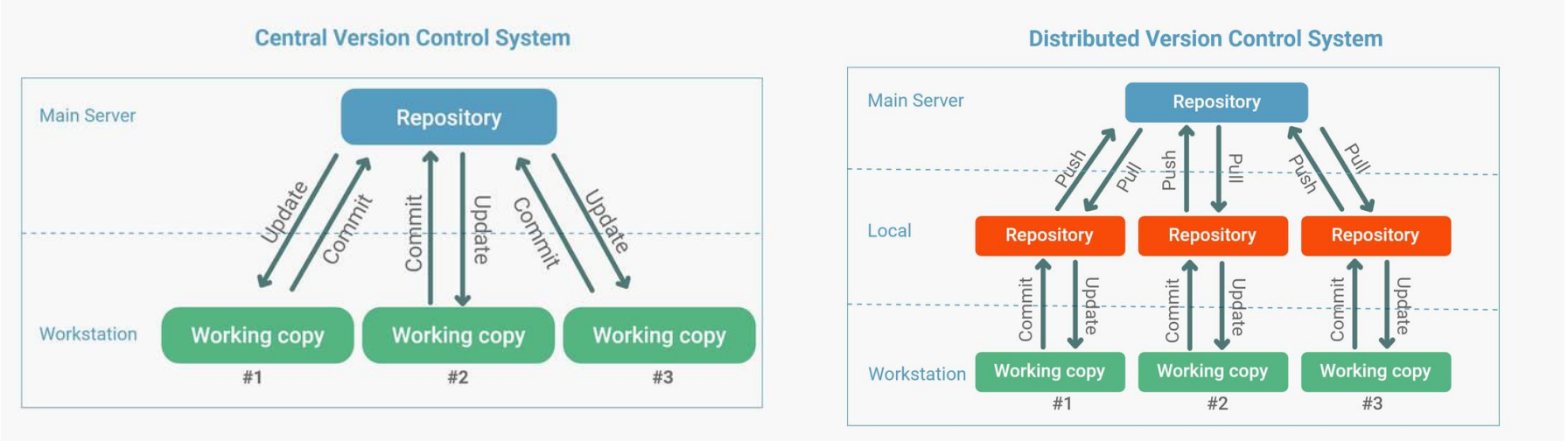


Image source: https://www.htown-tech.com/blogs/centralized-vs-distributed-version-control-system

Repository Hosting Platforms

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- We must store our decentralized repo somewhere
- Many platforms including:

Gitlab.com

Github.com

Bitbucket.org

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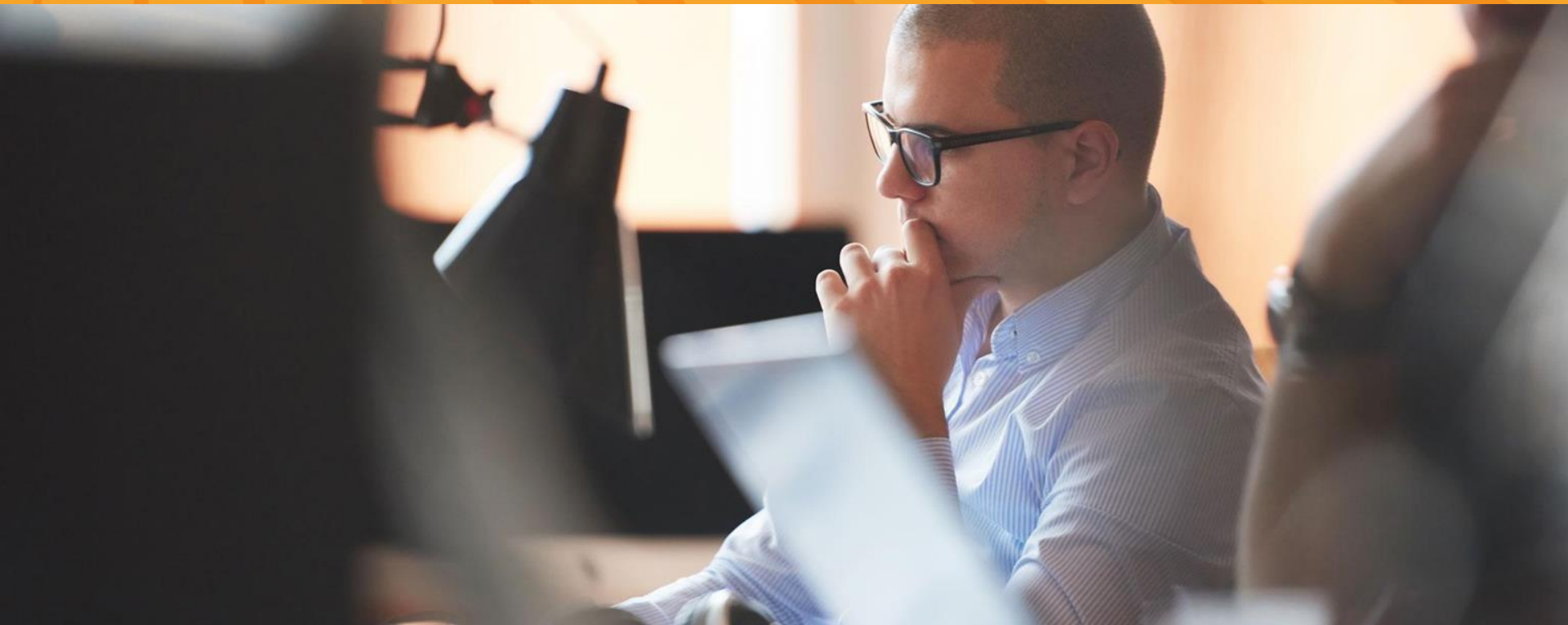
Creating a Repository DEMO



Git Flow and Snapshotting

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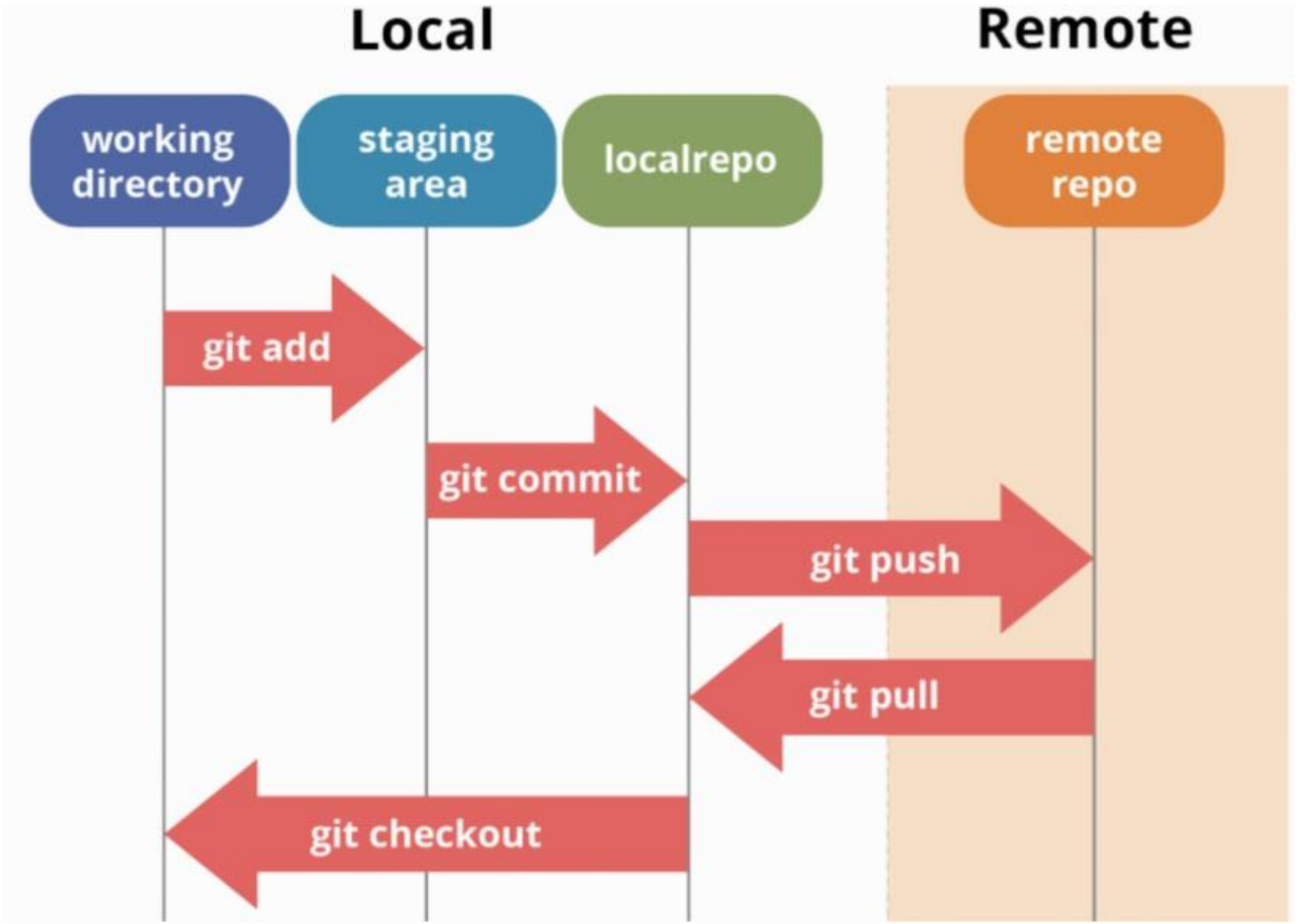
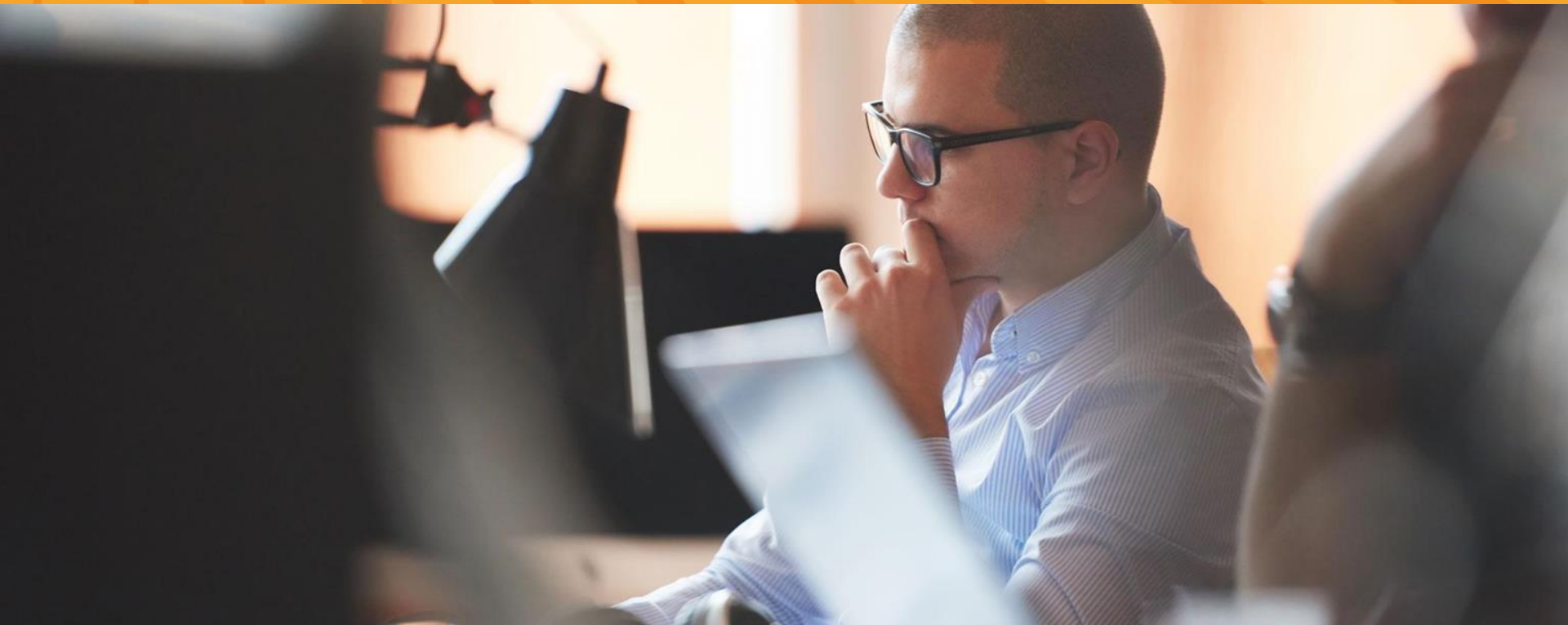


Image source: https://dev.to/mollynem/git-github--workflow-fundamentals-5496

REVATURE

Creating A Remote Repository (DEMO)



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Git Activity