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DYNAMICSCON LIVE

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Source Control Management and Your Extensions

“Given enough eyeballs, all bugs are shallow.”
— Linus Torvalds




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Agenda

- Session Objectives
- What is Source Control?
- Benefits of Source Control
- GIT
- Branching Strategies
- Lifecycle of a Modification



Session Objectives



- Understanding Source Control Concepts
- Understand Source Control Management Strategies
- Recognizing Benefits of Source Control Management



About You?!?



What is source control?

- Tracking and Managing Changes to Code*
- Running History of Changes



Benefits of source control?

- Single Source of Truth
- Enhances Teamwork
- Supports Audits
- Availability and Redundancy



GIT



Git empowers developers to collaborate effectively, manage code changes, and maintain project history with speed and reliability



What is GIT?

- Open-source distributed version control system (DVCS) for "source code"
- 2005 Linus Torvalds
- Industry Standard
- Track changes, Manage versions, and Collaborate on code



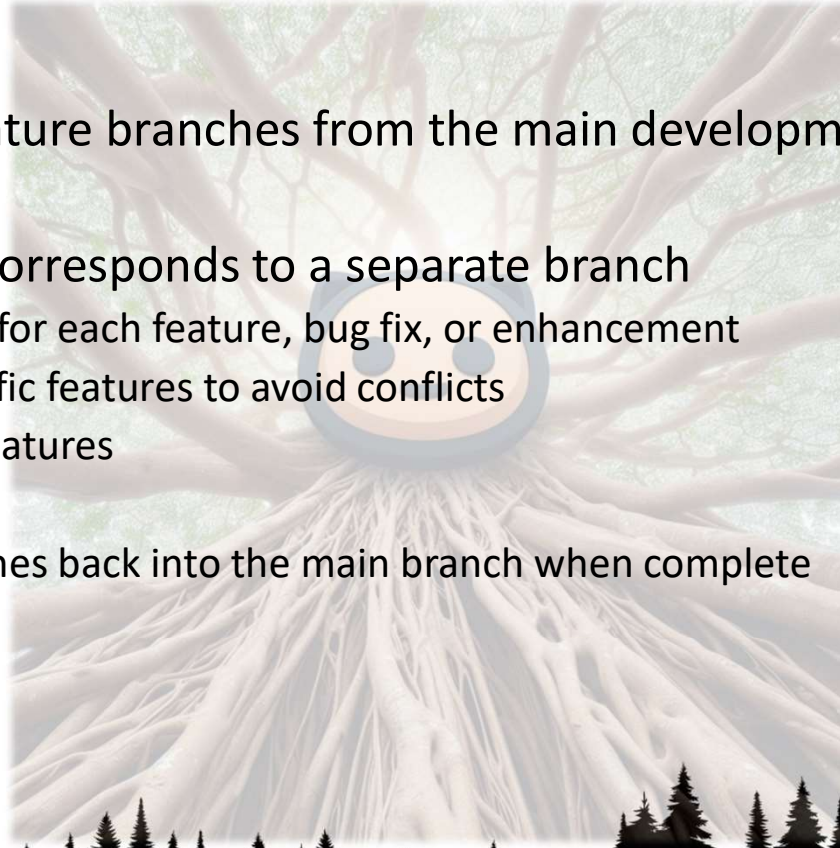
Common Terms

- **Repository** – *A collection of files*
- **Clone/Fork** - *Creating a copy of a Repository*
- **Push / Pull** – *Sending/Pulling local/remote commits to/from a repository*
- **Branch** - *A line of development within a Git repository*
- **Commit** – *Saving individual changes to a file or set of files to a branch*
- **Pull Request (PR)** - *A request to merge changes from one branch into another*



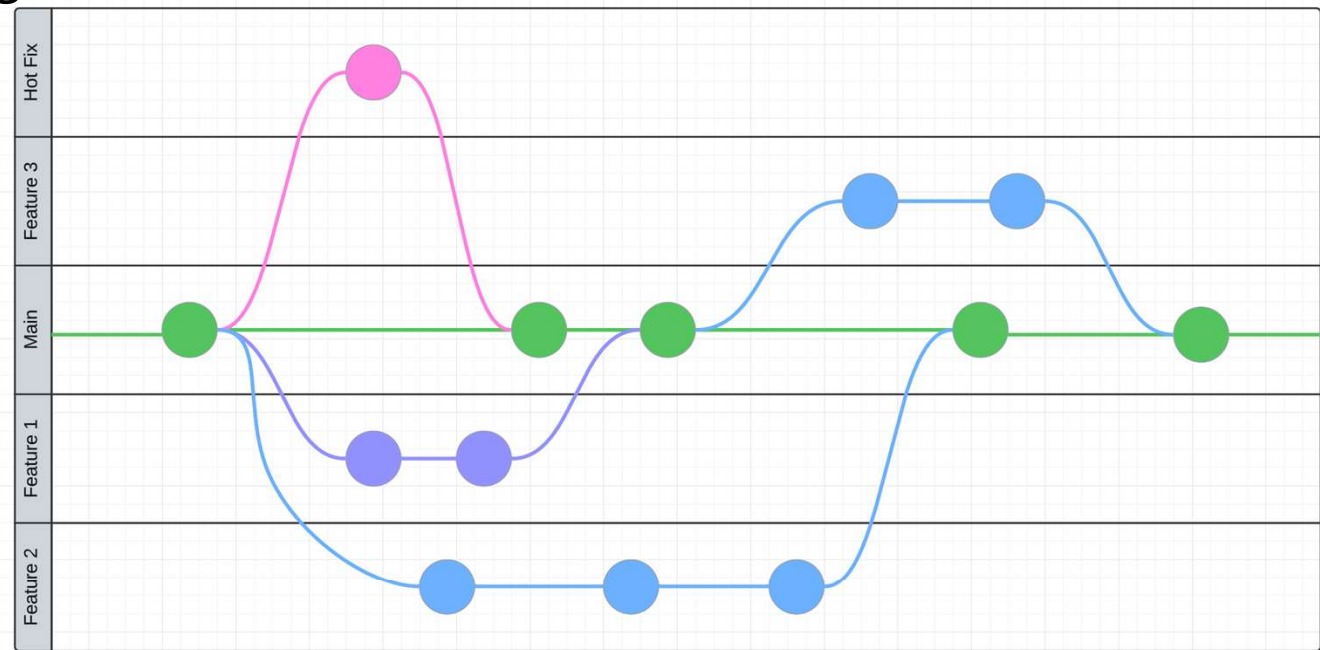
Branching Strategies

- Feature Branching
 - Developers create feature branches from the main development branch
 - Each feature or task corresponds to a separate branch
 - Create a new branch for each feature, bug fix, or enhancement
 - Isolate work on specific features to avoid conflicts
 - Clear separation of features
 - Parallel development
 - Merge feature branches back into the main branch when complete



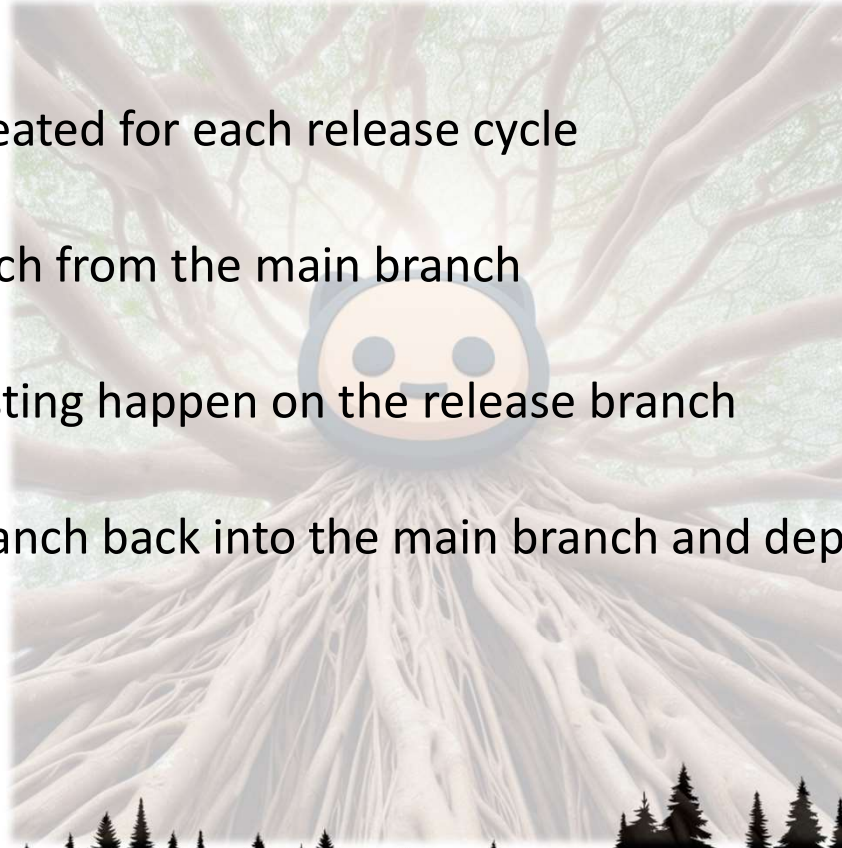
Branching Strategies

- Feature Branching



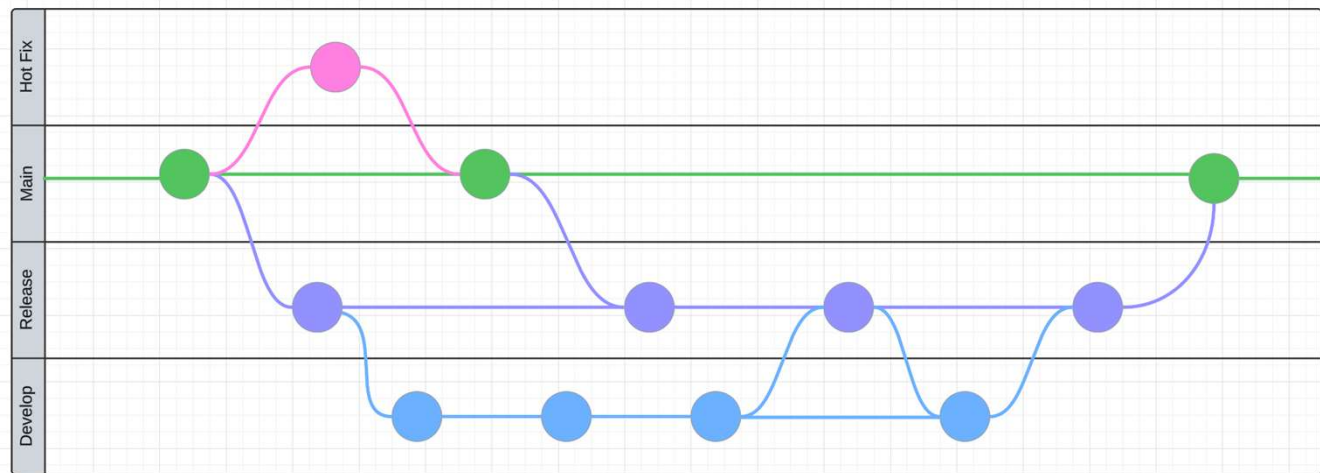
Branching Strategies

- Release Branching
 - Separate branch is created for each release cycle
 - Create a release branch from the main branch
 - Bug fixes and final testing happen on the release branch
 - Merge the release branch back into the main branch and deploy



Branching Strategies

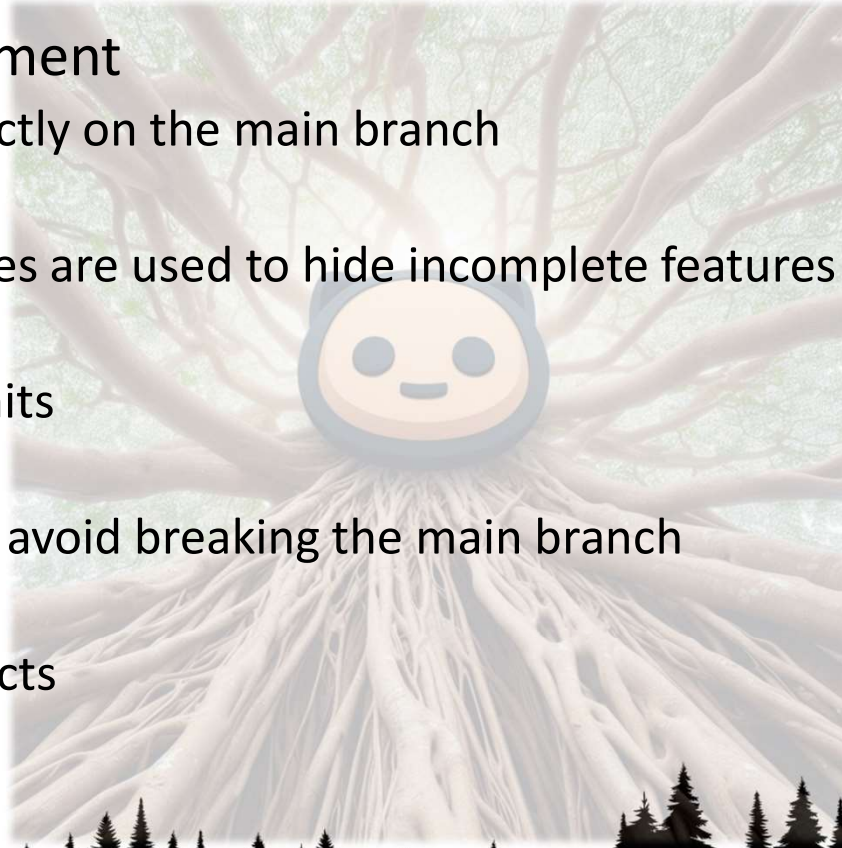
- Release Branching



Branching Strategies

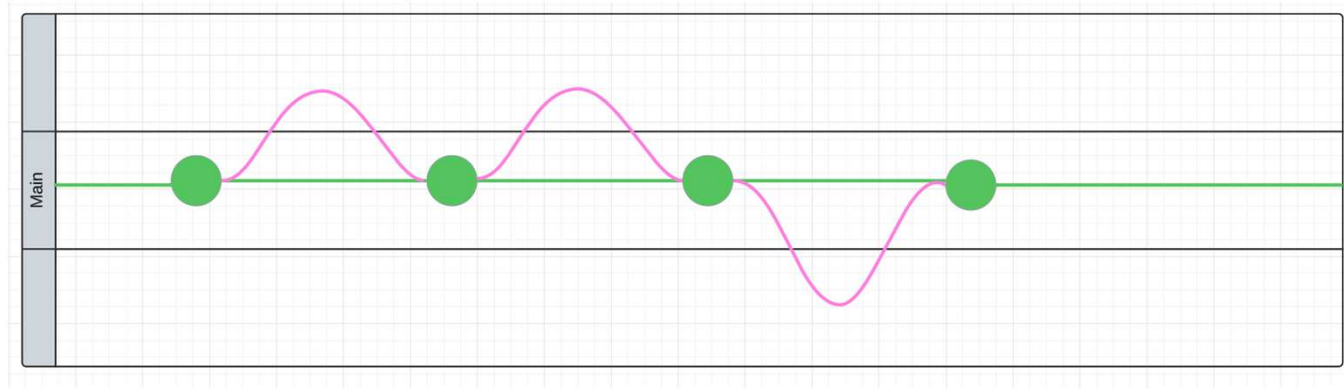
- Trunk-Based Development

- Developers work directly on the main branch
- Feature flags or toggles are used to hide incomplete features
- Frequent small commits
- Requires discipline to avoid breaking the main branch
- Reduces merge conflicts



Branching Strategies

- Trunk-Based Development



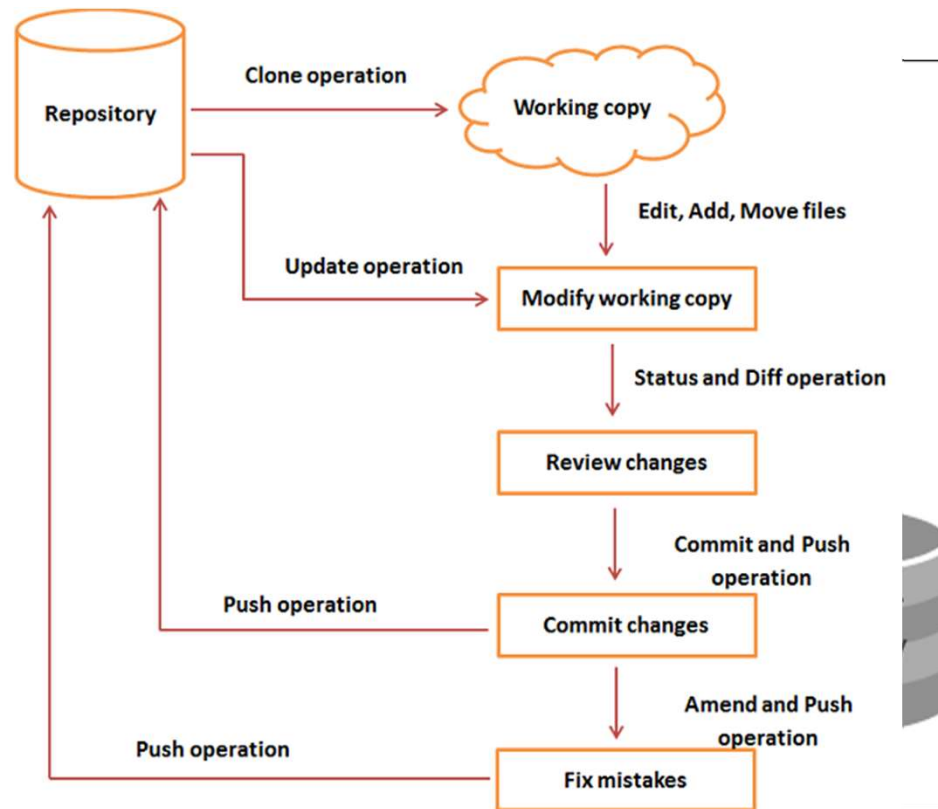
Repository Software

- GitHub
- Azure DevOps

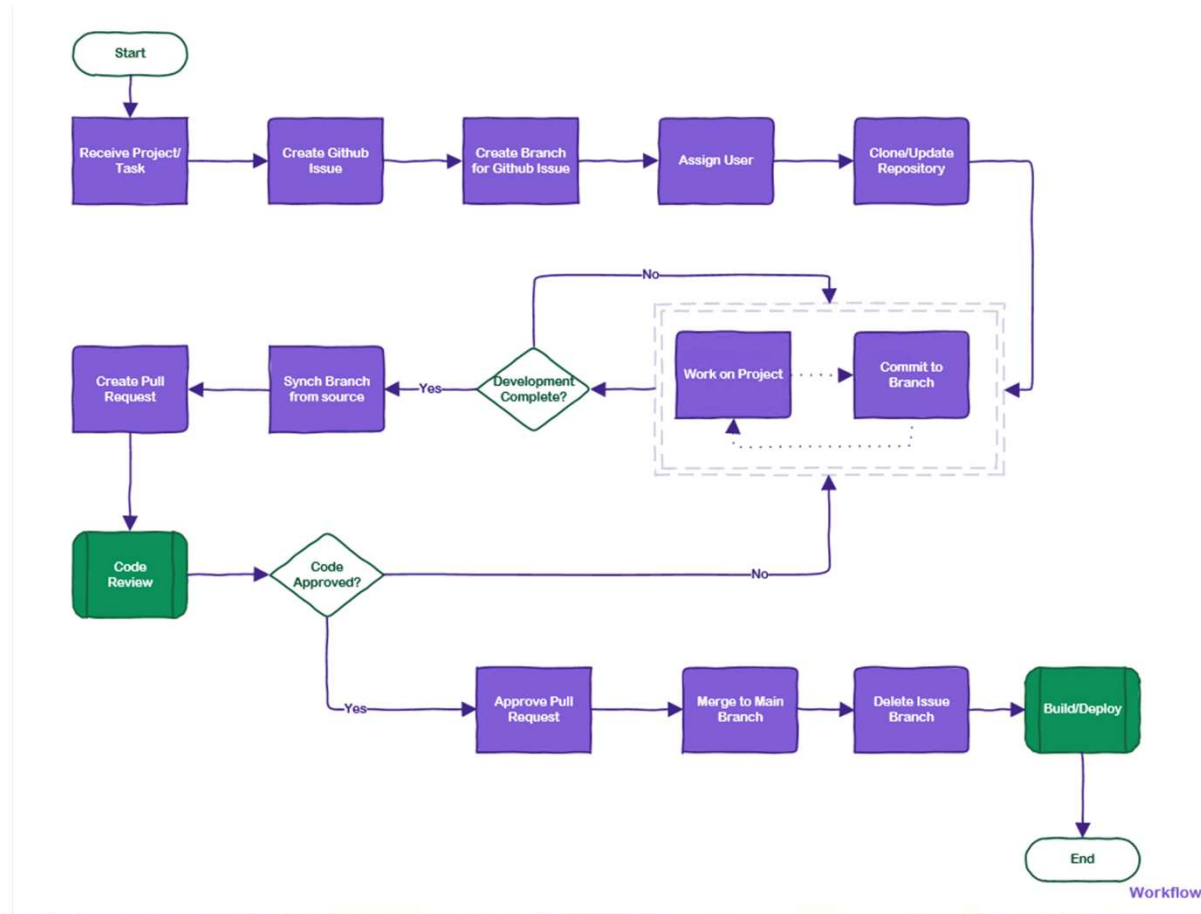
There are others and the best source code repository for you will depend on your specific needs and preferences

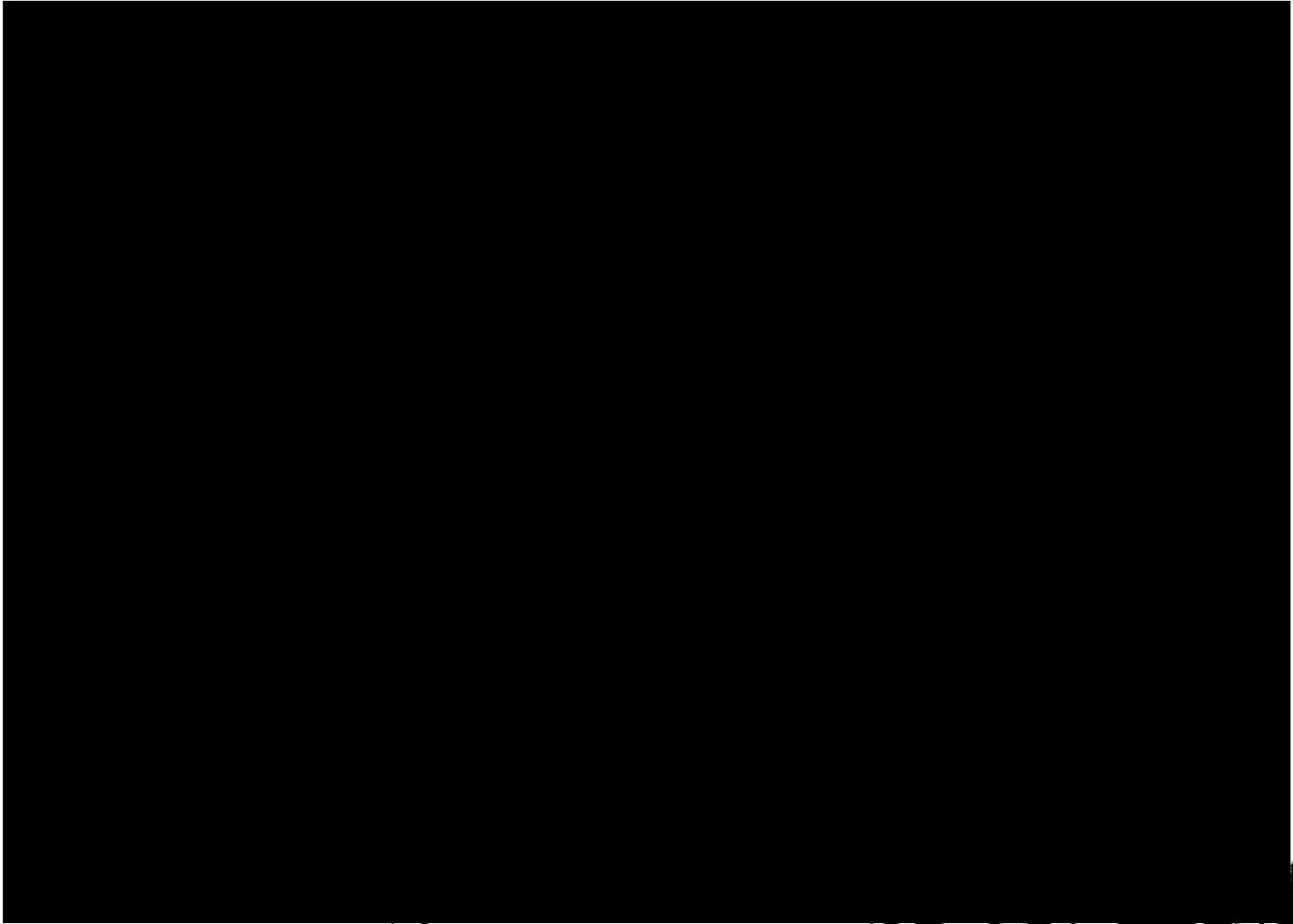


Life Cycle of a Modification



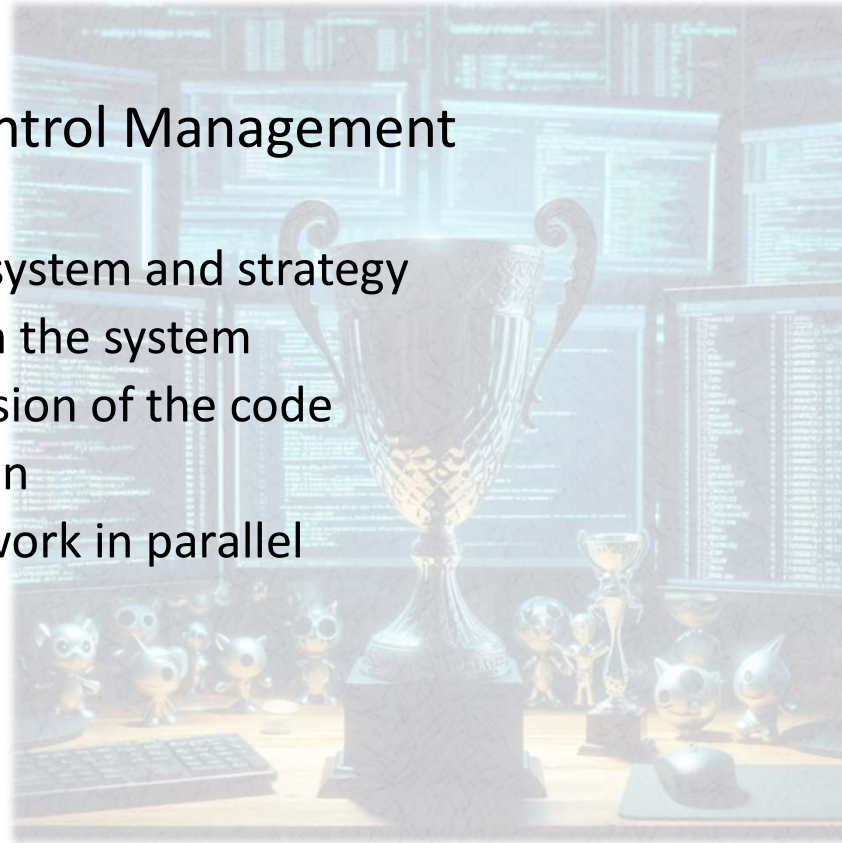
Modification Workflow





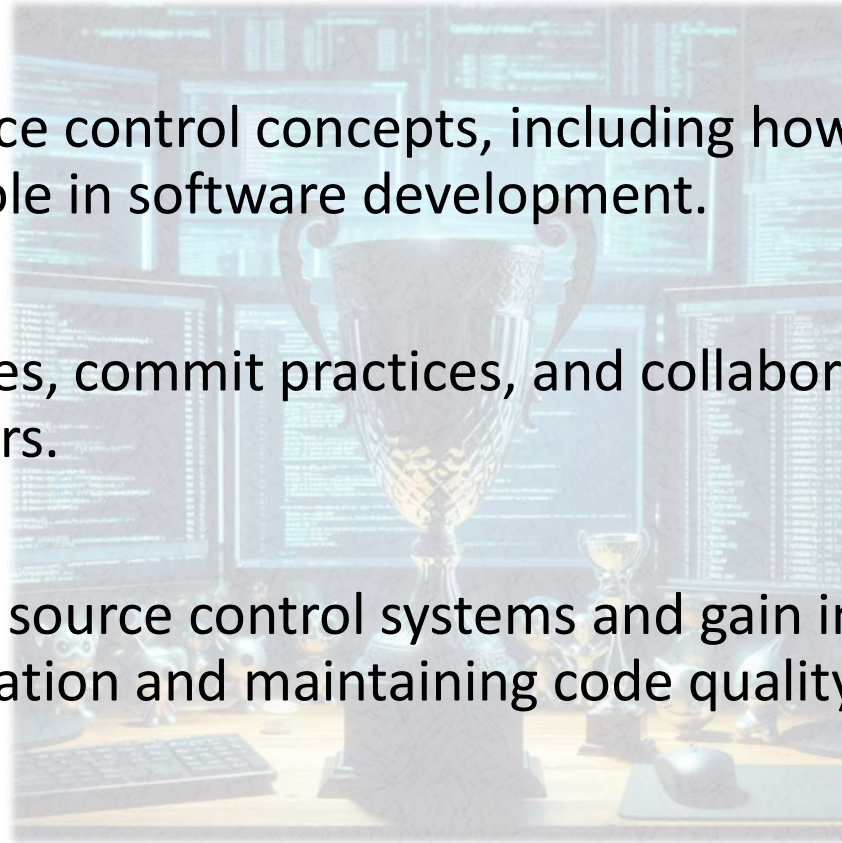
Summary

- Tips for Source Control Management
 - Choose the right system and strategy
 - Store your code in the system
 - Pull the latest version of the code
 - Commit code often
 - Use branches to work in parallel



Summary

- Fundamental source control concepts, including how it works, its purpose, and its role in software development.
- Branching strategies, commit practices, and collaborate seamlessly with team members.
- The advantages of source control systems and gain insights into improved collaboration and maintaining code quality.



Questions?

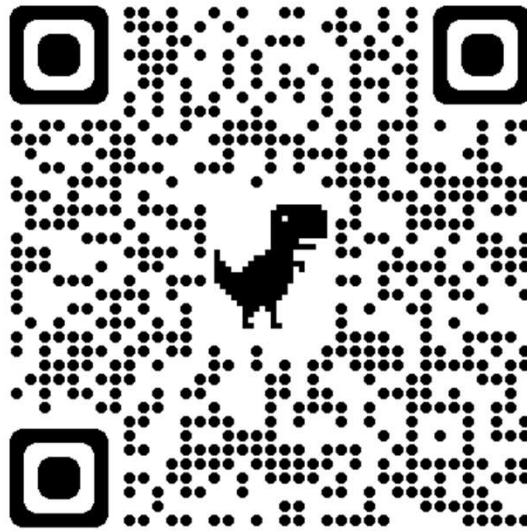


What's Next

- Setup Source Control Management System
- Establish Source Control Strategy
- Educate
- Explore



References



Thank You!



Henrik Helgesen



Brad Prendergast

Please remember to fill out
your session survey!

