Git

- Version control system (VCS)
    - Store the complete revision history of a project

- Distributed
    - When a git repository is cloned, the clone contains the complete revision history
    - A clone is not tied to the original repository, and can easily be hosted on different servers or merged with other repositories

- Commits
    - A commit is a snapshot of the code at a certain time
    - Also contains metadata
        - Author
        - Time stamp
        - Commit message
        - Hash

- A revision history is a series of commits

- Every commit besides the initial commit has at least one parent commit

- Branches

    - Every repository has at least one branch
    - New branches can be created from existing branches
    - Different branches can have different histories that fork off the same commit

- Branches can be merged together

- Best practice for adding a new feature or bug fix

    - Create a new branch

    - Work in new branch

    - Merge back into master

- GitHub and other Git hosting sites allow branches
  to be merged accross repositories (pull requests)

Observer Design Pattern

- Defines a one-to-many relationship among objects

- One subject is observed by many observers

- Subject notifies observers of state changes

- Subject interface
    - register_observer ()
    - remove_observer ()
    - notify_observers ()

- Observer interface
    - notify ()

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┌─────────────────┐        ◇──────┌─────────────────┐
│   Observable    │───────────────│    Observer     │
│                 │               │                 │
└─────────────────┘               └─────────────────┘
         △                                 △
         ┃                                 ┊
         ┃                                 ┊
┌─────────────────┐               ┌──────────────────────┐
│      Dog        │               │   Summer Observer    │
│                 │               │                      │
└─────────────────┘               └──────────────────────┘
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