

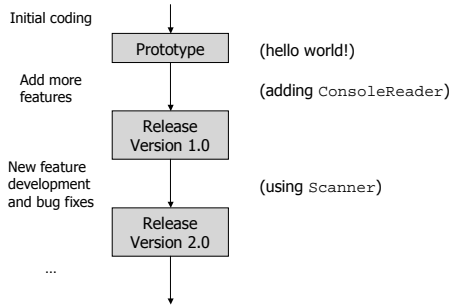
CS491A Software Design Lab  
Version Control with CVS and Subversion

Chengyu Sun  
California State University, Los Angeles

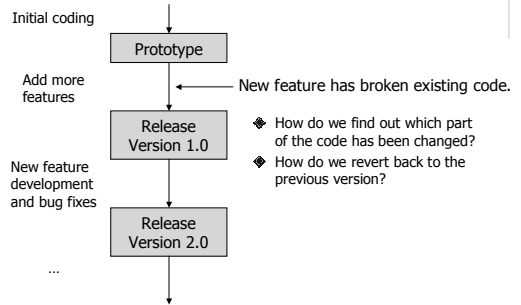
## Overview

- ◆ Version control systems
- ◆ Basic concepts
  - Repository and working copies
  - Tag, branch, and merge
- ◆ Using Subversion

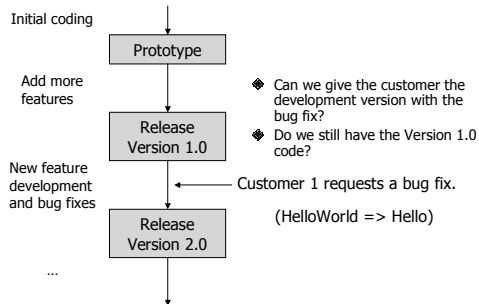
## The Development of the HelloWorld Application



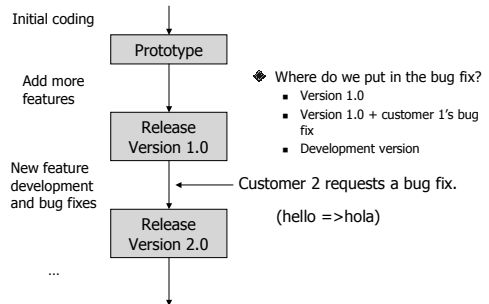
## Problems During Development



## Problems During Development

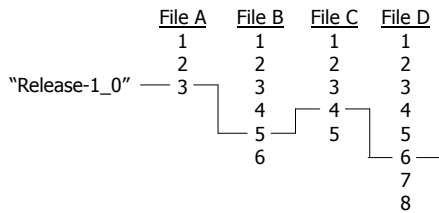


## Problems During Development





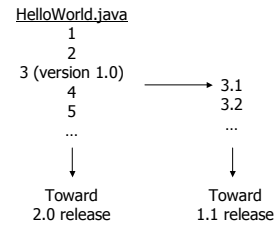
## Tag –Mark A Moment in Time



```

cvs tag "Release-1_0"
cvs checkout -r "Release-1_0" -d hello-1.0 hello
    
```

## Branch – Work in Parallel

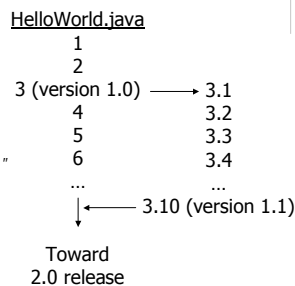


```

cvs tag -b "1_0-bugfix1"
cvs checkout -r "1_0-bugfix1" -d hello-1.0-bugfix1 hello
    
```

## Merge

- ◆ Copy changes between different branches



```

cvs update -j "1_0-bugfix1"
    
```

## Subversion

- ◆ Pros: A better CVS

- Fixed many annoying aspects of CVS
  - ♦ Recursive add, binary file handling, keyword substitution, local diff, status output etc.
- Significant improvements
  - ♦ Atomic commit, constant time branching and tagging, better structure design etc.
- *Feels like CVS*

- ◆ Cons: Just a better CVS

- Does not scale to large, distributed development environments

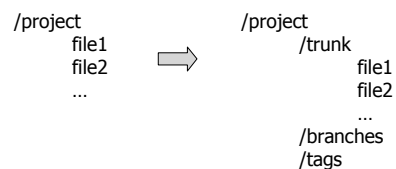
## Project Directory Structure

- ◆ Branching and tagging in Subversion are through directory copying.
- ◆ Consequently, a project usually has the following directory in the repository:

```

/project
  /trunk
  /branches
  /tags
    
```

## Working with the Directory Structure



<http://sun.calstatela.edu/~cysun/www/teaching/cs491a/lectures/svn.txt>

## Common Command Syntax

```
svn <command> [src_dir] [dest_dir]
```

Could be local directories or URLs.

## Tagging

- ◆ Copy /trunk to a directory under /tags

## Branching

- ◆ Copy /trunk to a directory under /branches

## Merging

- ◆ Apply the difference between two versions to the *local working copy*.

## Other Useful Subversion Commands

- ◆ Add
- ◆ Remove
- ◆ Update
- ◆ Revert
- ◆ Commit
- ◆ Log
- ◆ Status

## Online Resources

- ◆ The CVS book - <http://cvsbook.red-bean.com/>
- ◆ The Subversion book - <http://svnbook.red-bean.com/>
- ◆ Subversion official site - <http://subversion.tigris.org/>
- ◆ Subversion Eclipse plugin - <http://subclipse.tigris.org/>