# Gitignore Parsing: Code Companion

Reference code for the Gitignore Parsing lecture. Sections correspond to the lecture document

Section 1: The Glob Data Structure

The original vs actual distinction preserves user input for diagnostics while storing the transformed pattern for matching. For example, foo/ becomes foo in actual with is\_only\_dir set to true.

### Section 2: The Gitignore Matcher

The matches field uses Arc<Pool<Vec<usize>>> for thread-safe scratch buffer reuse. The pool returns vectors that track which pattern indices matched, avoiding allocation on every match operation.

# Section 3: Path Stripping and Relative Matching

The is\_file\_name check prevents stripping part of a bare filename that happens to match the root prefix. The lifetime 'a ensures the returned path slice borrows from the input.

# Section 4: The Matching Algorithm

The reverse iteration implements gitignore's "last pattern wins" semantics. The <code>is\_dir</code> parameter is filesystem knowledge that the glob matcher can't determine from the pattern alone.

#### Section 5: The Builder Pattern

The builder wraps a GlobSetBuilder internally, maintaining the abstraction layer. The pool is created at build time with a closure that produces empty vectors on demand.

The transformation order matters: whitelist detection happens before slash stripping, and \*\*/
prefixing happens after both. The literal\_separator(true) ensures \* won't match path
separators, matching gitignore semantics.

### Quick Reference

#### Pattern Transformations

Input Pattern	Transformed Pattern	
foo	**/foo	Match anywhere in tree
/foo	foo	Match only at root
foo/	foo + is_only_dir=true	Match directories only
!foo	**/foo + is_whitelist=true	
\!foo	**/!foo	
foo/**	foo/**/*	Match contents, not directory

### Match Result Types

#### **Key Builder Options**

	Default	
case_insensitive	false	
allow_unclosed_class	true	Treat [abc as literal (git compat)

#### Precedence Rules

- Last matching pattern wins
- 2. Whitelist (1) can override earlier ignores
- 3. Directory-only patterns (foo/) only match if is dir=true
- 4. Patterns in child directories override parent patterns