Introducing smalltalk-dev-plugin

AI-Driven Development Toolkit for Pharo Smalltalk

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https://github.com/mumez/smalltalk-dev-plugin

What is smalltalk-dev-plugin?

> A comprehensive toolkit that bridges **AI code editors** and the **Pharo Smalltalk** environment.

The AI Agent Problem for Smalltalk

Using AI coding agents with Smalltalk doesn't work well out of the box:

- **No knowledge of Pharo** — AI doesn't know how to interact with the environment
- **Unknown project structure** — Typical Tonel/package layout is unfamiliar
- **No testing/debugging skills** — Can't run tests or diagnose errors
- **No library access** — Can't browse existing classes or methods
- **Poor coding style** — Doesn't know Smalltalk idioms and conventions

This is a major barrier for developers who want AI assistance in Smalltalk.

Enter smalltalk-dev-plugin

We gave AI the complete skillset for Smalltalk development:

Challenge	Solution
Environment interaction	MCP tools for Pharo communication
Project structure	`/st:setup-project` with templates
Testing & debugging	`/st:test`, `/st:eval`, debugger skill
Library navigation	Finder skills, code search tools
Code quality	Validator, linter, commenter agent

Result: AI becomes a reliable Smalltalk development partner!

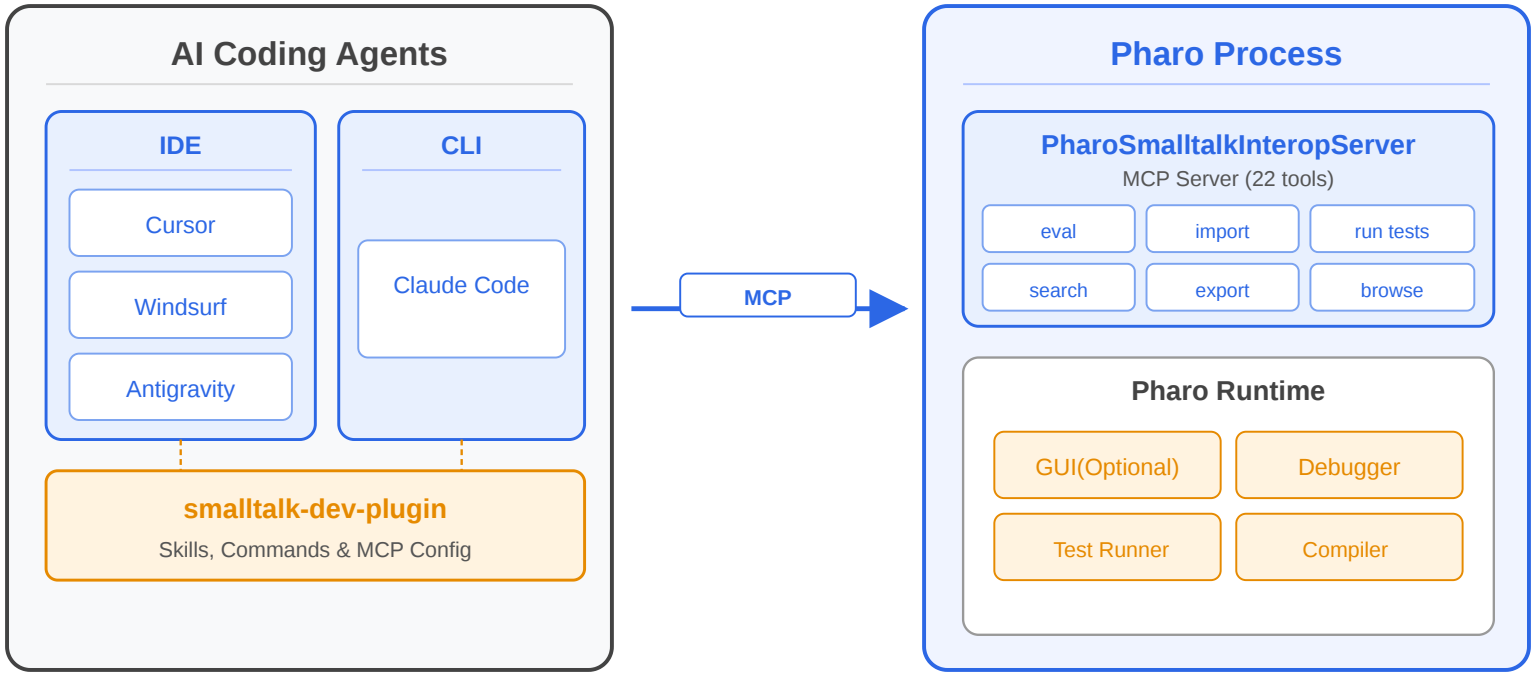
"AI editor as the source of truth"

> *Edit Tonel files in the AI editor, import to Pharo, test, and iterate.*

At a Glance

- 9 slash commands
- 4 specialized AI skills
- 27+ MCP tools for Pharo interaction
- Automated code quality checks and documentation generation

Architecture



- Existing AI agents talk to Pharo via MCP — no custom IDE needed
- Works with headless Pharo (CI, remote agents like Devin)

Supported AI Agents

Agent	Support Level
Claude Code	Full support (primary)
Cursor	Simplified setup via script
Windsurf	Simplified setup via script
Antigravity	Simplified setup via script

The rest of this presentation focuses on the Claude Code version.

Installation

Installation (1) — Install the Plugin


```
# Add marketplace from GitHub
claude plugin marketplace add mumez/smalltalk-dev-plugin

# Install the plugin
claude plugin install smalltalk-dev
```

Installation (2) — Set Up Pharo Side

Install the interop server in Pharo:

```
Metacello new
  baseline: 'PharoSmalltalkInteropServer';
  repository: 'github://mumez/PharoSmalltalkInteropServer:master/src';
  load.
```

Start the server:

```
SisServer current start.
```

That's it — you're ready to go.

Installation — Other AI Agents

Setup scripts are provided for Cursor, Windsurf, and Antigravity:

```
./extra/setup-cursor.sh [target-directory]
./extra/setup-windsurf.sh [target-directory]
./extra/setup-antigravity.sh [target-directory]
```

Limitations

- Commands use `st-` prefix instead of `st:`
- Some features may differ depending on the agent
- Pharo-side setup is the same as for Claude Code

Basic Usage

/st:buddy — Main Entry Point

`/st:buddy` is a friendly assistant that routes to the right tool.

Just describe what you want in natural language:

```
/st:buddy I want to create a Person class with name and age
```

The assistant will:

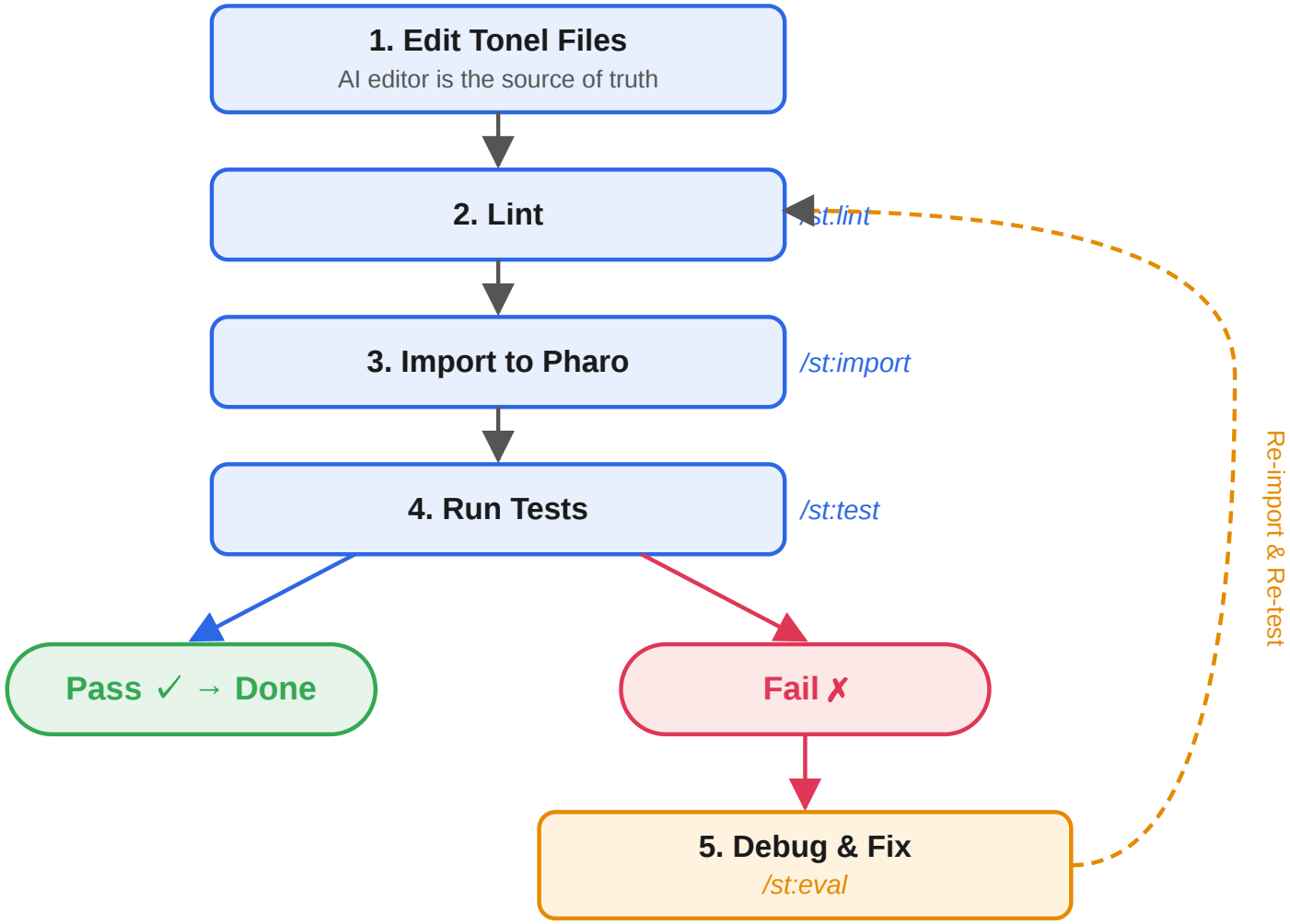
1. Load the appropriate skill automatically
2. Create the Tonel files
3. Guide you through linting, importing, and testing

/st:buddy — Intelligent Routing

Your Intent	Loaded Skill
"Create...", "Add..."	smalltalk-developer
"Error...", "Test failed..."	smalltalk-debugger
"How do I use...?"	smalltalk-usage-finder
"Who implements...?"	smalltalk-implementation-finder

You don't need to remember which tool to use — just talk to `/st:buddy`.

Development Workflow



Components

Skills (1) — Developer & Debugger

smalltalk-developer

The core development skill. Knows Tonel format, package structure, and the full Edit → Lint → Import → Test workflow.

smalltalk-debugger

Systematic debugging specialist. Diagnoses errors, runs incremental code execution with `/st:eval`, and guides you to the fix.

Skills (2) — Finder Skills

smalltalk-usage-finder

Discovers how classes and methods are used. Finds examples, analyzes usage patterns, and helps you understand unfamiliar APIs.

smalltalk-implementation-finder

Finds method implementations across class hierarchies. Useful for learning coding idioms and assessing refactoring impact.

Slash Commands

Command	Purpose
`/st:buddy`	Friendly assistant (main entry)
`/st:init`	Initialize development session
`/st:setup-project`	Create project boilerplate
`/st:eval`	Execute Smalltalk expressions
`/st:import`	Import Tonel packages to Pharo
`/st:export`	Export packages from Pharo
`/st:test`	Run SUnit tests
`/st:lint`	Check code quality
`/st:validate`	Validate Tonel syntax

Sub-Agent: @smalltalk-commenter

Automatically suggests **CRC-style class comments** for undocumented classes.

- Triggered after file edits via hooks
- Non-intrusive — suggests, doesn't force
- Analyzes complexity and prioritizes classes that need documentation

MCP Servers

Two MCP servers power the integration behind the scenes:

pharo-interop (22 tools)

Pharo communication — eval, import/export, tests, code navigation, etc.

smalltalk-validator (5 tools)

Tonel validation and linting.

Note: You rarely need to interact with these directly.

`/st:buddy` handles orchestration for you.

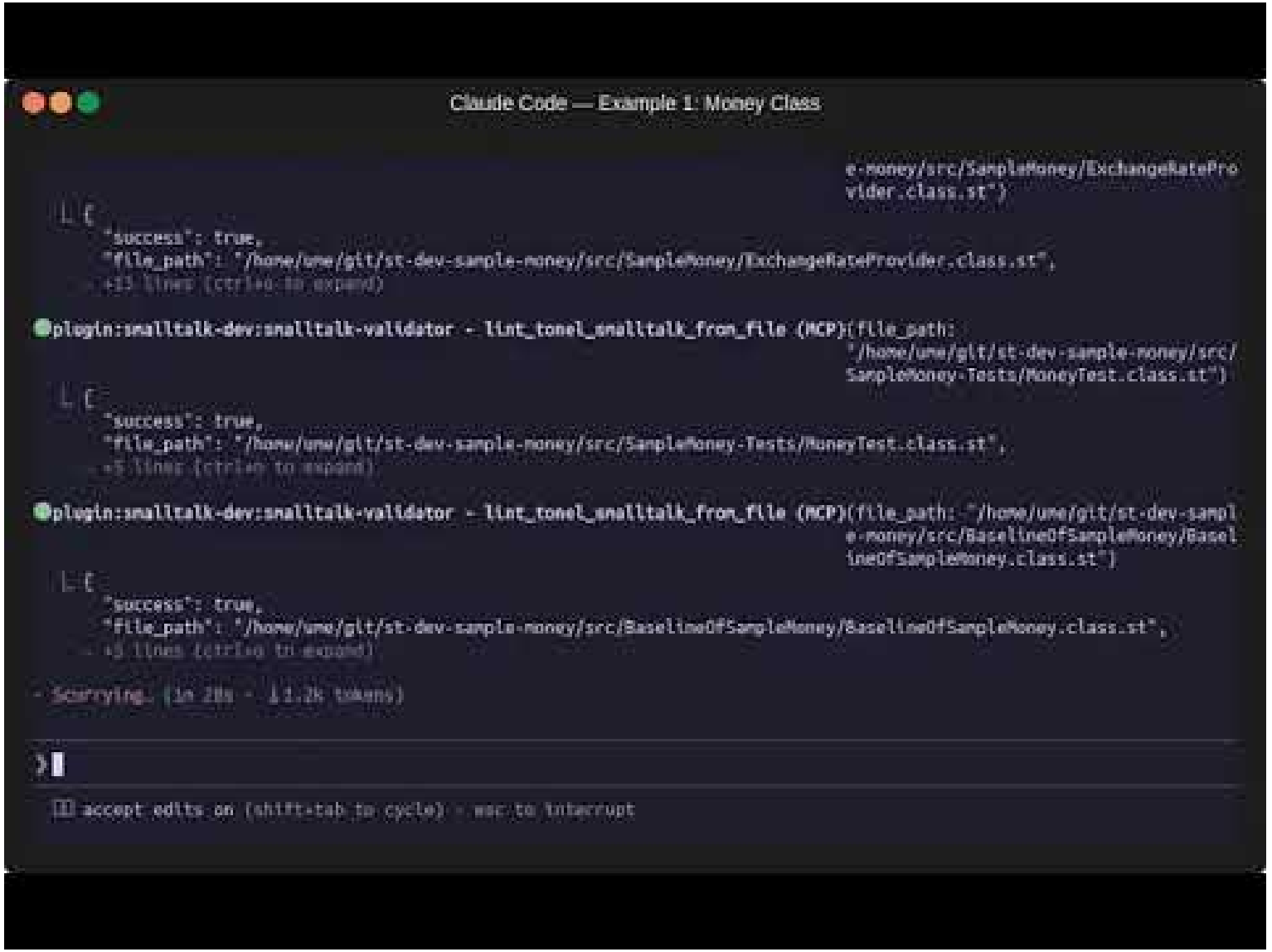
Live Examples

Example 1 — Starting from Scratch

A simple use case: starting from an empty directory as a Smalltalk beginner.

```
/st:buddy I'm a Smalltalk beginner. I want to create a Money class
that can perform arithmetic operations across different currency units.
Please help me from the project initialization.
```

Example 1 — What Happens Next



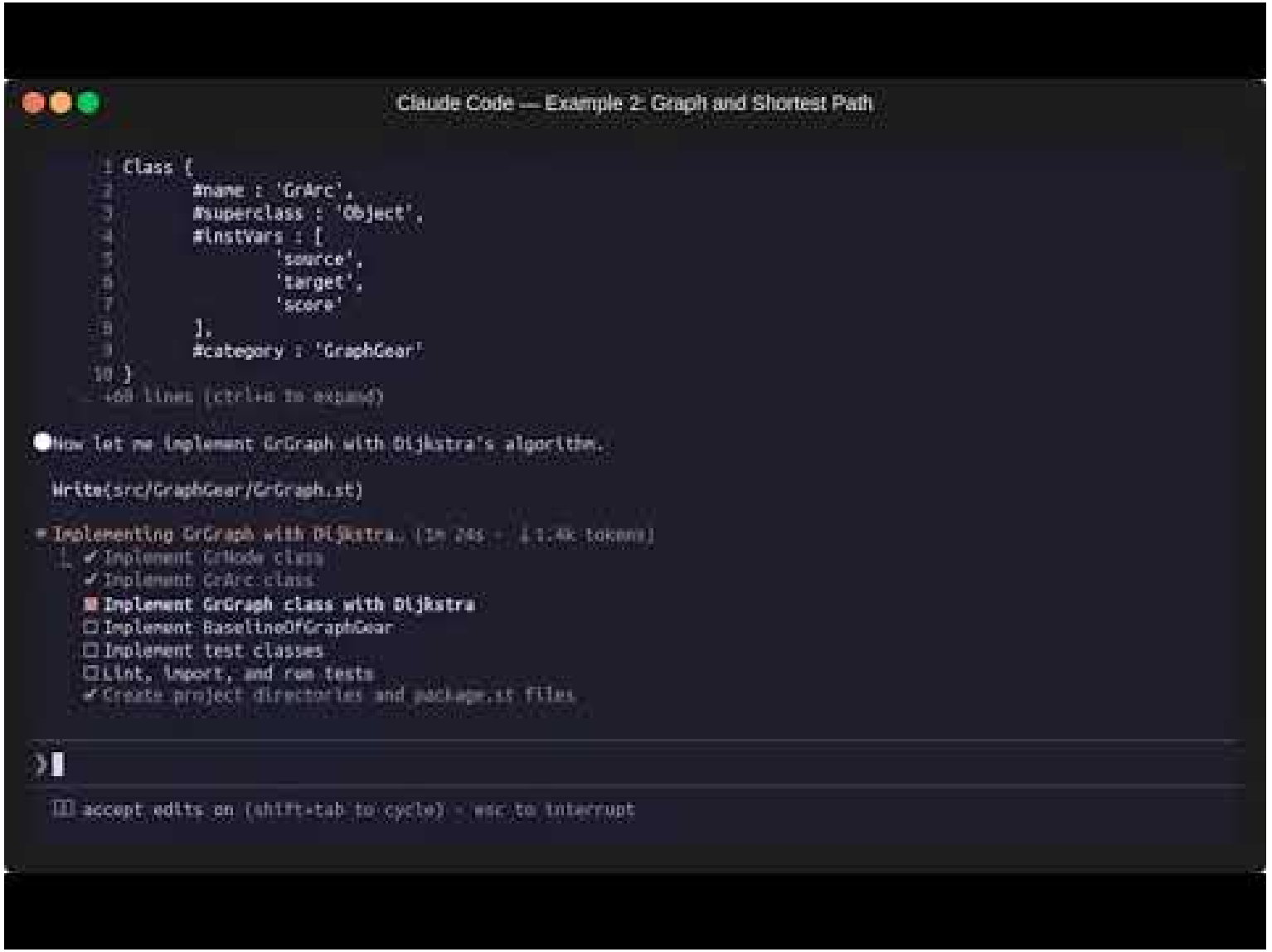
- Video
- Generated source
- Demo

Example 2 — Graph Algorithms

A more complex use case for someone familiar with Smalltalk.

```
/st:buddy I want to create GrNode and GrArc to represent directed graphs
and solve shortest path problems. Nodes have a name, arcs have a score.
Let's start this as a GraphGear project.
```

Example 2 — What Happens Next



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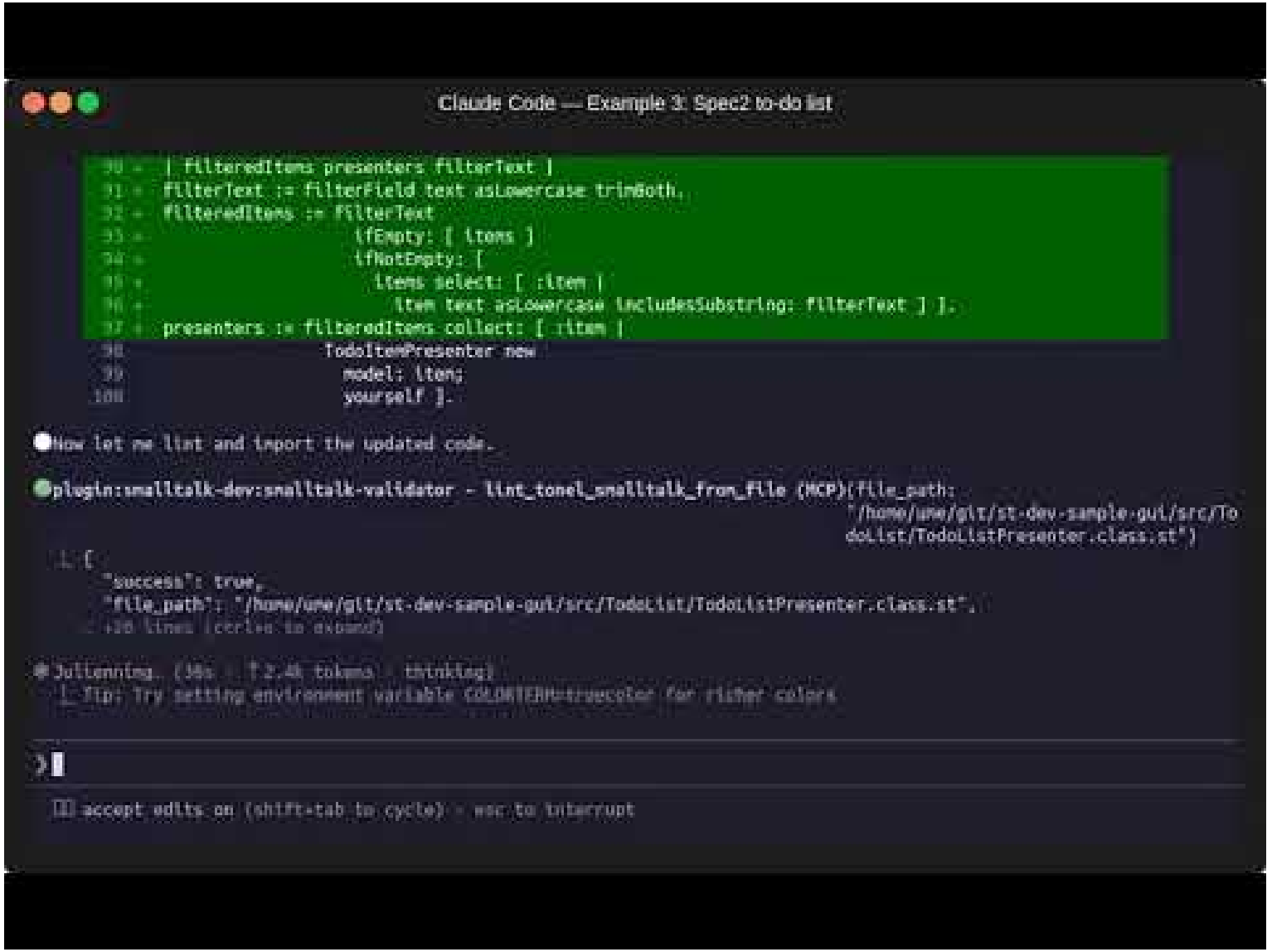
Example 3 — GUI Programming

Building a GUI application with Spec2.

```
/st:buddy I want to make a simple to-do list using the Spec2 framework.
Include a checkbox for each item, plus an input field
with Add/Remove buttons at the bottom.
Only checked items can be removed. Start developing.
```

Example 3 — What Happens Next



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Summary

smalltalk-dev-plugin makes Pharo Smalltalk development with AI assistants practical and productive.

Just type `/st:buddy` and start building.

Feedback and contributions are welcome!

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