Package: leanknit (via r-universe)

June 11, 2026

Title A 'knitr' Engine for Lean 4 Proof Chunks

Version 0.0.0.9000

Description Provides a 'knitr' language engine that compiles and checks Lean 4 code chunks against a 'lake' project, capturing proof output (including the result of '#print axioms') into rendered documents. Modeled on the 'duckknit' engine. Because a failing Lean check fails the render, a generated document cannot claim a proof that does not actually check. Also provides install_lean() to provision a Lean toolchain through 'elan', in the spirit of torch::install_torch().

License GPL (>= 3)

Depends R (>= 4.1.0)

Imports knitr, processx, utils

Suggests rmarkdown, tinytest

URL https://github.com/sounkou-bioinfo/leanknit

BugReports https://github.com/sounkou-bioinfo/leanknit/issues

VignetteBuilder knitr

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.3

SystemRequirements Lean 4 toolchain (elan/lake) available on PATH

Repository https://sounkou-bioinfo.r-universe.dev

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`eng_lean` *The* `lean` *knitr engine*

Description

Registered as `knitr::knit_engines$get("lean")` on package load. Not normally called directly.

Usage

```
eng_lean(options)
```

Arguments

`options`	A knitr chunk options list.

Value

Rendered chunk output (from `knitr::engine_output()`).

`find_lake` *Locate the* `lake` *binary*

Description

Resolution order: the `leanknit.lake` option, then `lake` on `PATH`, then the default elan install location `~/.elan/bin/lake`.

Usage

```
find_lake()
```

Value

Absolute path to `lake`.

`install_lean` *Install the Lean 4 toolchain*

Description

Downloads and runs the official elan installer, which provisions `elan`, `lake`, and a Lean toolchain under `~/.elan`. This mirrors the convenience of `torch::install_torch()`: the heavy external toolchain is fetched on demand rather than vendored.

Usage

```
install_lean(toolchain = "stable", modify_path = FALSE, quiet = FALSE)
```

Arguments

`toolchain`	Lean toolchain channel or version to install as default, e.g. `"stable"` (default) or `"leanprover/lean4:v4.30.0"`.
`modify_path`	If `TRUE`, let the installer modify shell profiles to add `~/.elan/bin` to `PATH`. Defaults to `FALSE` (non-invasive).
`quiet`	Suppress installer output.

Details

After installation `lake` lives at `~/.elan/bin/lake`, which `find_lake()` discovers automatically. To use `lake` from an interactive shell, add `~/.elan/bin` to your `PATH` (the installer can do this for you).

Value

The path to the `elan` bin directory, invisibly.

`lean_sitrep` *Report the leanknit / Lean toolchain situation*

Description

Prints the resolved `lake` path and version, the configured project, and any active sessions. Useful in a document setup chunk to confirm the engine can run before relying on it.

Usage

```
lean_sitrep()
```

Value

A list with `lake`, `version`, `project`, and `sessions`, invisibly.

`lean_version` *Report the installed Lean version*

Description

Report the installed Lean version

Usage

```
lean_version()
```

Value

The `lean --version` string, or `NA` if Lean is not available.

`leanknit_available` *Is a usable Lean toolchain available?*

Description

Is a usable Lean toolchain available?

Usage

```
leanknit_available()
```

Value

`TRUE` if `find_lake()` succeeds, otherwise `FALSE`.

leanknit_example_project *A disposable copy of the bundled example lake project*

Description

Copies the small Lean project shipped under `inst/lean` to a fresh temporary directory and returns its path. Used by the vignette and tests so that build artifacts never land in the installed package. Point `leanknit.project` at the returned path.

Usage

```
leanknit_example_project()
```

Value

Path to a writable copy of the example project.

leanknit_exec *Compile a Lean source string against a lake project*

Description

Writes code to a temporary `.lean` file inside `project` (so `import` resolves) and runs `lake env lean` on it.

Usage

```
leanknit_exec(project, code, timeout = 120000L)
```

Arguments

`project`	Path to the lake project.
`code`	Lean source as a single string.
`timeout`	Timeout in milliseconds.

Value

A list with `stdout`, `stderr`, and integer `status`.

leanknit_get_session *Get a leanknit session, creating it if absent*

Description

Get a leanknit session, creating it if absent

Usage

```
leanknit_get_session(name)
```

Arguments

name	Session name.

Value

The session environment, invisibly.

leanknit_list_sessions *List active leanknit sessions*

Description

List active leanknit sessions

Usage

```
leanknit_list_sessions()
```

Value

A data frame of session names, accumulated chunk counts, and which session is active.

`leanknit_start_session` *Start (or reset) a leanknit session*

Description

Start (or reset) a leanknit session

Usage

```
leanknit_start_session(name)
```

Arguments

`name`	Session name.

Value

The session environment, invisibly.

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