# Reproducible Environments with RENV
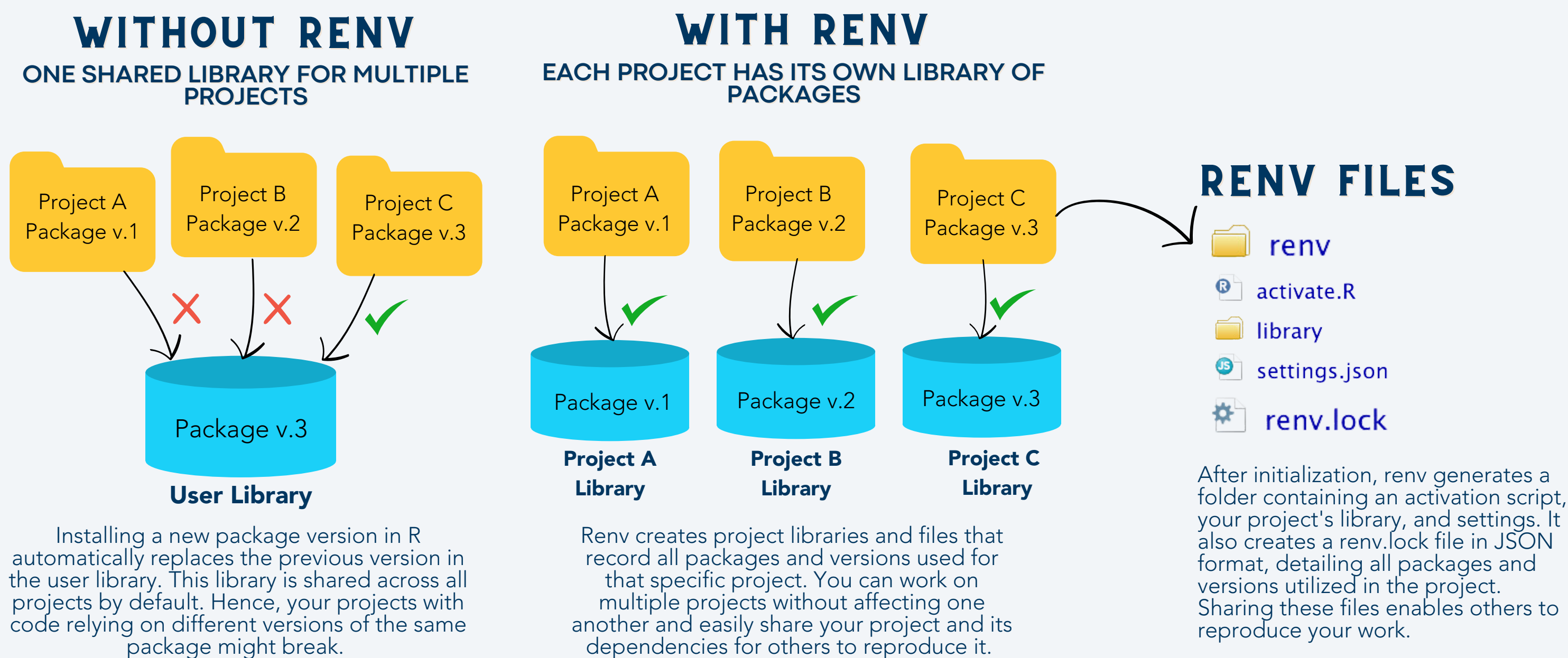
Is your project R-based? The renv package helps you set up R projects and manage dependencies to keep your environment consistent and reproducible.

## ADVANTAGES

🌱 **Isolation**: Allows you to add or update a package in one project without affecting your other projects by creating separate libraries for each project.

🌱 **Portability**: Helps you move your R projects across computers and platforms effortlessly, simplifying the installation of required packages.

🌱 **Reproducibility**: Logs the precise package versions you rely on, guaranteeing installation consistency wherever you work.

https://rstudio.github.io/renv

---

### WITHOUT RENV
**ONE SHARED LIBRARY FOR MULTIPLE PROJECTS**



Project A Package v.1 ✕
Project B Package v.2 ✕
Project C Package v.3 ✓

**User Library** — Package v.3

Installing a new package version in R automatically replaces the previous version in the user library. This library is shared across all projects by default. Hence, your projects with code relying on different versions of the same package might break.

### WITH RENV
**EACH PROJECT HAS ITS OWN LIBRARY OF PACKAGES**



Project A Package v.1 ✓ → Package v.1 — **Project A Library**
Project B Package v.2 ✓ → Package v.2 — **Project B Library**
Project C Package v.3 ✓ → Package v.3 — **Project C Library**

Renv creates project libraries and files that record all packages and versions used for that specific project. You can work on multiple projects without affecting one another and easily share your project and its dependencies for others to reproduce it.

### RENV FILES

📁 renv
Ⓡ activate.R
📁 library
JS settings.json
⚙ renv.lock

After initialization, renv generates a folder containing an activation script, your project's library, and settings. It also creates a renv.lock file in JSON format, detailing all packages and versions utilized in the project. Sharing these files enables others to reproduce your work.

---

## RENV BASIC WORKFLOW & COMMANDS

**① Install renv**
install.packages("renv")

**② Initialize your project library**
renv :: init( )

**③ Install and remove packages**
renv :: install( ) or install.packages( )
renv :: remove( ) or remove.packages( )

**④ Save changes to your project library**
renv :: snapshot( )

📌 RStudio/Posit offers integrated renv support for new projects. You may skip step 1 if you check the "Use Renv with this project" box.

---