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## A GUIDE TO POSITRON

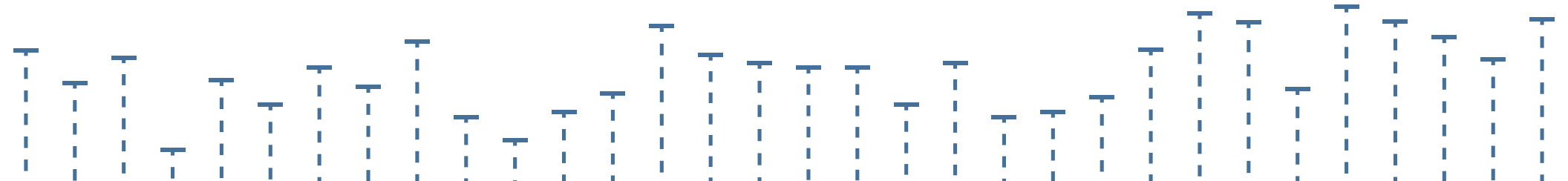
# The data science code editor

By posit®

## Introduction

Data science workflows are evolving, demanding tools that are flexible, powerful, and built for collaboration. The traditional boundaries between R and Python, as well as between exploratory analysis and production deployment, are blurring. In response to this need, Posit has developed Positron, a free, next-generation Integrated Development Environment (IDE) designed to serve as the central development environment for the modern data scientist.

Positron builds on over a decade of experience with RStudio and is a fork of Visual Studio Code (VS Code), providing a familiar yet powerful interface. It is engineered from the ground up to be a polyglot tool, treating R and Python as first-class citizens and providing a cohesive experience for the entire data science lifecycle.



# Positron's core layout components

### Activity Bar:

- Access the Explorer
- Search
- Source Control
- Extensions
- Other views

### Primary Side Bar:

- Shows different views depending on what you have chosen in the Activity Bar
- When the Explorer is chosen, the Primary Side Bar provides a file explorer

### Editor:

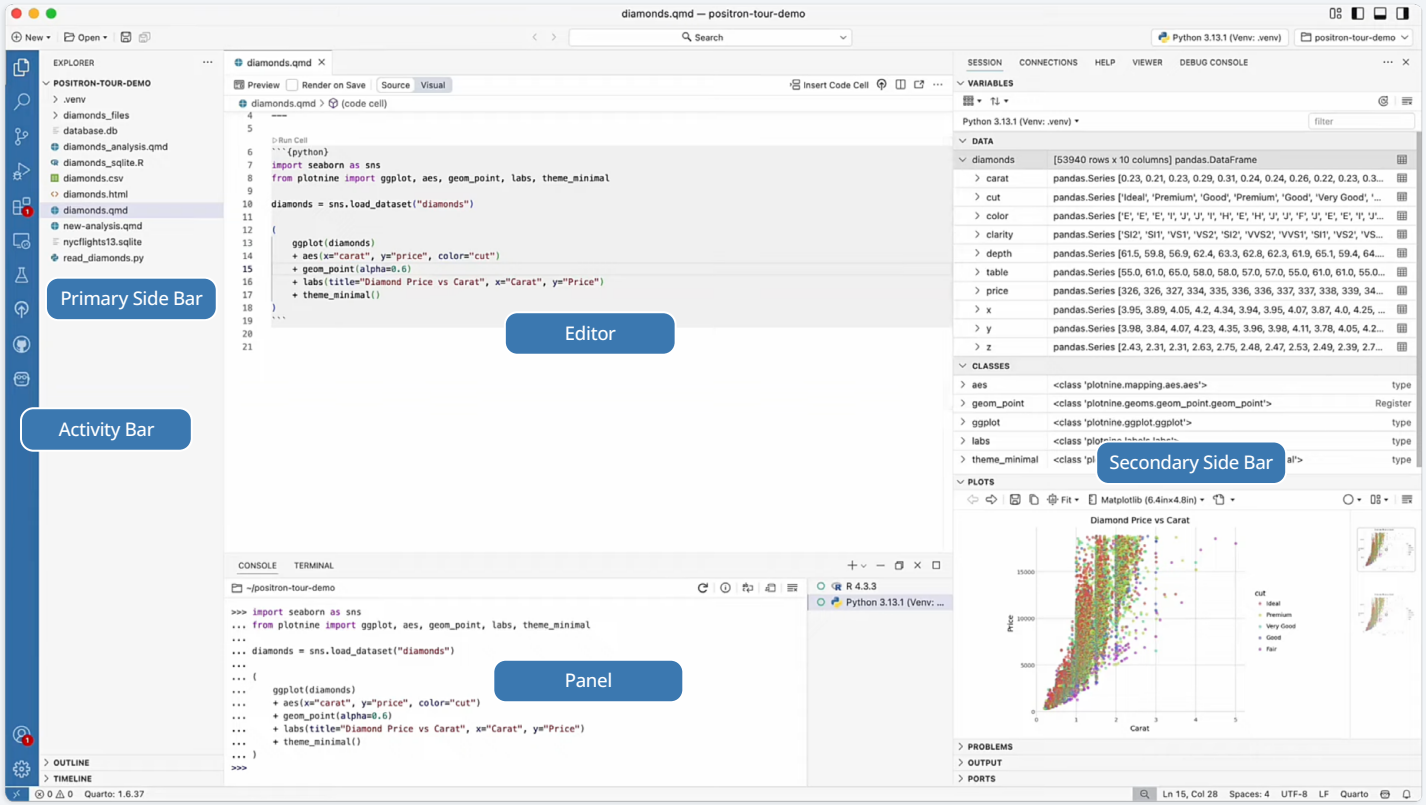
- Where you write your code

### Panel:

- Contains the Console and Terminal

### Secondary Side Bar:

- Explore variables, view plots, access documentation, and more

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# New foundation for data science

Positron is built on Code OSS, the same open-source foundation as VS Code. This foundation provides a modern, extensible editor that is instantly familiar to millions of developers. However, Positron differentiates itself by introducing custom features and UI elements specifically designed for data work. This approach allows it to inherit the core strengths of VS Code while adding native functionality that data scientists and analysts need to be productive.

### The core design principles behind Positron are:

**Polyglot -** Work with R, Python, and other languages in a single, unified environment.

**Extensible -** Customize your workflow with a vast ecosystem of VS Code-compatible extensions from the Open VSX marketplace.

**AI done responsibly -** Write code, explore data, and build with AI while ensuring your work is correct, transparent, and reproducible.

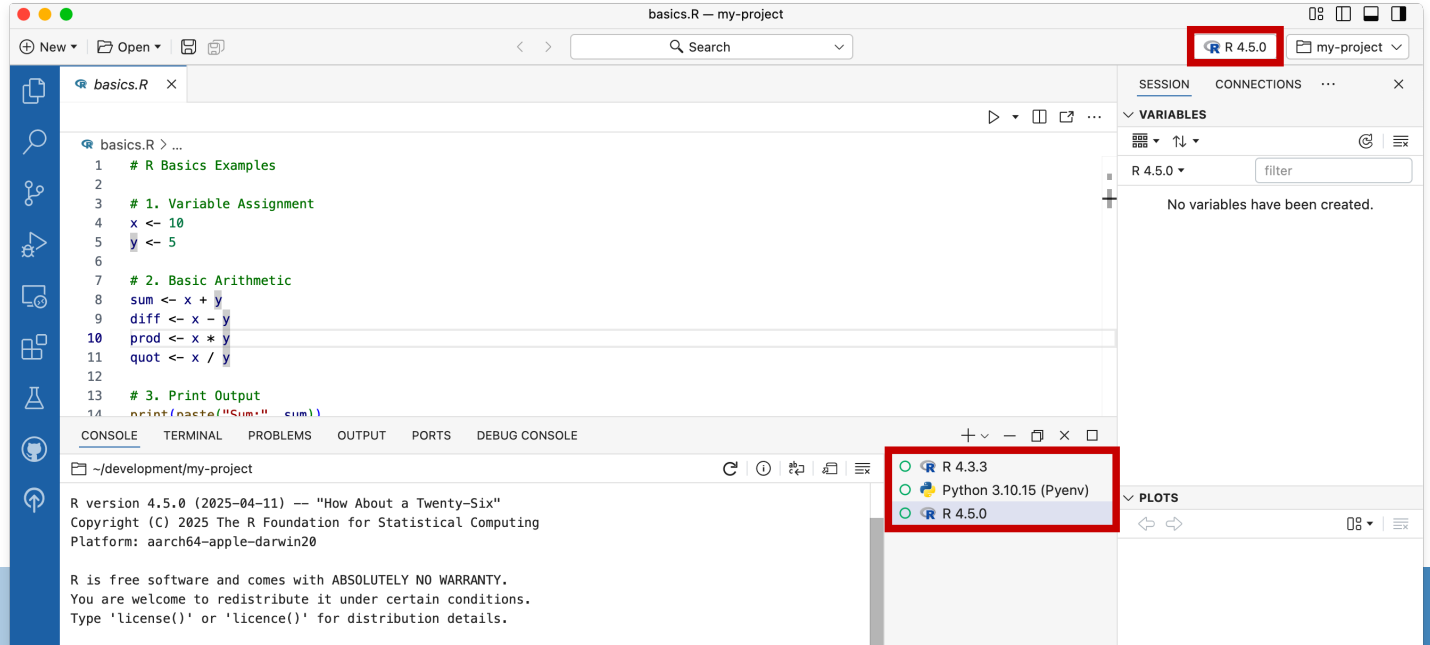
# An IDE for both Python and R

Positron is designed to support multiple R and Python interpreter sessions. This enables workflows that span multiple environments, and allows you to switch between them easily within a single workspace. Interpreter sessions are managed primarily through the Interpreter picker and Console pane.

At any given time, one interpreter session is designated as the active interpreter session. This is the language environment currently in use for interactive and language-specific features within the IDE.

The active interpreter session is the language environment currently in use. It provides the execution context for various panes within the IDE such as the Console, Variables, Plots, and Editor panes. Language-specific features such as code execution, completion, and diagnostics are all scoped to the active interpreter session.

The active interpreter session can always be identified in the Interpreter picker located in the top right. The active interpreter is highlighted in the Console pane list.

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# Migrating from RStudio to Positron

Positron is built on Code OSS (the same foundation as VS Code), giving it a modern, multi-language structure, but it retains core data science features familiar from RStudio.

### Here are the key takeaways for RStudio users considering the switch:

**Foundation -** Positron builds upon the Code OSS foundation, meaning much of the VS Code documentation also applies, but Positron adds data science specific features.

**User Interface (UI) -** The layout is similar (Editor, Console, Plots/ Variables panes), but Positron introduces the Activity Bar and Primary Side Bar for accessing features like file exploration, search, and Git control, replacing many specialized RStudio panes and buttons.

**Key workflows -** The Command Palette (Ctrl+Shift+P) becomes central to the Positron experience, whereas RStudio relies more on dedicated buttons and menus.

**Feature availability -** Core R features like View() for dataframes, Git integration, and package development actions (like “Check” or “Load All”) are all available, though sometimes accessed via the Command Palette or keyboard shortcuts rather than dedicated buttons.

# Migrating from VS Code to Positron

Positron will feel natural to you if you use VS Code. Positron is built on Code OSS, the open source core of VS Code. You will find many familiar features like the text editor interface, Command Palette, Terminal, and extensions.

### Here are the key takeaways from VS Code users considering the switch:

**Familiarity -** Users will find the interface, Command Palette, Terminal, and extensions highly familiar.

**Data science focus -** Positron differs by adding integrated, native data science features that VS Code relies on extensions for, such as:

- The Console for interactive Python and R sessions.
- Dedicated Variables Pane and Data Explorer for inspecting live dataframes.
- A Plots Pane for visualizing graphics.
- Connections Pane for managing databases.

**Language support:** Positron has native, built-in support for R and Python (including IPython/Jupyter functionality). This integration is cohesive and makes the separate, less-integrated R and Python extensions often used in VS Code unnecessary.

**Migration steps:** Users are prompted on first launch to import existing VS Code settings and can install most familiar extensions via the Extension panel.

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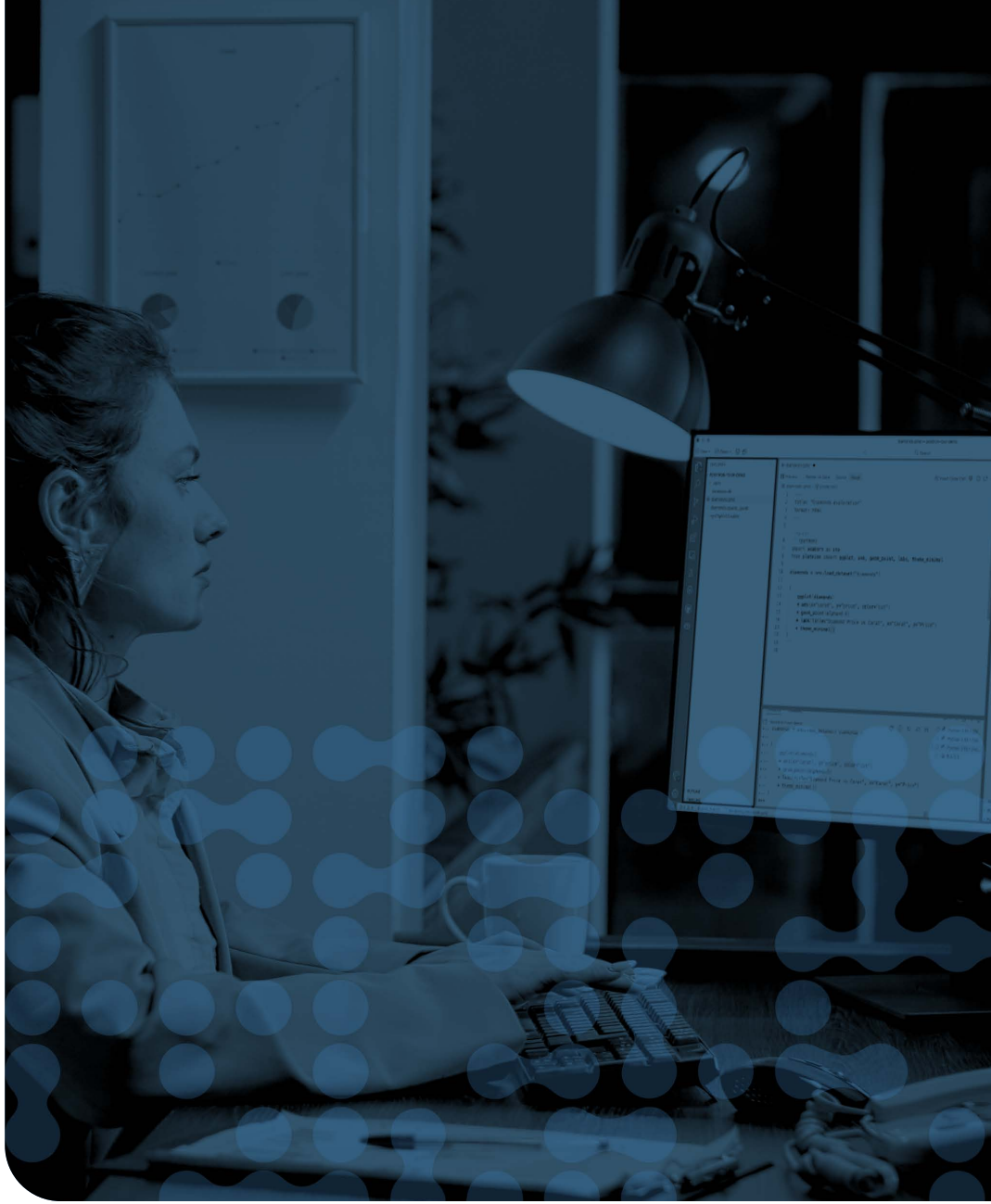
# Key features for the data scientist's workflow

Positron provides a suite of purpose-built features that simplify the data science workflow from beginning to end.

## Data Explorer and Multi-Session Console

Positron provides a detailed Data Explorer that allows you to inspect dataframes and on-disk data in a spreadsheet-style view, complete with interactive filtering, sorting, and summary statistics. This feature is crucial for exploratory data analysis (EDA), allowing you to quickly check for missing values and understand your dataset without writing additional code.

The Multi-Session Console enables you to run R or Python code line-by-line or in chunks, providing the interactive experience familiar to RStudio users. This allows for rapid iteration and experimentation, keeping you in the flow of your analysis.



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## AI Assistance:
## Positron Assistant & Databot

One of Positron's most innovative features is the Positron Assistant, a native Generative AI client. This AI assistant is more than just a coding chatbot; it is context-aware and can access information from your console, variables, and plots. It can help you with:

**Generating code:** Writing boilerplate code or suggesting functions for a given task.

**Debugging code:** Identifying and explaining errors in your code.

**Understanding code:** Explaining the syntax and purpose of your code.

Positron also includes Databot, an exploratory data analysis agent who acts like a research assistant that explores and visualizes data, then recommends next steps.

### Native support for data apps and deployment

Positron is designed to simplify the development and deployment of data products. It offers native support for a variety of frameworks, including:

Shiny Streamlit Dash by plotly FastAPI

You can build and preview these data apps directly within the IDE, which means you don't have to constantly switch between your editor and a browser. The Posit Publisher extension allows for one-click deployment of your scripts, reports, and data apps to Posit Connect or Posit Cloud, accelerating the path from ideation to production.

## The enterprise advantage

Positron is not just a tool for individuals; it is built for the enterprise. It integrates natively with Posit Workbench, allowing teams to centralize their development environment and collaborate on projects with full Git integration. This combination provides a powerful and governed data science platform that supports secure, scalable, and reproducible workflows.

For product owners, Positron's integrated GitHub interface and support for tools like Quarto make it easy to manage project backlogs and create documentation in a version-controlled environment.

Positron is designed for developing apps, reports, and visualizations with Python and R. Posit Connect makes deploying and sharing those insights effortless. Together, Positron and Posit Connect form a powerful pair to help you get your ideas out there.

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## Conclusion

Positron represents a significant step forward in the data science ecosystem. By combining the best elements of RStudio with the modern foundation of VS Code, it provides a powerful, free, and unified environment for data professionals working in R and Python. Whether you are an individual analyst performing exploratory data analysis or part of a large team building production-grade data products, Positron offers the tools and workflow to help you move from insight to impact more efficiently and effectively.

To learn more and get started, you can download Positron today, or explore our Positron resources.

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