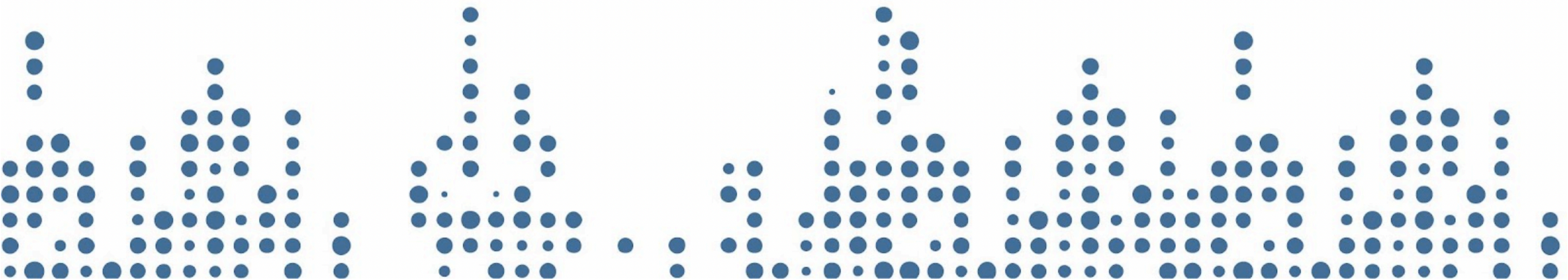




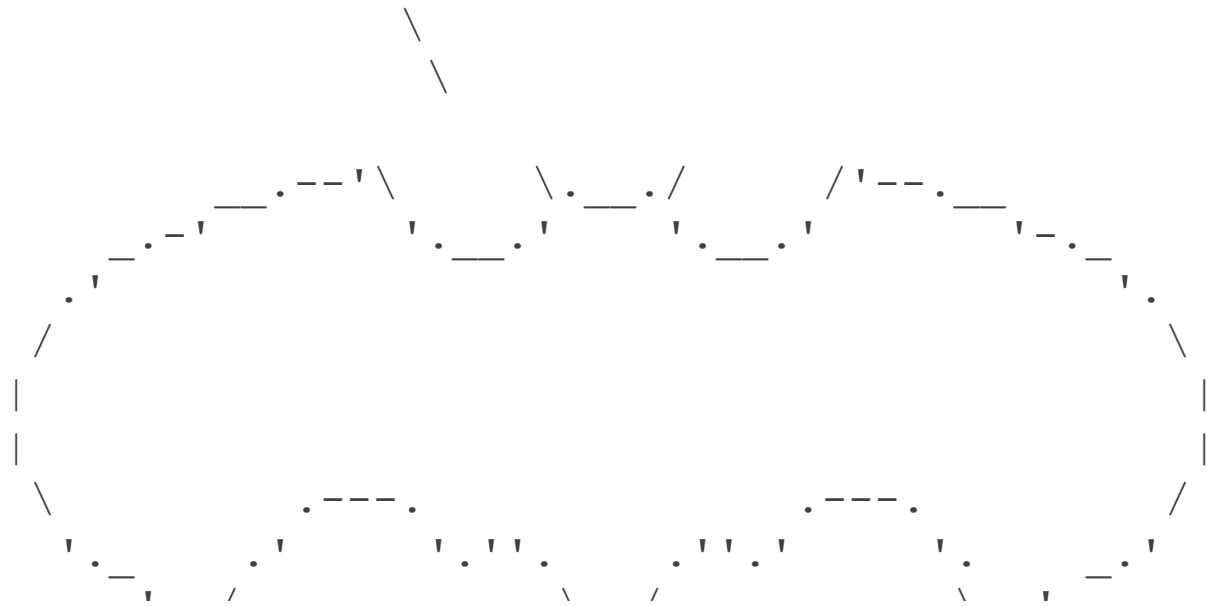
Positron: Overview for Pharma

Phil Bowsher | 2025 March 17



Hello!

```
-----  
< hi Phuse >  
-----
```



Hello!



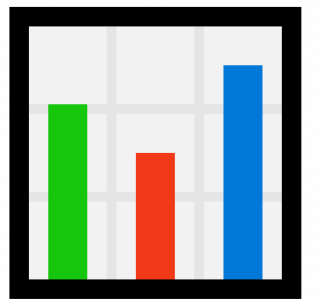
 @philbowsher

 youtube.com/rinpharma

 rinpharma.com



positron.posit.co



Positron is...



:

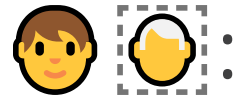
a **next generation** - *a.k.a. open source!*

Positron is...



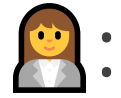
a next generation **data science integrated development environment (IDE)**

Positron is...



a next generation data science integrated development environment (IDE) **currently**
in Public Beta

Positron is...



a next generation data science integrated development environment (IDE) currently in Public Beta & **is available for free on desktop and as a Preview feature within Posit Workbench**

Welcome - phil - Positron

dev.current.posit.team/s/c1a7a6ae9dc1bb4e21043/?folder=/home/phil

New Chrome available

Welcome - phil - Positron

New Open

Search

R 4.4.1 phil

Welcome



Positron

an IDE for data science

Start



New Notebook



New File

Open



Open File...



Open Folder...



New Folder...



New Folder from Git...

Recent

dashboard

~/py-shiny-templates

CONSOLE

TERMINAL

PROBLEMS

OUTPUT

PORTS

DEBUG CONSOLE

R 4.4.1

~/

you are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>

SESSION

HELP

VIEWER

CONNECTIONS

PLOTS

VARIABLES

R 4.4.1

filter

No variables have been created.

main*

Posit Workbench

0 0 0

Quarto: 1.5.57

Layout: US

Posit Workbench:

- Server Based Environment
- Provides Various IDEs (Positron)
- Compute is in the Server or Cloud Based Environment (AWS, Azure etc.)
- Managed by the Organization (Or Posit Team Dedicated)

New Session



Jupyter
Notebook



JupyterLab



Positron Pro

Preview



RStudio Pro



VS Code

Session Name

Phil's Positron

Session Credentials

Edit Credentials



Posit AWS



POSIT_SOFTWARE_PBC_DEV

Cluster Options

When selecting a memory amount, use at least 4 GB

Resource Profile

Large

CPU's

4

Memory (GB)

7.81

Image

rstudio-workbench-preview:dev-jammy-2024.12.1-563.pro2 (default)

Edit



Join session when ready



Notify when ready

Cancel

Start Session

Next-Gen Statistical Computing Environments (SCE)

- Enabling shift to open-source data science with language-agnostic frameworks
- Blend tools like parquet, git, & Docker
- Future where clinical reporting SCEs are generalized into data science SCEs
- Support incoming new-hires with experience in open source (R, Python etc.)
- And other drug development use-cases like Real-World Evidence
- **Data science toolbox of various languages**
- Connect to data platforms (Databricks, Snowflake etc.)...
- Where ETL & data ingestion processes are often in Python





Session credentials & connections to databases / datastores
Databricks, Snowflake, Amazon S3 Cloud Storage, DuckDB etc



>

Positron is an extensible
polyglot tool

<

Positron has data-science centric features of RStudio like...

- UI & capabilities to help data scientists be more productive
- **Batteries included** experience for doing data science
- Positron **core** is shared among all languages
- Key items like a *dedicated console, data explorer, plots pane, & output viewer*
- Project-oriented workflow & initialize **version control** or run git init via a terminal
- Plus: offers an advanced **Data Explorer**



4-Pane Data Science



ggplot2_example.R - phil - Posit

Introducing Viewing Plots in Ed

dev.palm.ptd.posit.it/s/062496ae9dc1b9bf79802/?folder=/home/phil

Files

ggplot2_example.R - phil - Positron

New

Open

Search

R 4.4.0

phil

PHIL

.cache

.config

.duckdb

.ipython

.local

.positron-server

py-shiny-templates

py-shiny-templ...

quarto_example_files

R

.bash_history

.bash_logout

.bashrc

.gitconfig

.profile

.Renviron

ggplot2_example.R

plotlyexample.R

quarto_example.html

quarto_example.qmd

test app.R

OUTLINE

TIMELINE

ggplot2_example.R

ggplot2_example.R > ...

1

library(ggplot2)

2

3

p <- ggplot(data = diamonds, aes(x = cut, fill = clar

4

geom_bar(position = "dodge")

5

p

SESSION

HELP

VIEWER

CONNECTIONS

VARIABLES

R 4.4.0

filter

VALUES

p

[data = [53940 rows x 10 columns] <tbl_df>, l... gg

Editor

Console

TERMINAL

PROBLEMS

OUTPUT

R 4.4.0

~/

or

'help.start()' for an HTML browser interface to help.

Type 'q()' to quit R.

> library(ggplot2)

> library(ggplot2)

+

+ p <- ggplot(data = diamonds, aes(x = cut, fill =

clarity)) +

+ geom_bar(position = "dodge")

+ p

>

Output

count

5000

4000

3000

2000

1000

0

Fair

Good

Very Good

Premium

Ideal

cut

clarity

I1

SI2

SI1

VS2

VS1

VVS2

VVS1

IF

Ln 5, Col 2 (121 selected) Spaces: 2 UTF-8 LF R Layout: US

2

year = 2013 ×

and

month >= 2 ×

+

2

1

+ Add Filter

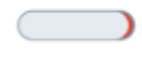
Hide Filters

Clear Filters

> # dep_time



2%



> # sched_dep_ti...



0%



> # dep_delay



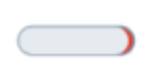
2%



> # arr_time



2%



	year int	:	month int	:	day int
27005	2013		10		
27006	2013		10		
27007	2013		10		
27008	2013		10		
27009	2013		10		
27010	2013		10		
27011	2013		10		
27012	2013		10		

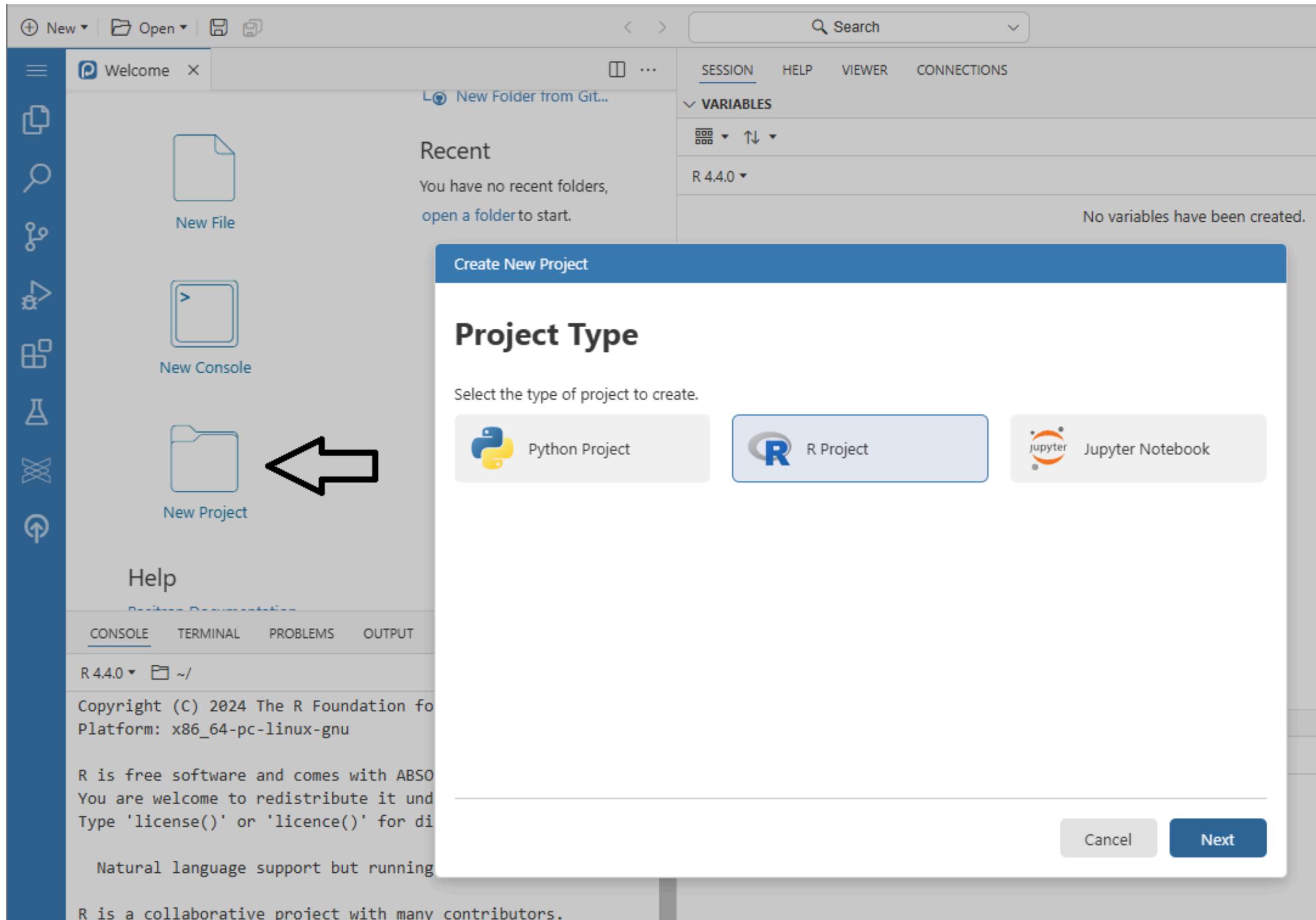
3

Showing 309,772 rows (91.98% of 336,776 total) 19 columns



 **First-class, built-in support for R and/or Python** 

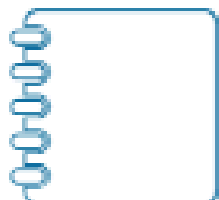


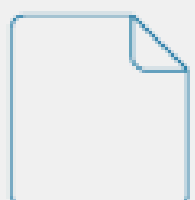


New ▾ | Open ▾ |  

Positron
an IDE

Start


New Notebook


New File

Open

 Open File...

 Open Folder...

 New Folder...

 New Folder from Git...

New File...

Select File Type or Enter File Name...

Text File Built-In Ctrl + K N File ⚙

R File R Ctrl + Shift + N

Python File Positron Python

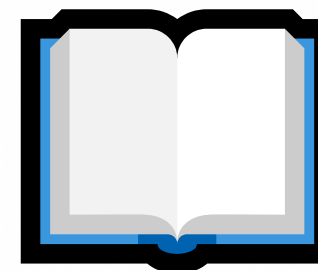
Jupyter Notebook .ipynb Support Notebook

Quarto Document Quarto

Quarto Project Quarto



Shiny for Python



polyglot example

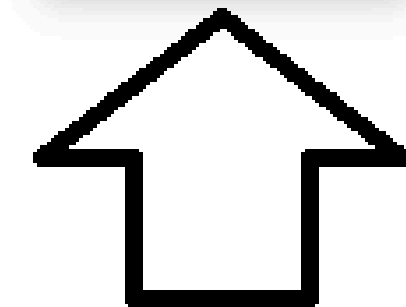
- 📖 clicking the “Run” button = out of the box for R & Python
- 📄 “Publish” Button = Built in with no additional extensions required

Welcome

app-core.py X



Run Shiny App



app-core.py > [e] app_ui

```
1  import seaborn as sns
2  from faicons import icon_svg
3
4  # Import data from shared.py
5  from shared import app_dir, df
6  from shiny import App, reactive, render, ui
7
8  app_ui = ui.page_sidebar(
9      ui.sidebar(
10         ui.input_slider("mass", "Mass", 2000, 6000, 6000),
11         ui.input_checkbox_group(
12             "species",
13             "Species",
14             ["Adelie", "Gentoo", "Chinstrap"],
15             selected=["Adelie", "Gentoo", "Chinstrap"],
16         ),
17         title="Filter controls",
18     ),
19     ui.layout_column_wrap(
20         ui.value box(
```

Welcomeapp-core.py X

Deploy with Posit Publisher

SESSIONHELPVIEWERCONNECTIONS

https://dev.palm.ptd.posit.it/s/062496ae

app-core.py > [E] app_ui

```
1 import seaborn as sns
2 from faicons import icon_svg
3
4 # Import data from shared.py
5 from shared import app_dir, df
6 from shiny import App, reactive, render, ui
7
8 app_ui = ui.page_sidebar(
9     ui.sidebar(
10         ui.input_slider("mass", "Mass", 2000, 6000),
11         ui.input_checkbox_group(
12             "species",
13             "Species",
14             ["Adelie", "Gentoo", "Chinstrap"],
15             selected=["Adelie", "Gentoo", "Chinstrap"],
16         ),
17     ),
18     ui.page_main(
19         ui.output_data_frame(),
20     ),
21 )
```

TERMINAL ...

Shiny + v [] [X] [] [] [] [] []

phil@session-062496ae9dc1b9bf79802-phil---phils-positron-k4
4xm-5vkxn:~/py-shiny-templates/dashboard\$ /opt/python/3.12.
4/bin/python -m shiny run --port 35875 --reload --autoreloa
d-port 44271 /home/phil/py-shiny-templates/dashboard/app-co
re.py

Penguins dashboard

Filter controls

Mass

2,0006,000

Species

☒ Adelie

☒ Gentoo

☒ Chinstrap

Nun
33

GenAI Options in Positron

- GenAI UI & capabilities planned to be built directly within Positron for the future
- [ellmer](#) for R
- [chatlas](#) for Python

CONSOLE TERMINAL PROBLEMS 5 OUTPUT PORTS DEBUG CONSOLE

R 4.4.0 ~/

Here is the revised Shiny app code:

```
```\nlibrary(shiny)\nlibrary(ggplot2)\nlibrary(plotly)\nlibrary(dplyr)\nlibrary(pharmaverseadam)\n\n# Load the ADAM adverse events dataset from the pharmaverseadam package\nadae <- adae\n\n# Data preprocessing: Summarizing the adverse events\nae_summary <- adae %>%\n  filter(!is.na(AEBODSYS)) %>%\n  group_by(AEBODSYS) %>%\n  summarise(Count = n(), .groups = "drop")\n\n# Define UI\nui <- fluidPage(\n  titlePanel("Adverse Events Plot"),\n  plotlyOutput("aePlot")\n)\n\n# Define Server\nserver <- function(input, output) {\n  output$aePlot <- renderPlotly({\n    gg <- ggplot(ae_summary, aes(x = reorder(AEBODSYS, -Count), y = Count)) +\n      geom_bar(stat = "identity", fill = "steelblue") +\n      labs(x = "Adverse Event Body System", y = "Count of Adverse Events") +\n      theme_minimal() +\n      coord_flip()\n\n    ggplotly(gg)\n  })\n}\n\n# Run the app\nshinyApp(ui, server)\n```\n
```

chatlas\_python.py ×

home > phil > chatlas\_python.py

```
1 import os
2 from chatlas import ChatOpenAI
3 from dotenv import load_dotenv
4
5 load_dotenv()
6
7 chat = ChatOpenAI(
8 model = "gpt-4o",
9 system_prompt = "You are a friendly but terse assistant.",
10)
11
12 chat = ChatOpenAI(api_key=os.getenv("API_KEY"))
13
14 chat.console()
15
16 chat.chat("Create a R Shiny application that uses ggplot2, plotly and the diamonds data")
```

CONSOLE TERMINAL PROBLEMS OUTPUT PORTS DEBUG CONSOLE

step-by-step guide to building this application:

### 1. Set Up Your Shiny Application

Create a directory for your Shiny app with the following files:

- `app.R`

### 2. Write the Shiny Application Code

Open `app.R` and add the following code:

```
app.R

library(shiny)
library(ggplot2)
library(plotly)

Define UI for application
ui <- fluidPage(

 # Application title
 titlePanel("Diamonds Data Visualization"),

 # Sidebar with a slider input for price and a select input for cut
 sidebarLayout(
```

# Build chatbot-powered AI Apps in Shiny

- [Shiny Assistant](#)
- [AI Tools for R, Shiny, and Pharma](#)
- [jcheng.shinyapps.io/elmer-assistant/](https://jcheng.shinyapps.io/elmer-assistant/)
- [Databot: Data exploration assistant for R](#)
- [Joe Cheng - Summer is Coming: AI for R, Shiny, and Pharma](#)



# KEYNOTE SUMMER IS COMING: AI FOR R, SHINY, AND PHARMA

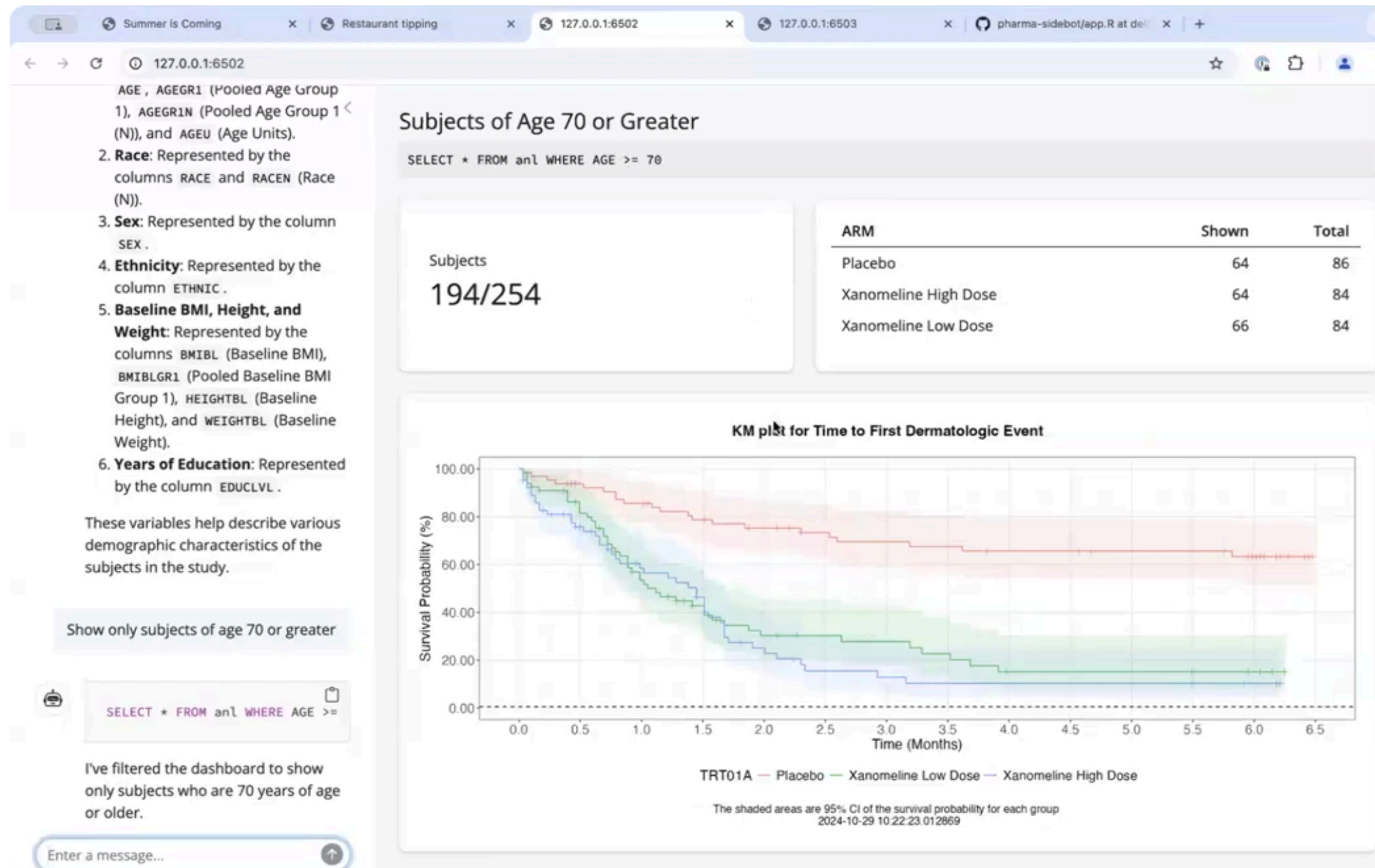


Joe Cheng  
Posit

TUE, OCT 29, 2024  
10:10AM EDT

0:00 / 48:09





Joe Cheng

# Thank you!



 @philbowsher

 [youtube.com/rinpharma](https://youtube.com/rinpharma)

 [rinpharma.com](https://rinpharma.com)

