

Intro to R!

Eve198

Week 5

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Interactive Apps

Desktops

 Farm Desktop

Servers

 JupyterLab RStudio Server VSCode Server

RStudio Server

This app will launch an RStudio server on one or more nodes.

Account

rbay-eve198-genomics-grp

Select the slurm group account (i.e adamgrp)

Partition

high2

Select a slurm partition. **We strongly recommend a high priority partition**

Number of cores

1

Enter the number of cores needed for your job

Amount of memory

10

Enter the amount of RAM in GB you need for your job

Conda environment

r-4.3.3

Enter a specific conda environment (i.e r-4.3.3) to activate as your R installation.

Number of hours

3

Your job will be automatically killed after this amount of time

Additional Modules

If needed, enter any additional modules to be loaded separated by spaces (i.e
cuda/11.7.1 nvhpc/23.1)

Working Directory

/home/madarm11

Select the directory wherein you want to open and use this app

[Select Path](#)

☐ I would like to receive an email when the session starts

[Launch](#)

What is R? Rstudio?



Base R

- Programming language
- Command-line interface where code is run

R studio



- User interface/Integrative development environment using the R programming language
- Visualization tools for analysis and figure making

Script



```
1 #Week 5: Intro to R
2 #name
3
4 #<start writing code from class below this!
```

Environment



Environment History Connections Build Tutorial

Diff Commit Pull Push History More master

Staged Status Path

A large empty rectangular box representing the environment pane.

Files, plots, packages!



Files Plots Packages Help Viewer Presentation

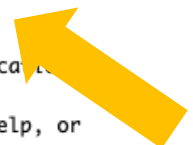
New Folder New Blank File Delete Rename More

Home

Name

A large empty rectangular box representing the files pane.

Console



Console Terminal Render Background Jobs

R 4.4.0 · ~/Desktop/teaching/intro_genomics/IntroGenomics/

R version 4.4.0 (2024-04-24) -- "Puppy Cup"
Copyright (C) 2024 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
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.

> |

urbanurchins - RStudio

Go to file/function

Addins

_maps.R

urbanurch_popstructure.R

urbanurch_outliers.R

urbanurch_RDA.R

Source on Save

Run

Source

207 #plot samples separated by region_dev

208 p1<-plotQ(slist1,imgoutput="join",returnplot=T,exportplot=F,basesize=11,

209 splabsize=7,height=7,

grplab=labset[,c("dev_region", "Site_ID")],subsetgrp=poporder,

grplabsize=3,linesize=1,pointsize=3,splab=labs,grplabangle=0,

grplabheight = 5)

215

216 #add intertidal/subtidal labels

217 list1,imgoutput="join",returnplot=T,exportplot=F,basesize=11,

218 splabsize=7,height=7,

219 grplab=labset[,c("dev_region", "Depth..m.")],subsetgrp=poporder,

220 grplabsize=4,linesize=1,pointsize=3,splab=labs,grplabangle=0,

221 grplabheight = 5)

222 grid.arrange(p1\$plot[[1]], p2\$plot[[1]])

223 grid.arrange(p1\$plot[[1]])

224 ###PCA ####

225 # load data and convert to gds format

221:1

tess3r

R Script

Console

Terminal

Background Jobs

R 4.4.0 · ~/Desktop/urbanurchins/

> library(tidyverse)

> #plot samples separated by region_dev

> p1<-plotQ(slist1,imgoutput="join",returnplot=T,exportplot=F,basesize=11,

+ splabsize=7,height=7,

+ grplab=labset[,c("dev_region", "Site_ID")],subsetgrp=poporder,

+ grplabsize=3,linesize=1,pointsize=3,splab=labs,grplabangle=0,

+ grplabheight = 5)

> #add intertidal/subtidal labels

> p2<-plotQ(slist1,imgoutput="join",returnplot=T,exportplot=F,basesize=11,

+ splabsize=7,height=7,

+ grplab=labset[,c("dev_region", "Depth..m.")],subsetgrp=poporder,

+ grplabsize=4,linesize=1,pointsize=3,splab=labs,grplabangle=0,

+ grplabheight = 5)

> grid.arrange(p1\$plot[[1]], p2\$plot[[1]])

>

Environment

History

Connections

Tutorial

Global Environment

p1	List of 2
p2	List of 2
p3	List of 11
pc2	List of 13
pc3	List of 13
PC3	List of 11
pc4	List of 13
pc5	List of 13
PC5	List of 11

Files

Plots

Packages

Help

Viewer

Presentation

Zoom

Export

Publish

dev_region ID

K=3

K=2

K=3

dev_region ID

Vic_urban Vic_nonurban LA_urban LA_nonurban SD_urban SD_nonurban

Clov Mac Bot Whif Cab Port WAP Wh KOU Pel Sug Trp Twp Lag Rec Lom Brr Bir Leu

intertidal subtidal intertidal subtidal intertidal subtidal

Script

Environment

Plots!

Console

Important Terms

Object: a “thing” saved to your R environment , this can include

- Data
- Plot
- etc!

Function: something you can “do” to the data

Packages: tools built into R or downloaded that you can use to complete different analyses/make figures!

Data Types/Structures:

Data Types:

1. Character (names)
2. Numeric (numbers)
3. Logical (T/F)
4. Integer (2L for example)
5. Complex (imaginary #s)
6. Raw (not really used)

Data Structures:

1. Vector
2. List
3. Matrices
4. Factor
5. Data frame

Let's get to coding!

