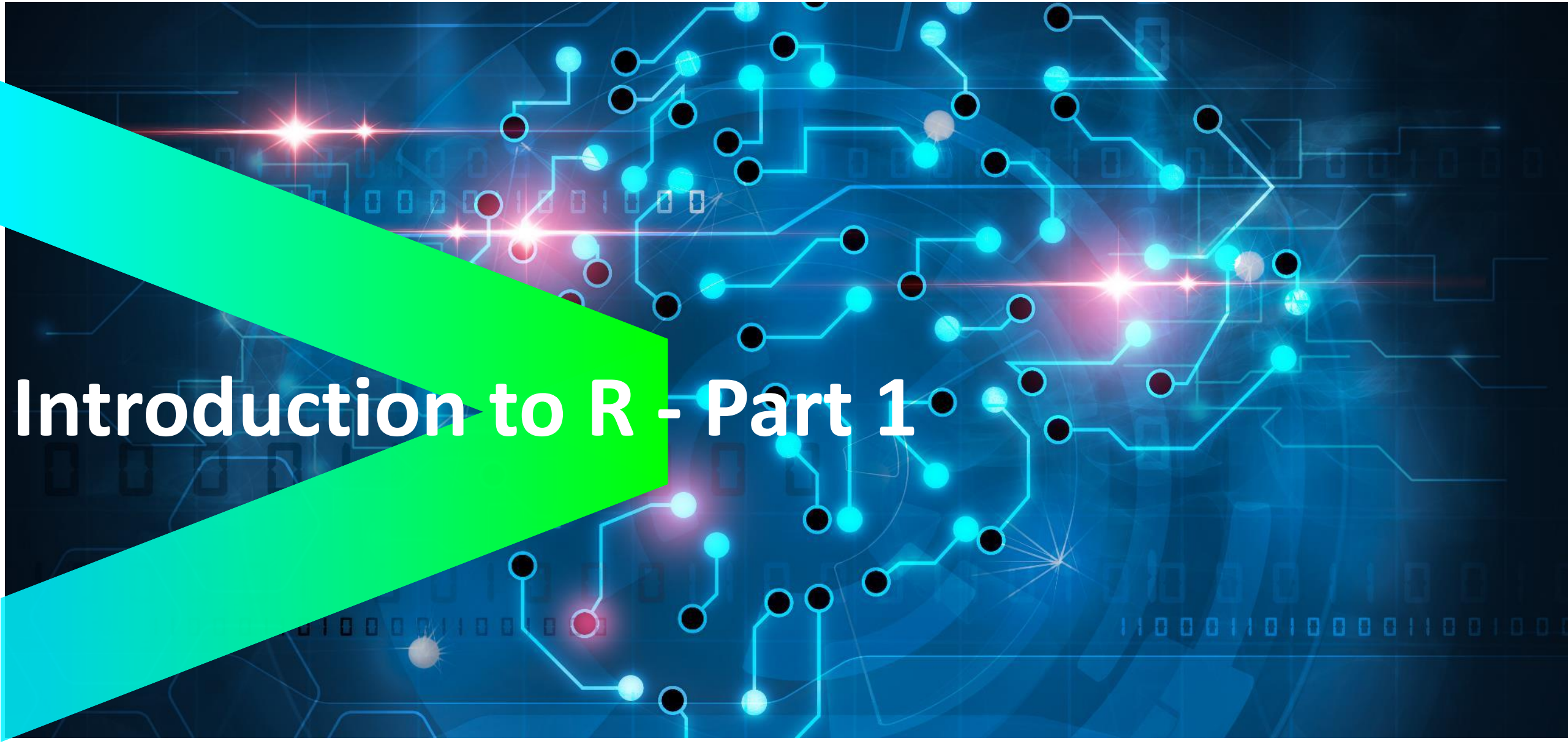


Introduction to R - Part 1

Agenda

- Introduction & Learning objectives.
- Download and install R
- Download and Install R Studio
- Getting familiarized with R Studio

Introduction & Learning Objectives

Schedule of the Course

SNo	Course Name	Date	Time	Mode of Training
1.	Introduction to R-I	16-10-2017	3:00 pm – 5:00pm	Link
2.	Introduction to R-II	23-10-2017	3:00 pm – 5:00pm	Link
3.	Introduction to R-III	30-10-2017	3:00 pm – 5:00pm	Link
4.	Introduction to R-IV	06-11-2017	3:00 pm – 5:00pm	Link
5.	Introduction to R-V	13-11-2017	3:00 pm – 5:00pm	Link

Topics Covered

Part 1 - Getting Started with R

- Introduction & Learning objectives.
- Download and install R
- Download and Install R Studio
- R Studio
  - R Console, File Editor, Package Manager & Help
  - Open R studio & Hello World
  - Use R as a calculator.
  - Work with variables
  - Install and load packages [CRAN, GitHub & Local Zip]
- Upload and Saving Workspace

Topics Covered

Part 2 – Data types and Handling Data in R

- Understand the different data types
  - Scalar & Vector
  - Arrays & Lists
  - Matrix
  - Data Frames & Data Tables
- Exporting & Importing Data from – Csv, Xls, Txt, Database & web
- Importing statistical tools files
- Handling the Data
  - Significant Parameters
    - String as Factors & Separators
    - Col Classes & Header
    - Quotes & Date Formats
  - Sub setting the Data
  - Summaries, Group by, long and wide format

Topics Covered

Part 3 - Basics of Programming in R

Control Structures

- If else, For loop
- While loop, repeat, break, next & switch
  - Writing Functions in R
- Understand the basics of function arguments
- Return a value from a function
- Gain flexibility with do.call
  - Packaging the function and using it for future.
  - Applying functions over an array, list, matrix, table

Topics Covered

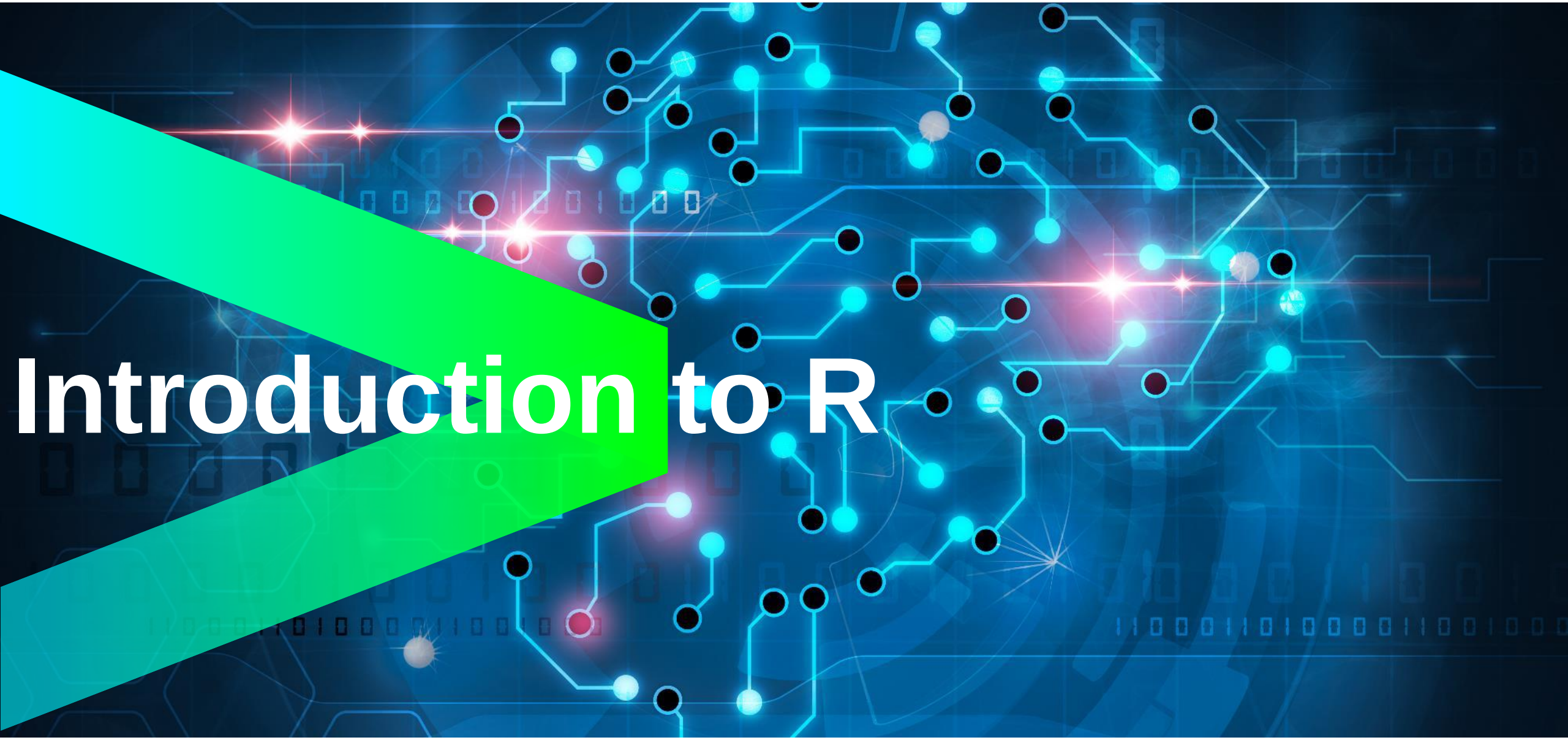
Part 4 - Advanced of Programming in R

- Regular Expressions & Regular Expression Functions
  - Grep
  - Regexpr
  - Sub
  - regexec
- lapply, sapply, tapply, and mapply
- Graphics with R
- Graphical functions
- Low level plotting commands
- Graphical Parameter
- Plotting
- Axes
- Colours
- Lines
- Legend

Topics Covered

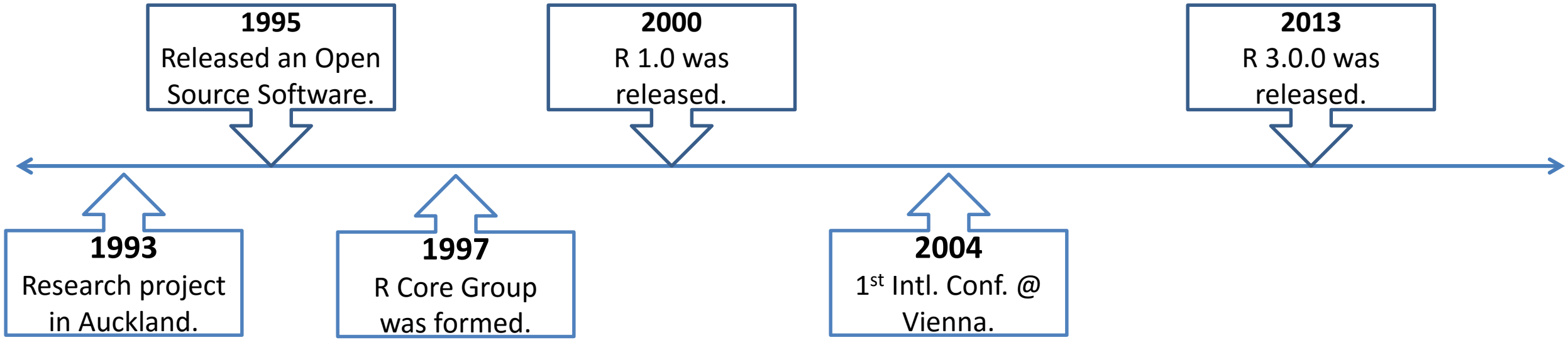
Day 5 - App development with R Shiny

- Introduction to Shiny
- Introduction to plotly & ggplot
- Understand Shiny architecture
- Develop an end to end app in shiny.



Introduction to R

R language Timeline



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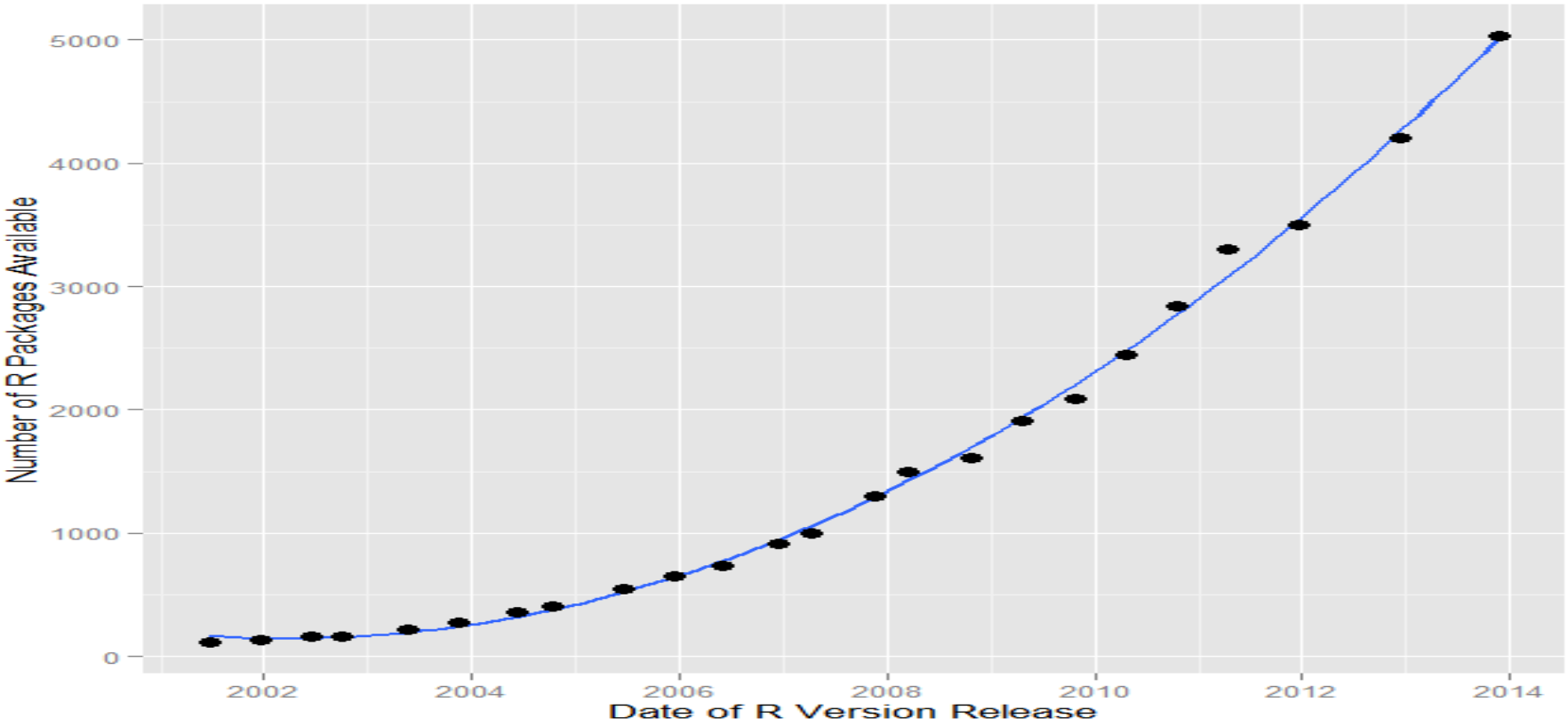
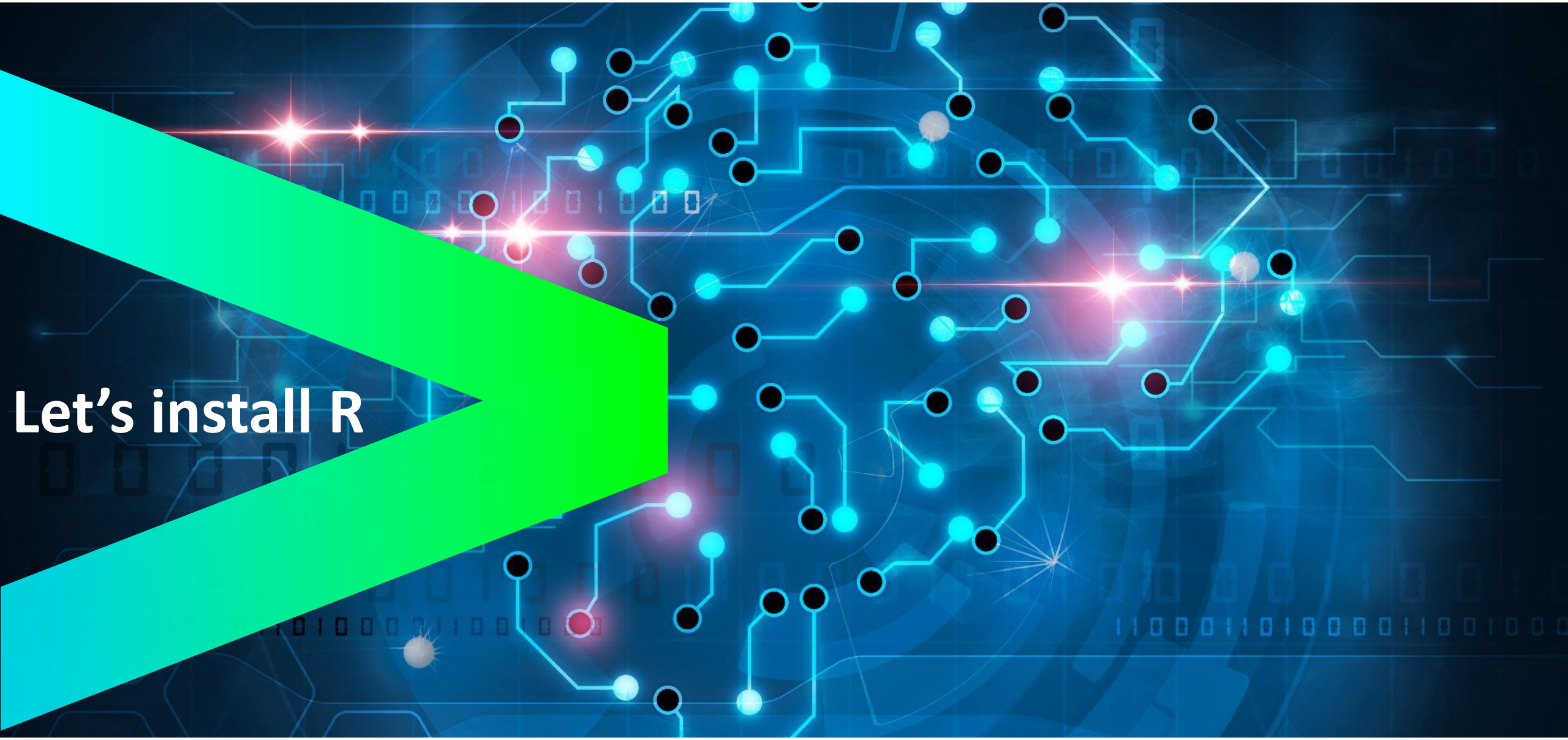
What is R?

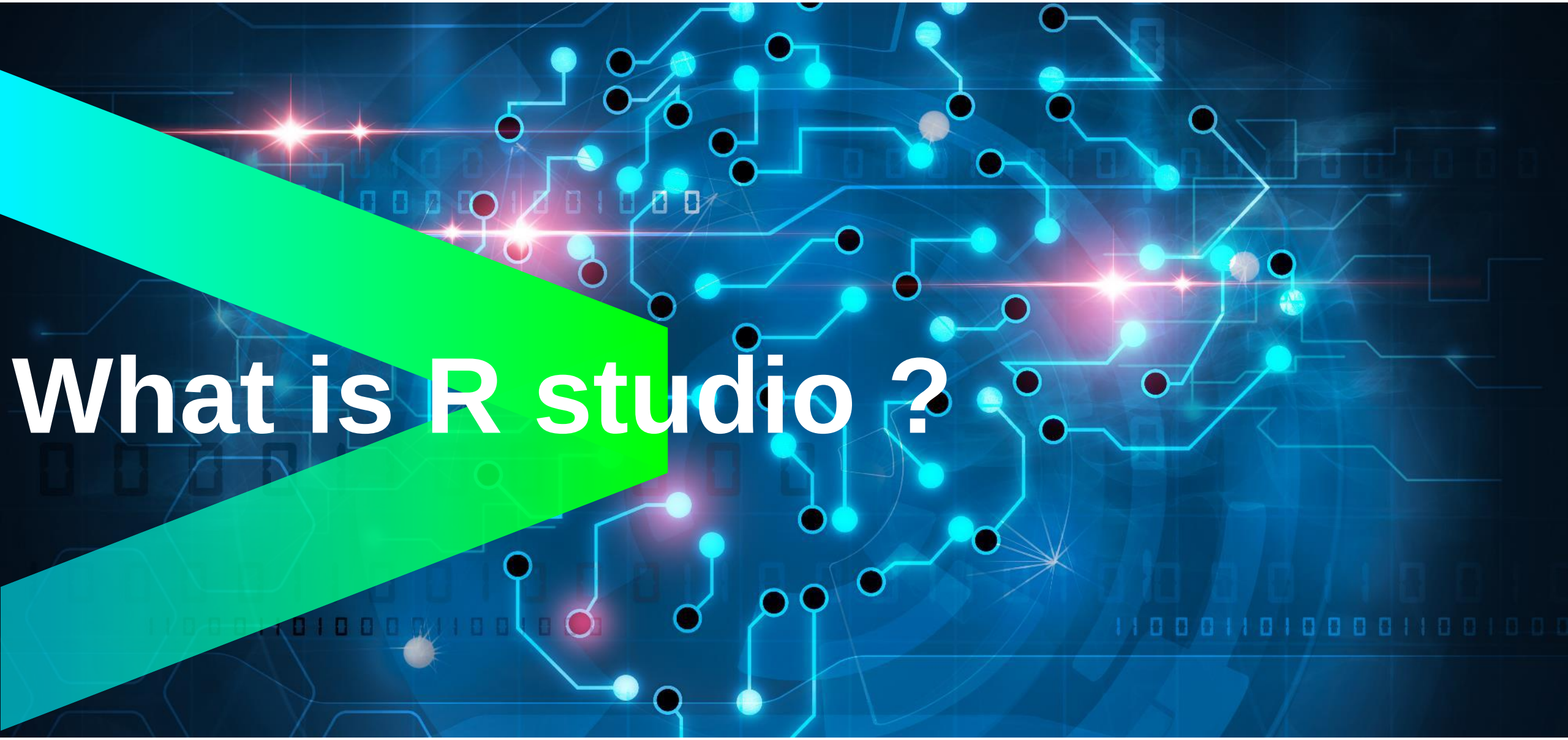
- R is an open source language.
- It is an implementation of S Plus Language(Statistical Computing Language).
- R was designed by Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand and was later developed by R Development Core Team.
- R is a programming language and software environment for statistical analysis, graphics representation and reporting.
- **R Website: www.r-project.org**
- **For downloading R and R packages visit CRAN site: http://cran.r-project.org/**

CRAN Packages



Currently, the CRAN package repository features 11611 available packages.


Let’s install R



What is R studio ?

What is R studio?

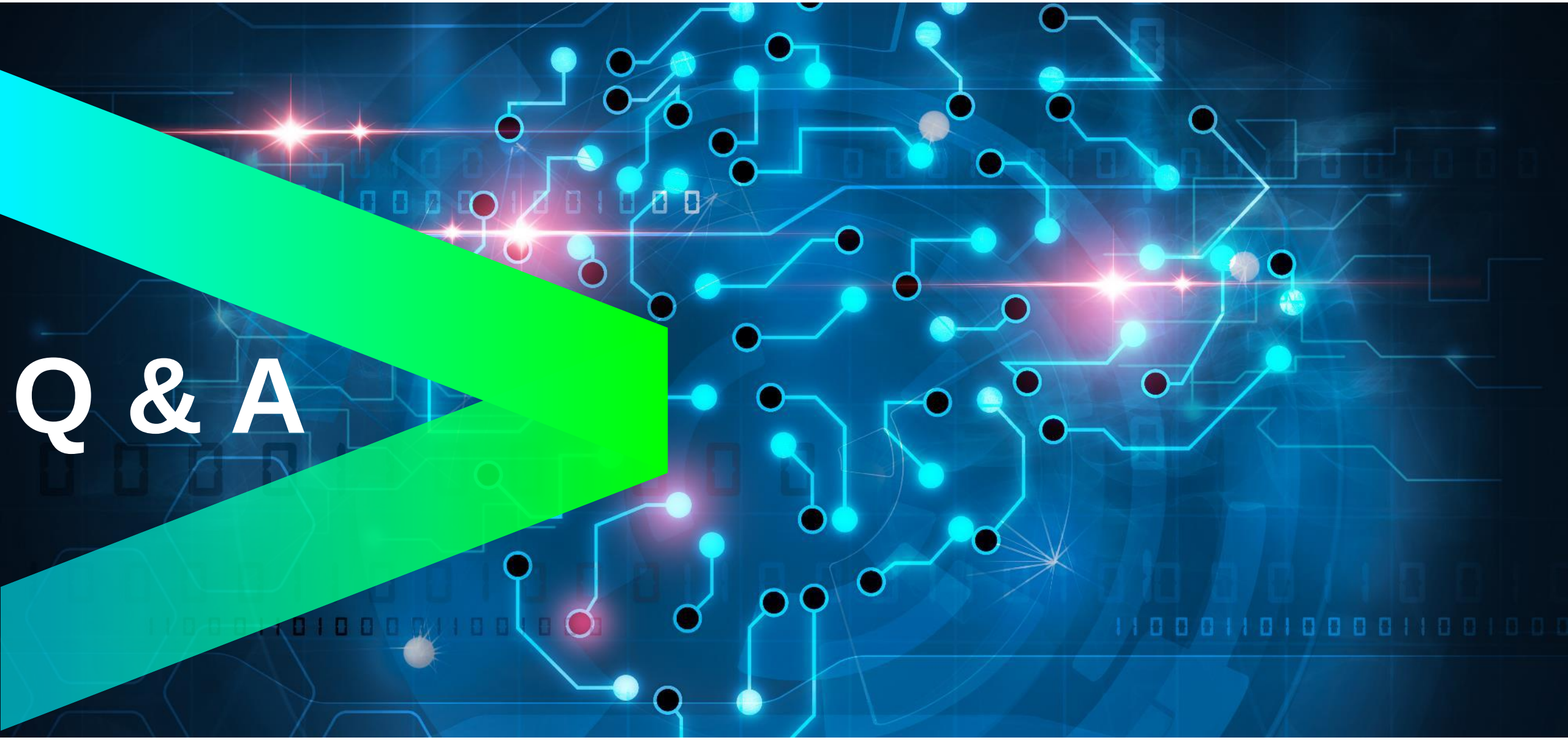
- An Integrated Development Environment (IDE) for R

- RStudio is available in open source and commercial editions and runs on the desktop (Windows, Mac, and Linux) or in a browser connected to RStudio Server (Pro) (Debian/Ubuntu, RedHat/CentOS, and SUSE Linux).

- It includes a console, syntax-highlighting editor that supports direct code execution, as well as tools for plotting, history, debugging and workspace management.

- Popular alternatives for R studio are:
  - ❑ Visual studio for R
  - ❑ Eclipse using StatET plugin
  - ❑ Jupyter Notebook
  - ❑ Tinn-R

Let’s install R Studio


Q & A


Thank you