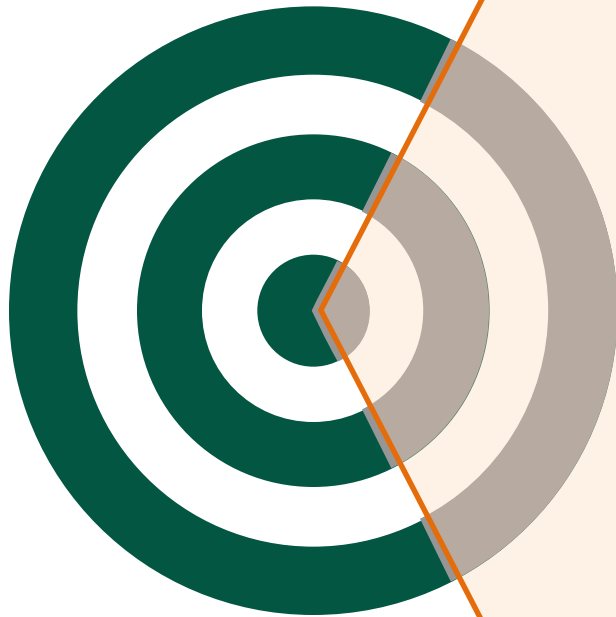


Certification In R Programming

**Introduction to
Analytics and R**





In this session, you will gain answers to:

- Overview of Analytics
- Careers in Analytics
- Why Use R?
- Introduction to R

Introduction to Analytics



BIG DATA

Data that is **TOO LARGE & TOO COMPLEX** for conventional data tools to capture, store and analyze.

Shares traded on US Stock Markets each day:

7 Billion

Data generated in one flight from NY to London:

10 Terabytes

Number of tweets per day on Twitter:

400 Million

Number of 'Likes' each day on Facebook:

3 Billion

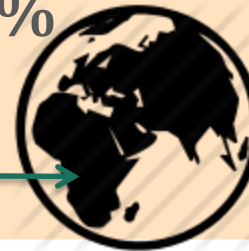
The 3V's of Big Data

VOLUME

VARIETY

VELOCITY

90%



OF THE WORLD'S
DATA WAS
GENERATED IN THE
LAST TWO YEARS

What is Analytics?



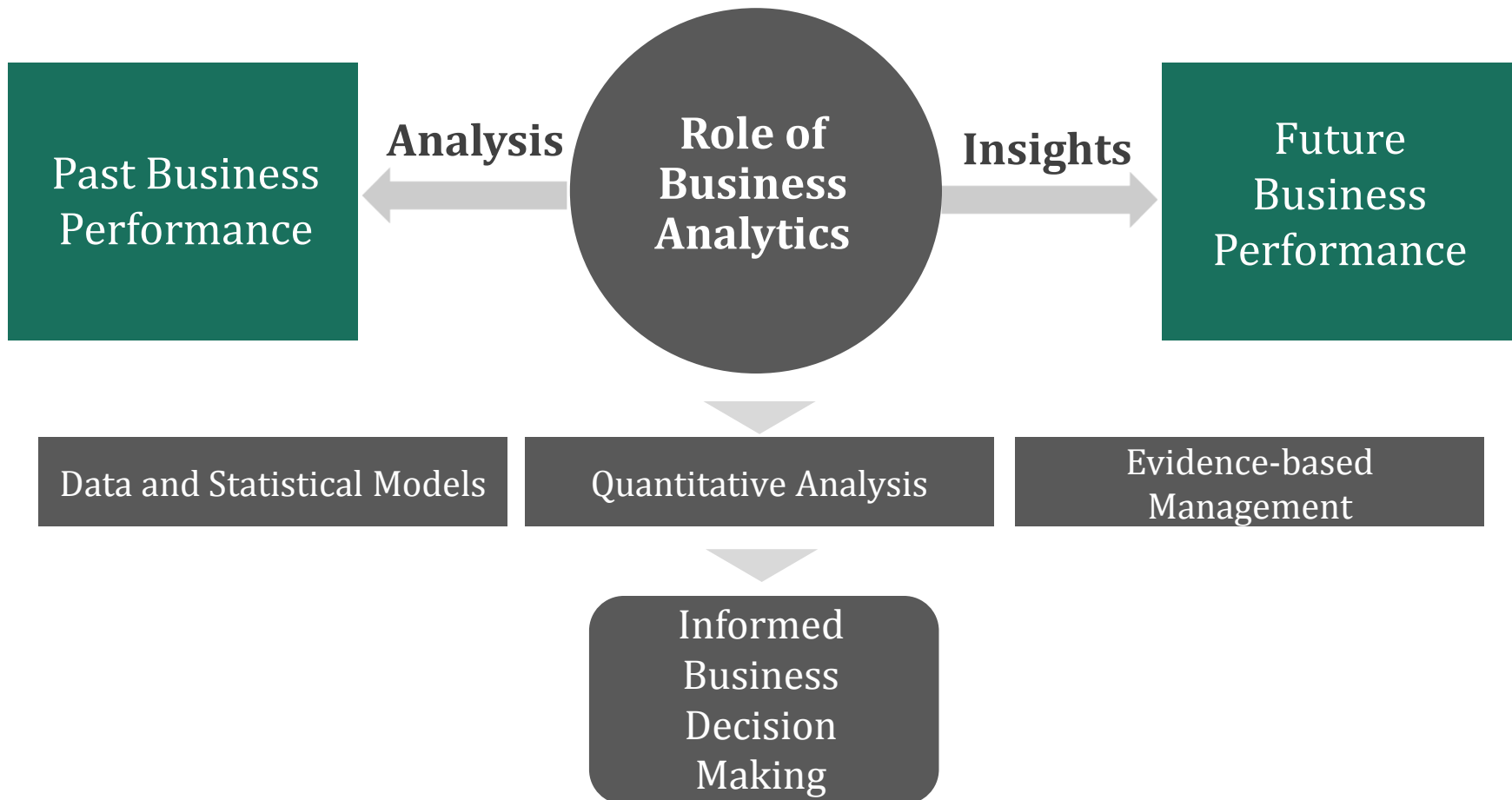
Data on its own is useless unless you can make sense of it!

WHAT IS ANALYTICS?

The scientific process of transforming data into insight for making better decisions, offering new opportunities for a competitive advantage

What is Business Analytics?

Business Analytics is not so much about tools or technologies – It is a way of thinking that uses knowledge, tools and techniques to extract valuable insights from unstructured data, which then leads to a business strategy.



How do I predict future stock prices through twitter data, news data , intraday trading data ,consumer behaviour data?

Which screenplay of the movie/show will give maximum number of views on Youtube or TRPs on TV?

Will there be any fraudulent activity in our hospital? If yes, how to prevent it?

Which industry/segment is yet to witness growth based on its historical data?

Which screenplay of the movie/show will give maximum number of views on Youtube or TRPs on TV?

How would you answer these business dilemmas?

Data Scientist:

THE SEXIEST JOB IN THE 21ST CENTURY

Harvard Business Review, Oct 2012

A Business analyst is not able to discover insights from huge sets of data of different domains.

Data scientists can work in coordination with different verticals of an organization and find useful patterns/insights for a company to make tangible business decisions.

15,000%

INCREASE IN JOB POSTINGS FOR
DATA SCIENTISTS IN THE US
BETWEEN 2011-12



**Generation of Large Amount of Data
from Business Transactions**

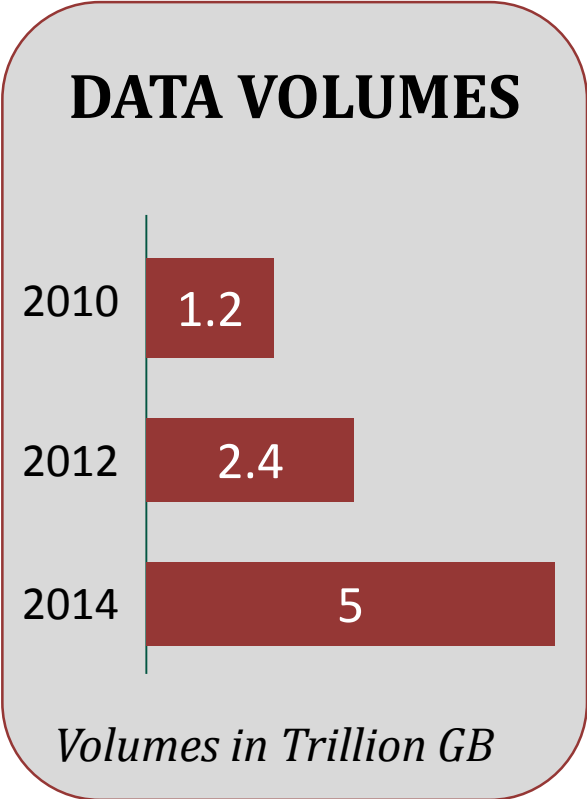
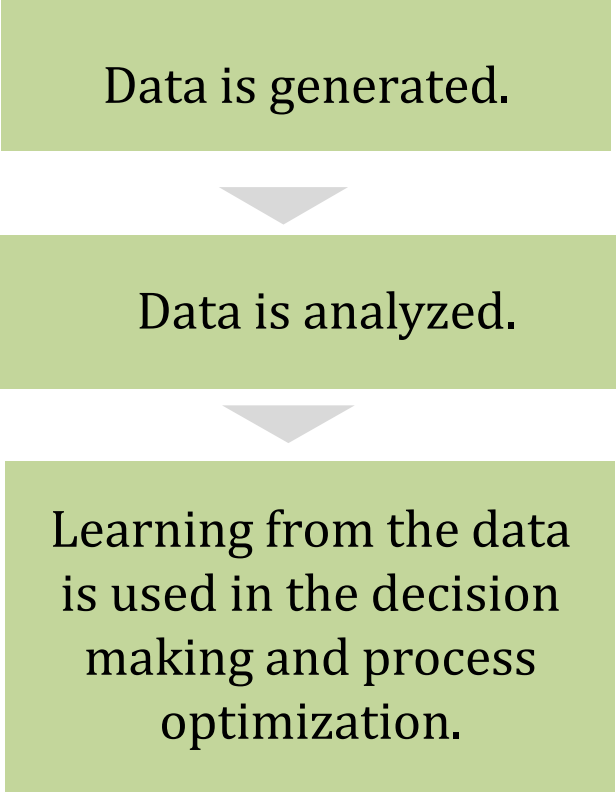
**Availability of the Large Data Storage
System at Lower Cost**



**Availability of Better Tools and Technology
to Analyze the Large Data Sets**

Generation of Large Amount of Data from Business Transactions

DATA HARNESSING
Companies store each piece of information generated during the business operations and customer interactions.



DID YOU KNOW ?



4 Billion

Number of transactions every year

900

Number of Stores

10000 -1 lakh

Number of SKUs

BUSINESS NEED

- The Business environment today is more complex than ever before.
- Businesses are expected to be diligently responsive to the increasing demands of customers, various stakeholders and even regulators.

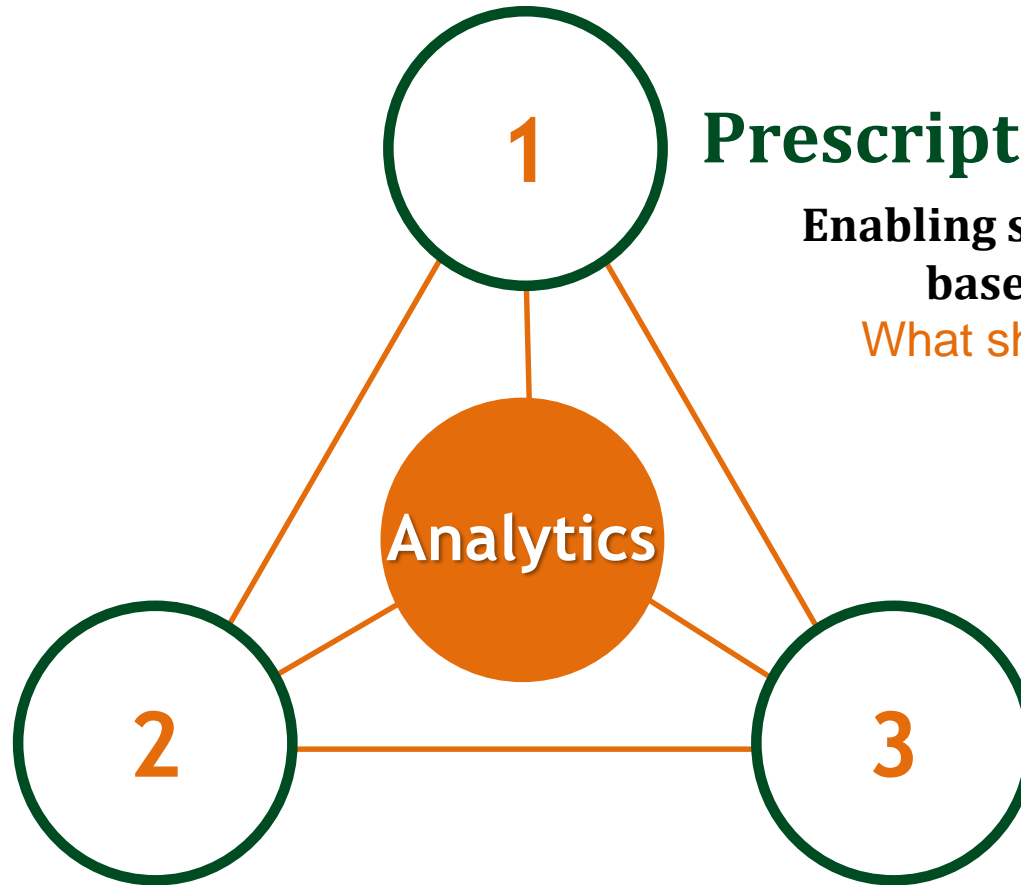
GOAL

In most cases the primary objective of an organization that seeks to turn to analytics is:

- Revenue/Profit growth
- Optimize expenditure

SOLUTION

- Organizations have been turning to the use of analytics.
- More than 83% of Global CIOs surveyed by IBM in 2010 singled out Business Intelligence and Analytics as one of their visionary plans for enhancing competitiveness.



Prescriptive Analytics

Enabling smart decisions
based on data
What should we do?

Predictive analytics

Predicting the future based
on historical patterns
What could happen?

Descriptive analytics

Mining data to provide
business insights
What has happened?

Types of Analytics



Why do airline prices change every hour?

Prescriptive Analytics
advice on possible outcomes



How do grocery cashiers know to hand you coupons you might actually use?

Predictive Analytics
understanding the future



How does Netflix frequently recommend just the right movie?

Descriptive Analytics
insight into the past

Careers in Analytics



Demand for Analytics Professionals in India



Domestic Market

\$ 163 Million
Jan, 2014

\$ 375 Million
Projected for 2018

Analytics Market

\$ 1 Billion
Jan, 2014

\$ 2.3 Billion
Projected for 2018

Job Openings

31,500
Jan, 2014

2,50,000
Projected for 2018

Source: NASSCOM

Salary Report

Experience	0-2 Years	2-5 Years	5-10 Years	10+ Years
Salary in INR	4.5 Lakhs	5.8 Lakhs	8.8 Lakhs	15 Lakhs

New Analytics Jobs By Industry



Analytics Services and Pharma lead the pack in the highest percentage of Analytics jobs being created in developing nations.

	US	INDIA	CHINA	UK	BRAZIL	JAPAN	SINGAPORE
ANALYTICS SERVICES	11%	54%	25%	9%	14%	6%	9%
PHARMA	14%	24%	32%	19%	30%	44%	26%
INSURANCE	39%	7%	8%	32%	11%	27%	24%
BANKING	20%	11%	22%	25%	19%	14%	25%
OIL & GAS	14%	3%	10%	13%	23%	8%	9%
COMMUNICATIONS TECHNOLOGIES	2%	1%	3%	2%	3%	1%	7%
TOTAL NUMBER OF JOBS	38,700	31,500	30,500	7,000	6,200	2,400	1,300

Employment Landscape in India

Large IT Companies who have an Analytics Practice



Analytics KPOs

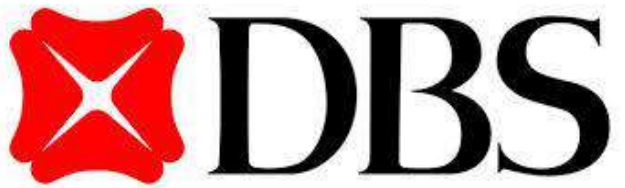


In-house Analytics Units of Large Corporates



Niche Analytics Firms





And Many More...

Career Options in Analytics



No matter what your educational background or aspirations, you have a fulfilling career in one of the many fields of Business Analytics.

FIELDS IN ANALYTICS	MIS REPORTING	NON-PREDICTIVE ANALYTICS	PREDICTIVE ANALYTICS	MACHINE LEARNING
KEY FEATURES	<ul style="list-style-type: none"> • Data management • Data Exploration • MIS and report creation • Automation of reports 	<ul style="list-style-type: none"> • Segmentation • Customer profiling • Portfolio Analysis • Trend Analysis • Forecasting 	<ul style="list-style-type: none"> • Probability models • Classification and regression trees • Time series models 	<ul style="list-style-type: none"> • Neural networks • Multi-layer Perceptron • Geospatial models • Associative rule learning • Inductive logic programming
TARGET AUDIENCE	<ul style="list-style-type: none"> • BCom • B.E • BTech 	<ul style="list-style-type: none"> • BCom • B.E • BTech • MBAs 	<ul style="list-style-type: none"> • B.E • BTech • MSc (Statistics) • MBAs • MCA 	<ul style="list-style-type: none"> • B.E • BTech • MSc (Statistics) • MBAs • MCA
INDICATIVE JOB ROLES	<p>MIS Analyst Data Analyst Strategy Analyst Cost Analyst</p>		<p>Data Scientist Statistician Advanced Analytics – Team Manager Market / Global Research Analyst Analytics Manager</p>	

Tools for Analytics

R





Why R?

Data mining has entered its golden age.
R is the weapon of choice for legions of data scientists!

What are the reasons for its sudden popularity?

Cost of Ownership R is an open source software that is free to download.

Versatility R is perhaps the only analytics software to run on MAC.

Customizable Data scientists can improve the software's code or write variations for specific tasks.

R offers extensive analytics capabilities ranging from Text Analytics, Predictive, Time Series, Optimization.

Rattle GUI is widely for data mining.

Big Data Analytics made possible by Revolution Analytics (Commercial version of R)

A Data Scientists' Dream

R is particularly useful in data analytics because it contains a number of built-in mechanisms for organizing data, running calculations on the information and creating graphical representations of data sets.

Some people familiar with R describe it as a supercharged version of Microsoft's Excel spreadsheet software that can help illuminate data trends more clearly than is possible by entering information into rows and columns.

Integration

- Integrates with other software vendors: SAS, Oracle, IBM, Teradata, TIBCO, Alteryx, SAP.
- Integration with HDFS, WEKA, Python, MATLAB.
- R & Excel: RExcel is an add in for Microsoft Excel, allowing access to the statistics package R from within Excel.

Why R? (Contd.)

Highest Paid IT Skill
Dice Survey, Jan 2014

Most-used data science language after SQL
O'Reilly Survey, Jan 2014

70% of data miners use R
Rexer Survey, Oct 2013

Ranked #15 of all programming languages
RedMonk rankings, Jan 2014

Growing faster than any other data science language
KDNuggets Survey, Aug 2013

R is the #1 Google Search for Advanced Analytics software
Google Trends, March 2014

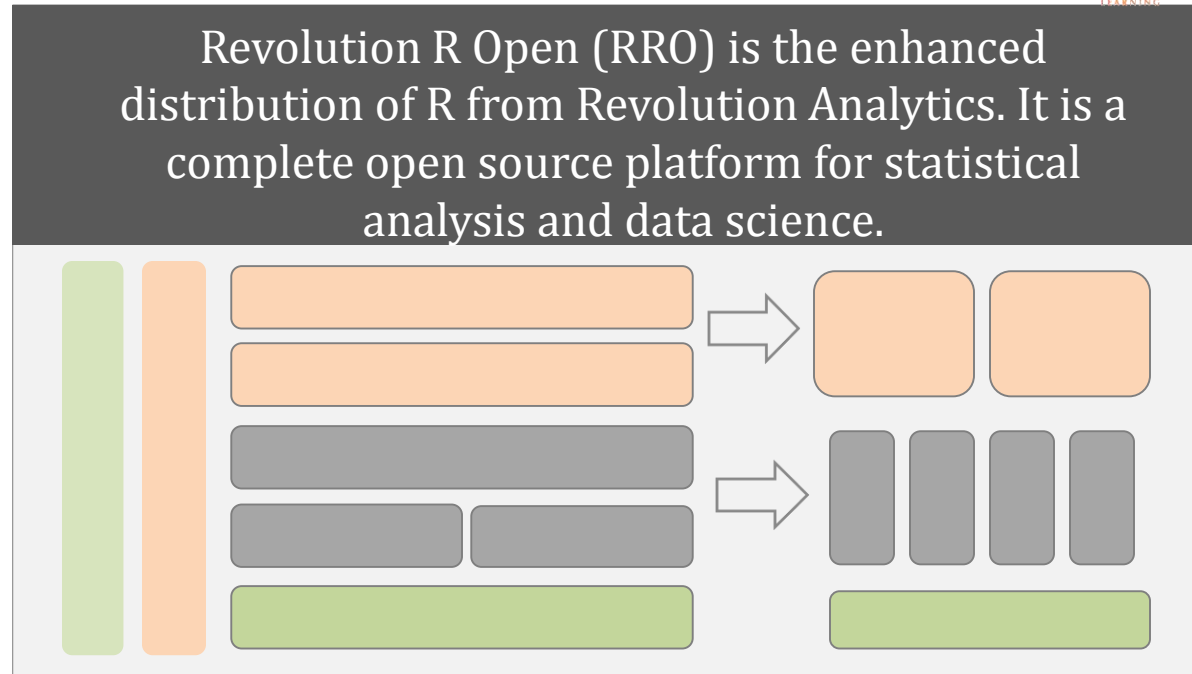
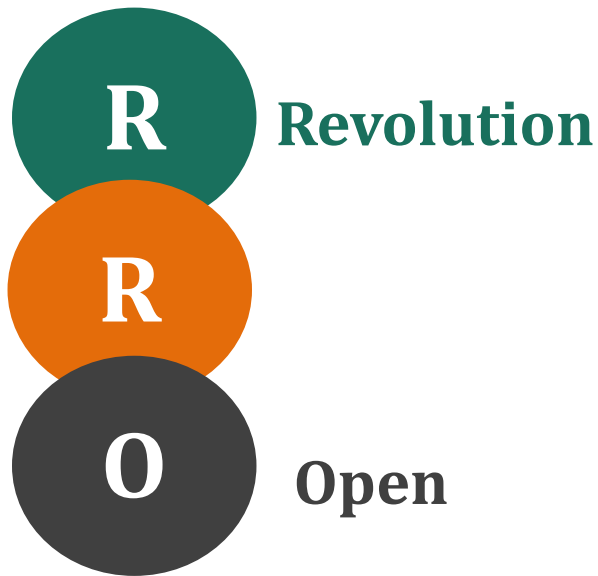
More than 2 million users worldwide.
Oracle Estimate, Feb 2012

Demand for R language skills is on the rise.

Companies Already Onboard R

Facebook	FDA
Google	John Deere
Twitter	Lloyds of London
Foursquare	& Many More...
ANZ Bank	

R You Ready for R?



RRO is free to download and use. Technical support and a limited warranty are available with a paid subscription to Revolution R Plus. Learn more about Revolution R Open [here](#).



RRO 8.0.1 is based on (and 100% compatible with) version 3.1.2 of the R language, and includes additional capabilities for performance, reproducibility and platform support.

Top 8 Packages in R

#1

sqldf

```
install.packages("sqldf")
```

#5

**The database driver
package of your choice**

#2

forecast

```
install.packages("forecast")
```

#6

lubridate

```
install.packages("lubridate")
```

#3

plyr

```
install.packages("plyr")
```

#7

ggplot2

```
install.packages("ggplot2")
```

#4

stringr

```
install.packages("stringr")
```

#8

reshape2

```
install.packages("reshape2")
```

Tip

```
install.packages(c("sqldf", "forecast", "plyr", "stringr", "lubridate", "ggplot2", "reshape2"))
```




**Thank You
For Your
Attention**

&

A