Microsoft | Power BI

Bring your R data to life with Microsoft Power BI


“The world is changing.
Big will not beat small anymore.
It will be the fast beating the slow.”
Rupert Murdoch

Businesses are moving to PowerBI for multiple purposes...

Optimize infrastructure costs and achieve scale

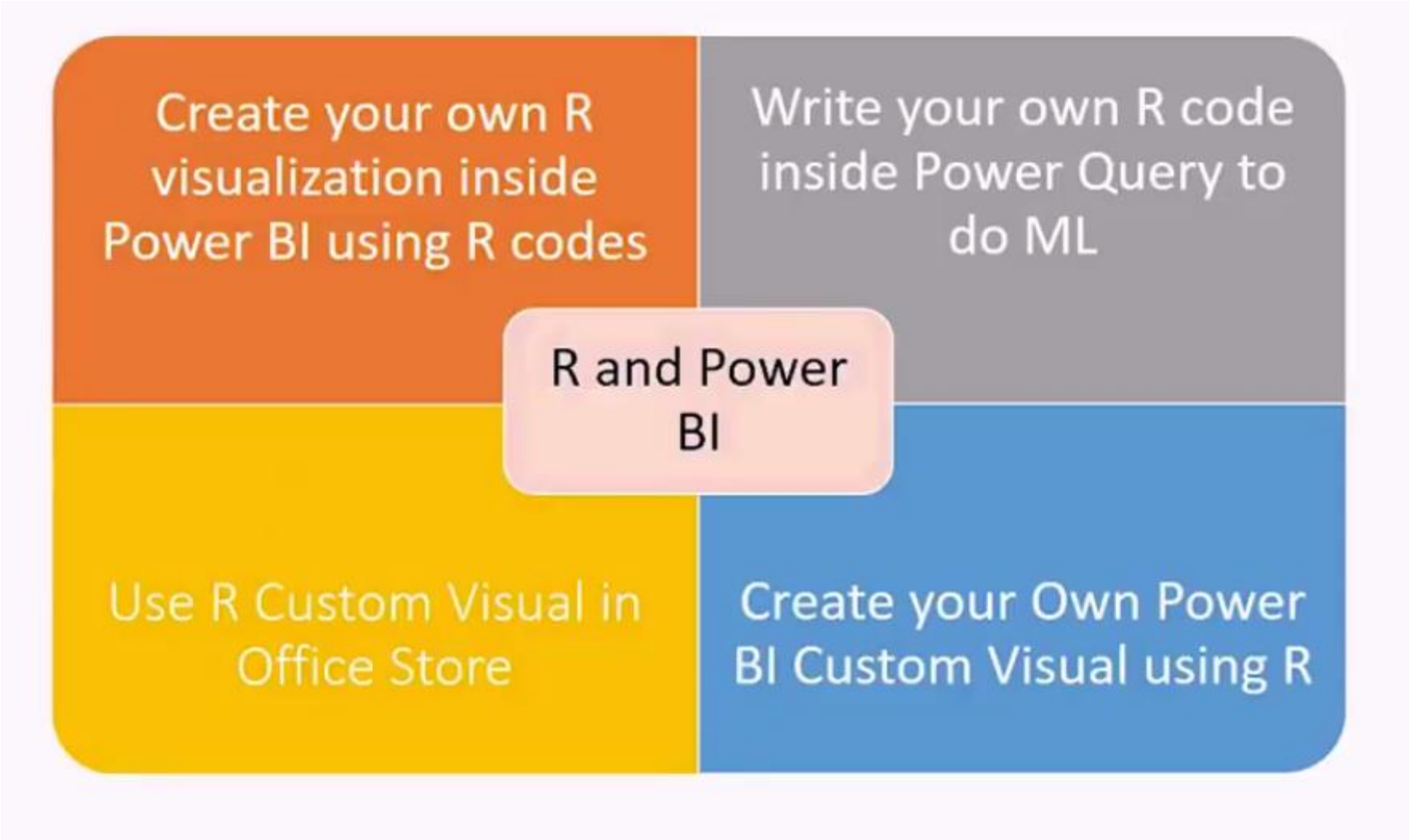
Gain value from data to predict business outcomes

Build new apps and experiences

Connect to business platforms of services and partners

Make teams productive with secure mobile/devices

R and Power BI



Sam Chatterjee

Business Intelligence Developer at H&M, Denmark.

- Speaker in Microsoft, lyngby 2017.
- Meetup groups in PowerBI Denmark, Norway, Australia.
- Youtube channel in sambidata.
- Whatsapp group on Global PowerBI and R ML .

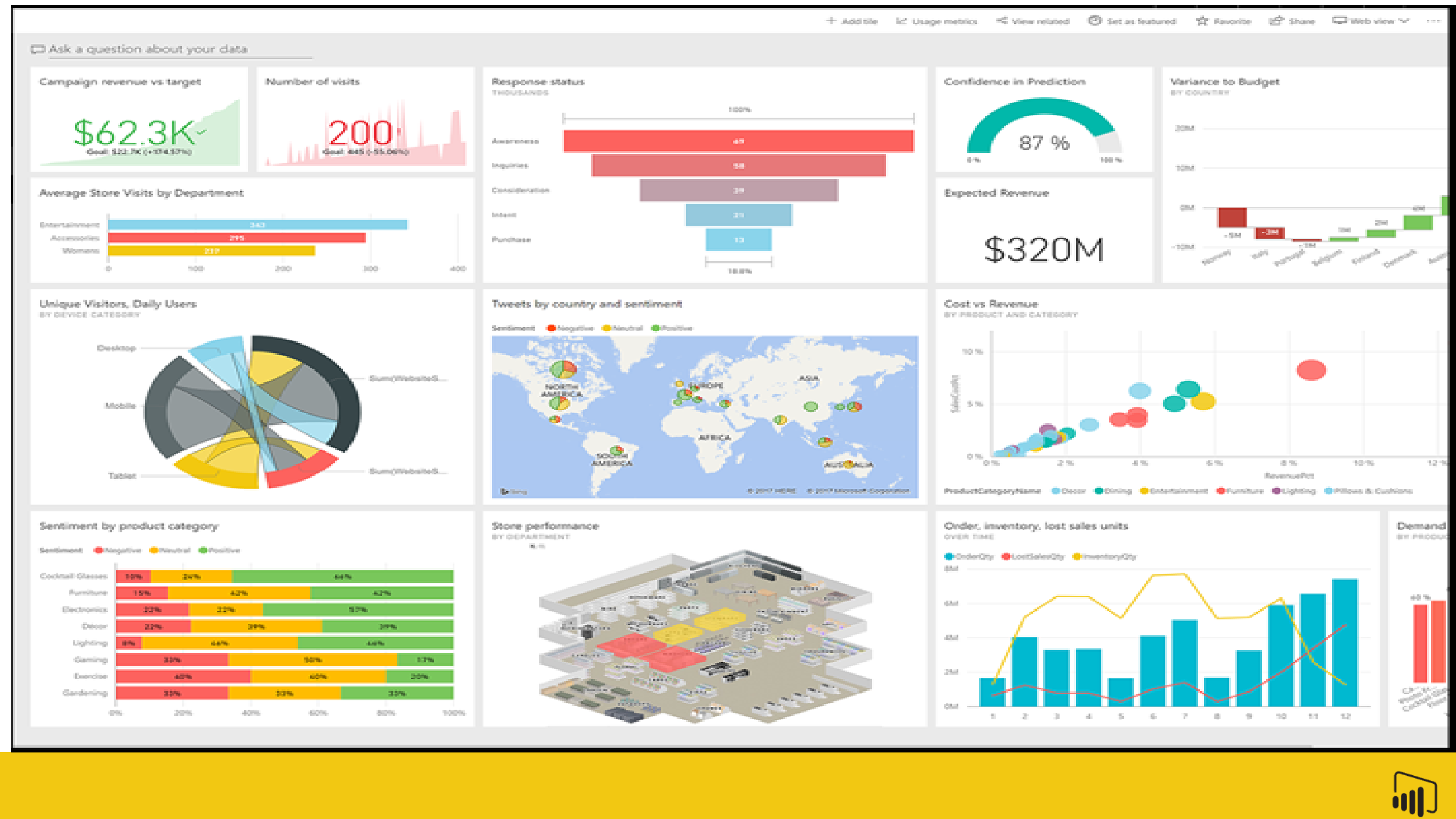
@bidata

Power BI

Power BI is a ~~cloud based~~ business analytics service that enables.

- fast and easy access to your data
- a live 360º view of your business
- data discovery and exploration
- insights from any device
- collaboration across your organization
- anyone to visualize and analyze data

Experience Your Data. Any Data, Any Way, Anywhere.


Add tile
Usage metrics
View related
Set as featured
Favorite
Share
Web view
Ask a question about your data
Campaign revenue vs target
$62.3K
Number of visits
200
Response status
THOUSANDS
100%
Awareness
Inquiries
Consideration
Intent
Purchase
Confidence in Prediction
87 %
Variance to Budget
BY COUNTRY
Average Store Visits by Department
Entertainment
Accessories
Womens
Expected Revenue
$320M
Unique Visitors, Daily Users
BY DEVICE CATEGORY
Desktop
Mobile
Tablet
Tweets by country and sentiment
Sentiment
Negative
Neutral
Positive
NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
Cost vs Revenue
BY PRODUCT AND CATEGORY
RevenuePct
ProductCategoryName
Decor
Dining
Entertainment
Furniture
Lighting
Pillows & Cushions
Sentiment by product category
Cocktail Glasses
Furniture
Electronics
Decor
Lighting
Gaming
Exercise
Gardening
Store performance
BY DEPARTMENT
Order, inventory, lost sales units
OVER TIME
OrderQty
LostSalesQty
InventoryQty
Demand

POWERBI FUNDAMENTALS

Core Fundamentals

- ❑ Query Editor
- ❑ Relationships
- ❑ DAX
- ❑ Visualization
- ❑ Power BI Platform

Download PowerBI from

https://powerbi.microsoft.com/en-us/downloads/

What is R?

The R statistical programming language is a free open source package based on the **S language** developed by Bell Labs.

R was created by **Ross Ihaka** and **Robert Gentleman** at the University of Auckland, New Zealand

What is R

- Software for Statistical Data Analysis
- Based on S
- Programming Environment
- Interpreted Language
- Data Storage, Analysis, Graphing
- Free and Open Source Software

Obtaining R

- Current Version: R-3.4.2
- Comprehensive R Archive Network:

  http://cran.r-project.org
- Binary source codes
- Windows executables
- Compiled RPMs for Linux
- Can be obtained on a CD

INSTALL R

1) R software download

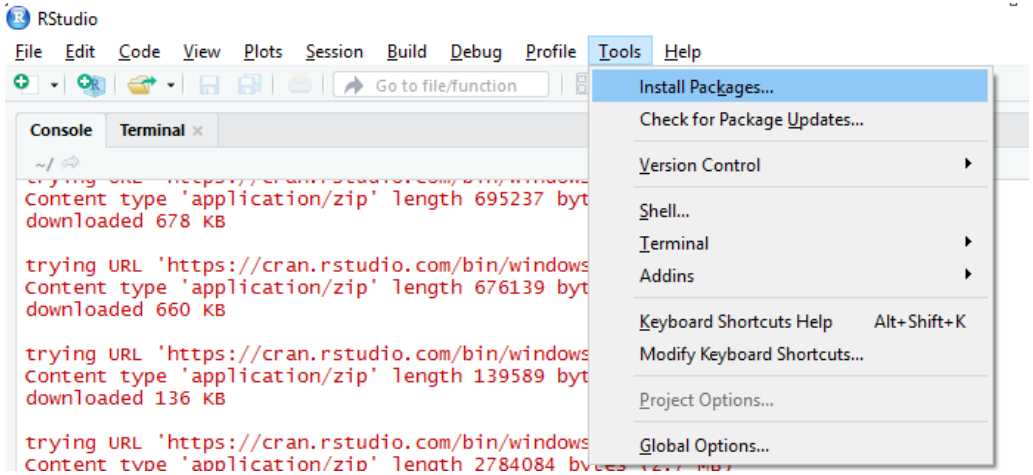
https://www.r-project.org/

2) Install R software.

3) Download and install R-studio

https://www.rstudio.com/

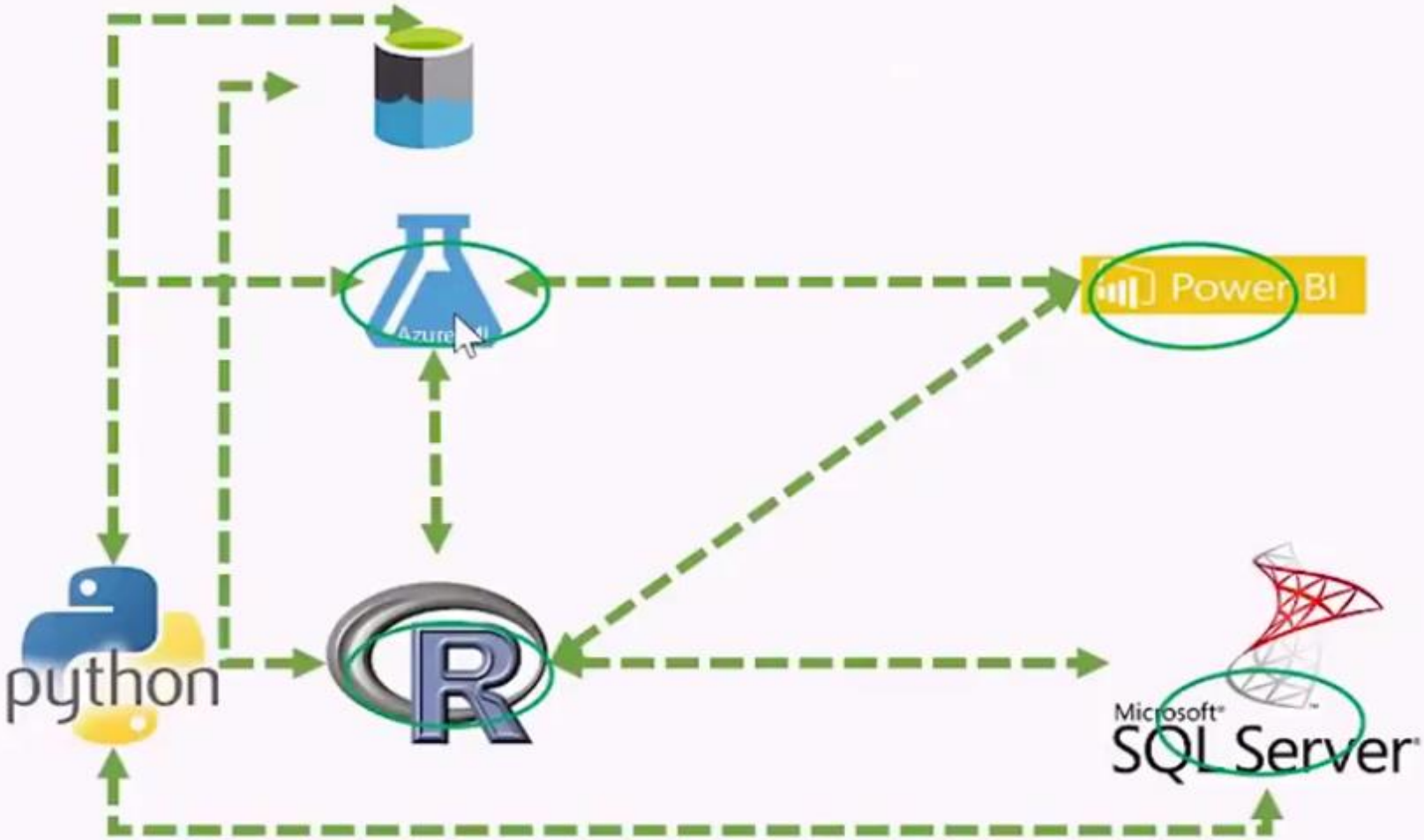
4) Install R packages

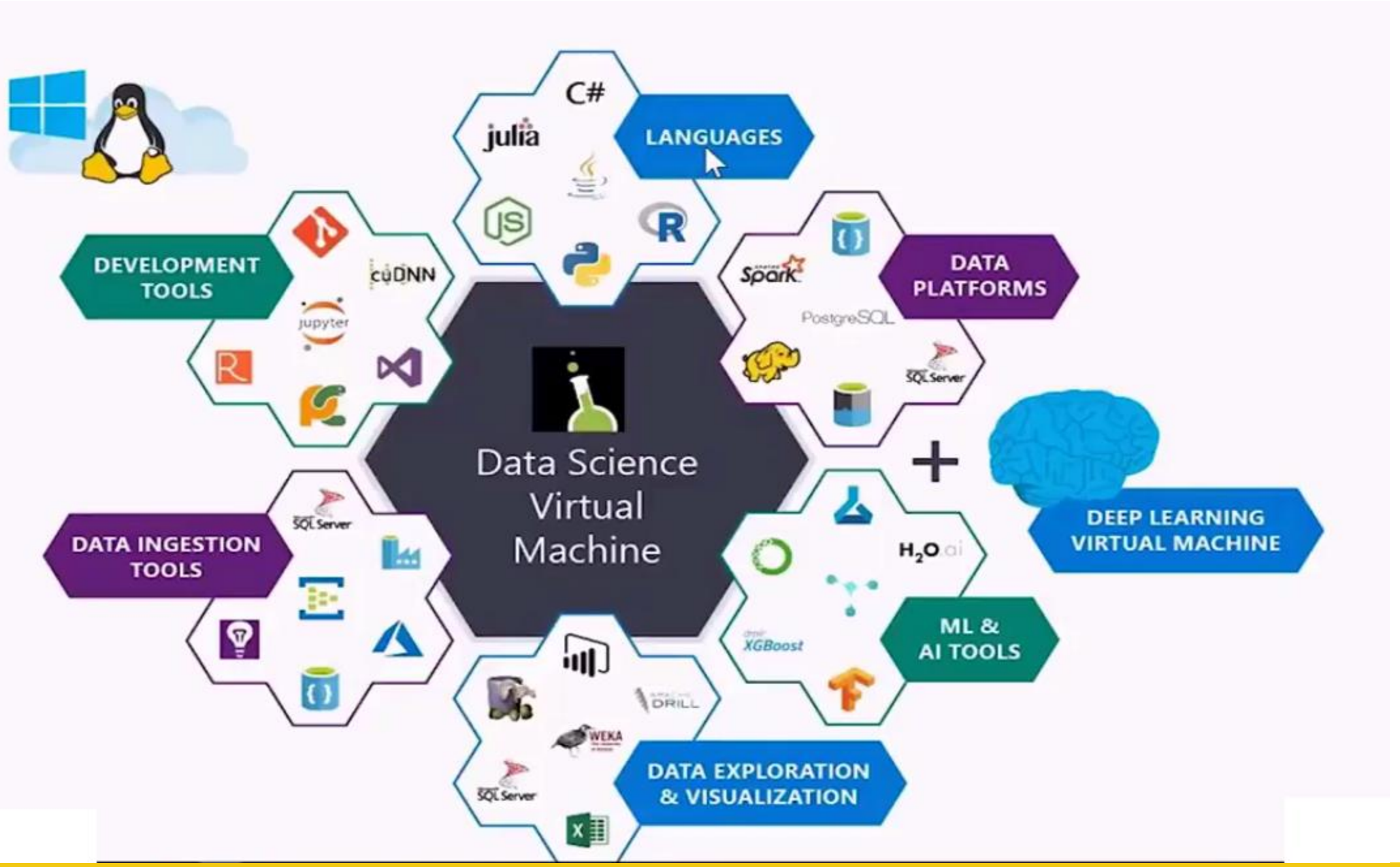


Working with R

- **Highly Functional**
  - Everything done through functions
  - Strict named arguments
  - Abbreviations in arguments OK (e.g. T for TRUE)
- **Object Oriented**
  - Everything is an object
  - "< –" is an assignment operator
  - "X <- 5": X GETS the value 5

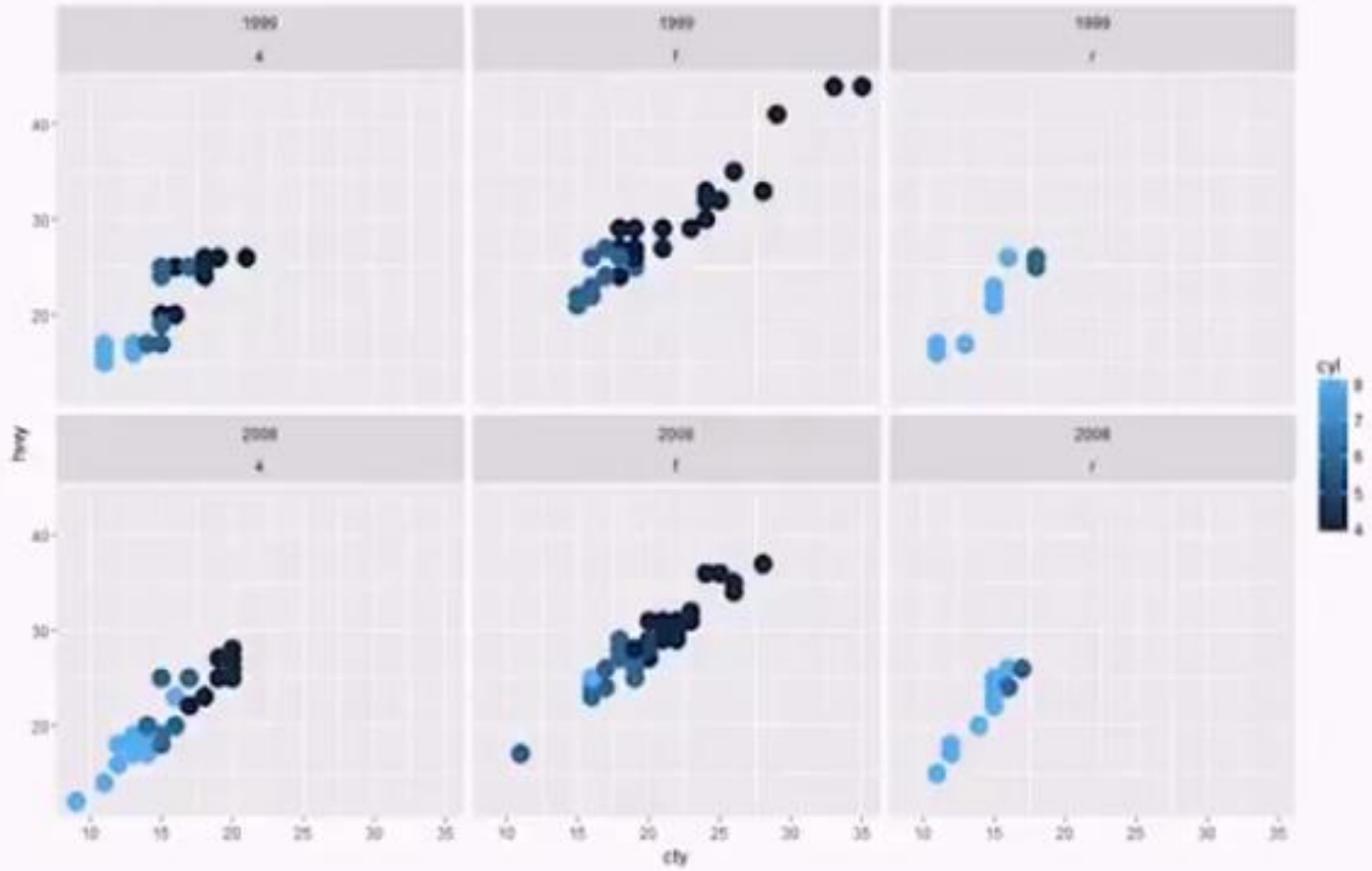
R Helps Business Intelligence Developers




LANGUAGES
DEVELOPMENT TOOLS
DATA PLATFORMS
Data Science Virtual Machine
DATA INGESTION TOOLS
ML & AI TOOLS
DEEP LEARNING VIRTUAL MACHINE
DATA EXPLORATION & VISUALIZATION

Grouping data Diagram-Facet

```
library(ggplot2)
library(reshape2)
t<-ggplot(mpg, aes(x=cty, y=hwy,color=cyl)) +
geom_point(size=5)
t<-t + facet_wrap(year~ drv)
t
```



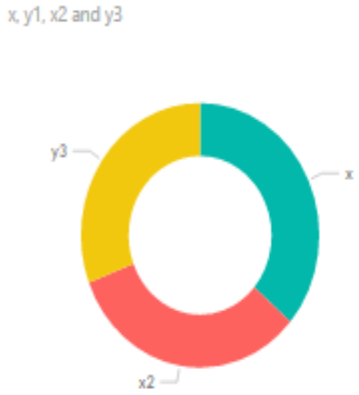
R script

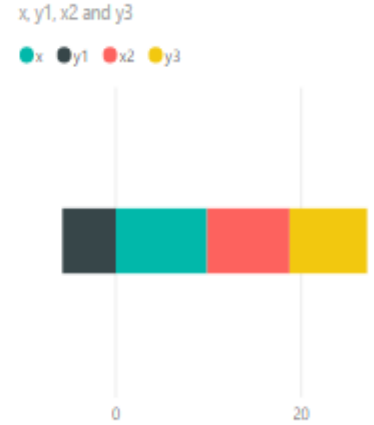
Script

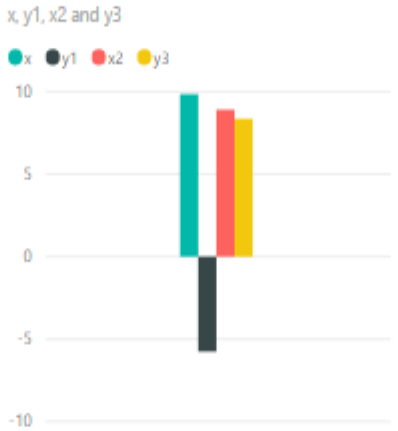
```
x<-rnorm(100)
y<-rnorm(100)
df1<-data.frame(x,y)
x1<-rnorm(200)
y1<-rnorm(200)
df1<-data.frame(x1,y1)
x2<-rnorm(300)
y2<-rnorm(300)
df1<-data.frame(x2,y2)
x3<-rnorm(400)
y3<-rnorm(400)
df1<-data.frame(x3,y3)
```

The R home directory is currently set to C:\Program Files\R\R-3.4.2

Go to Options and Settings to change which installation you want







Download file : http://www.ecb.europa.eu/stats/eurofxref/eurofxref-hist.zip

Statistics

+ Main features

− ECB/Eurosystem policy and exchange rates

- Official interest rates
- Minimum reserves and liquidity
- Eurosystem balance sheet
- + Banknotes and coins
- TARGET balances of participating NCBs
- Euro foreign exchange reference rates

Euro foreign exchange reference rates

The reference rates are usually updated around 16:00 CET on every working day, except on TARGET closing days. They are based on a regular daily concertation procedure between central banks across Europe, which normally takes place at 14:15 CET.

Euro foreign exchange reference rates: 27 November 2017

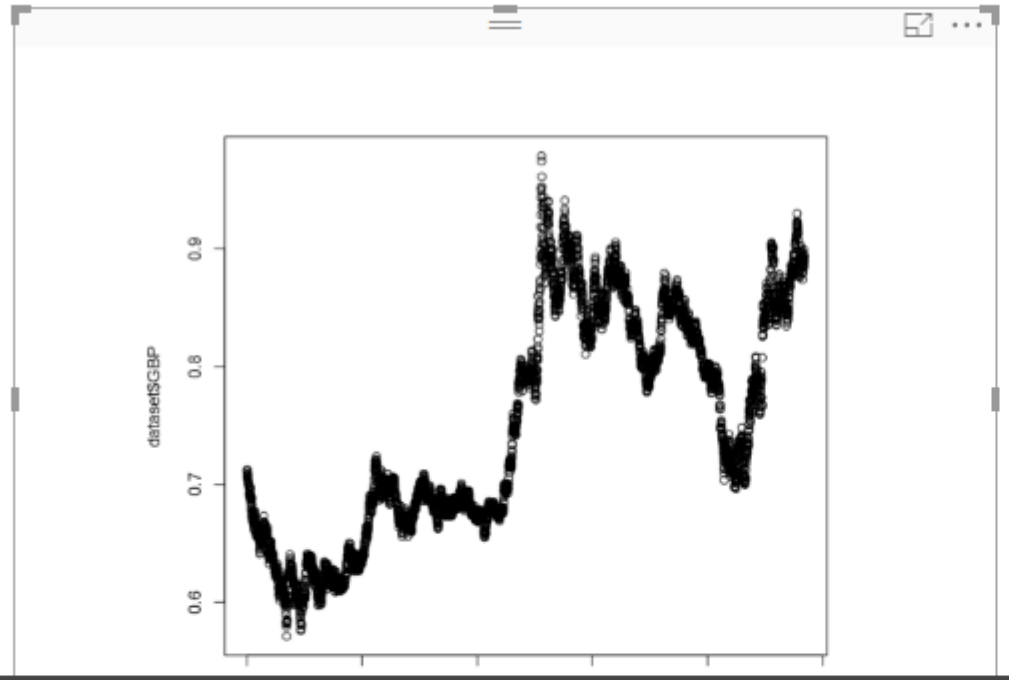
All currencies quoted against the euro (base currency)

Currency	Spot	Chart

Statistical Data Warehouse

Time series for bilateral exchange rates

plot(dataset$GBP)



R script editor

⚠ Duplicate rows were removed from the data.

```
# Remove duplicated rows
# dataset <- unique(dataset)
plot(dataset$GBP)
```

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VISUALIZATIONS

Values

Date
Year
Quarter
Month
Day

GBP

FILTERS

Visual level filters

Date - Day (All)
Date - Month (All)
Date - Quarter (All)
Date - Year (All)

FIELDS

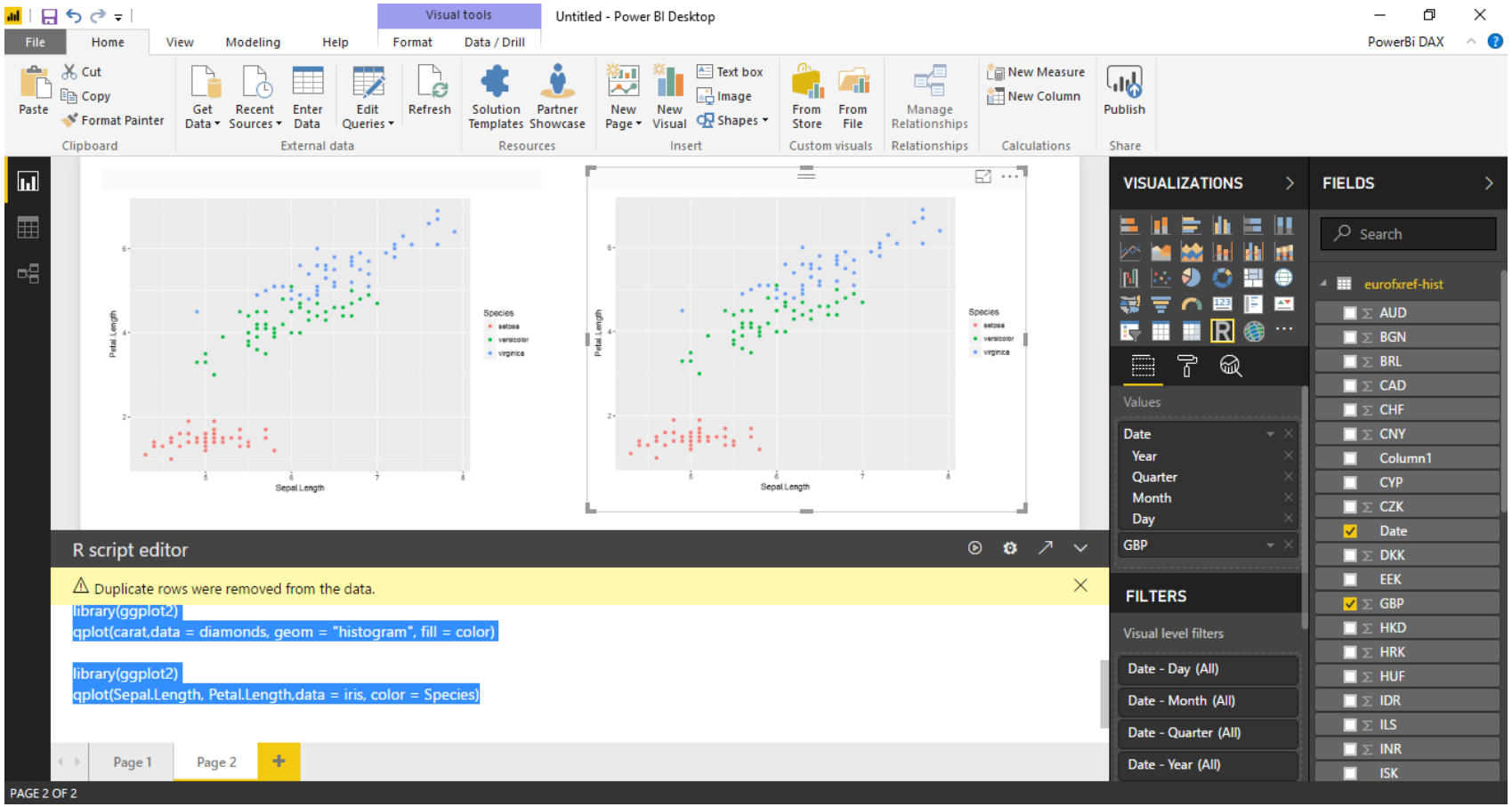
Search

eurofxref-hist

- AUD
- BGN
- BRL
- CAD
- CHF
- CNY
- Column1
- CYP
- CZK
- Date
- DKK
- EEK
- GBP
- HKD
- HRK
- HUF
- IDR
- ILS
- INR
- ISK

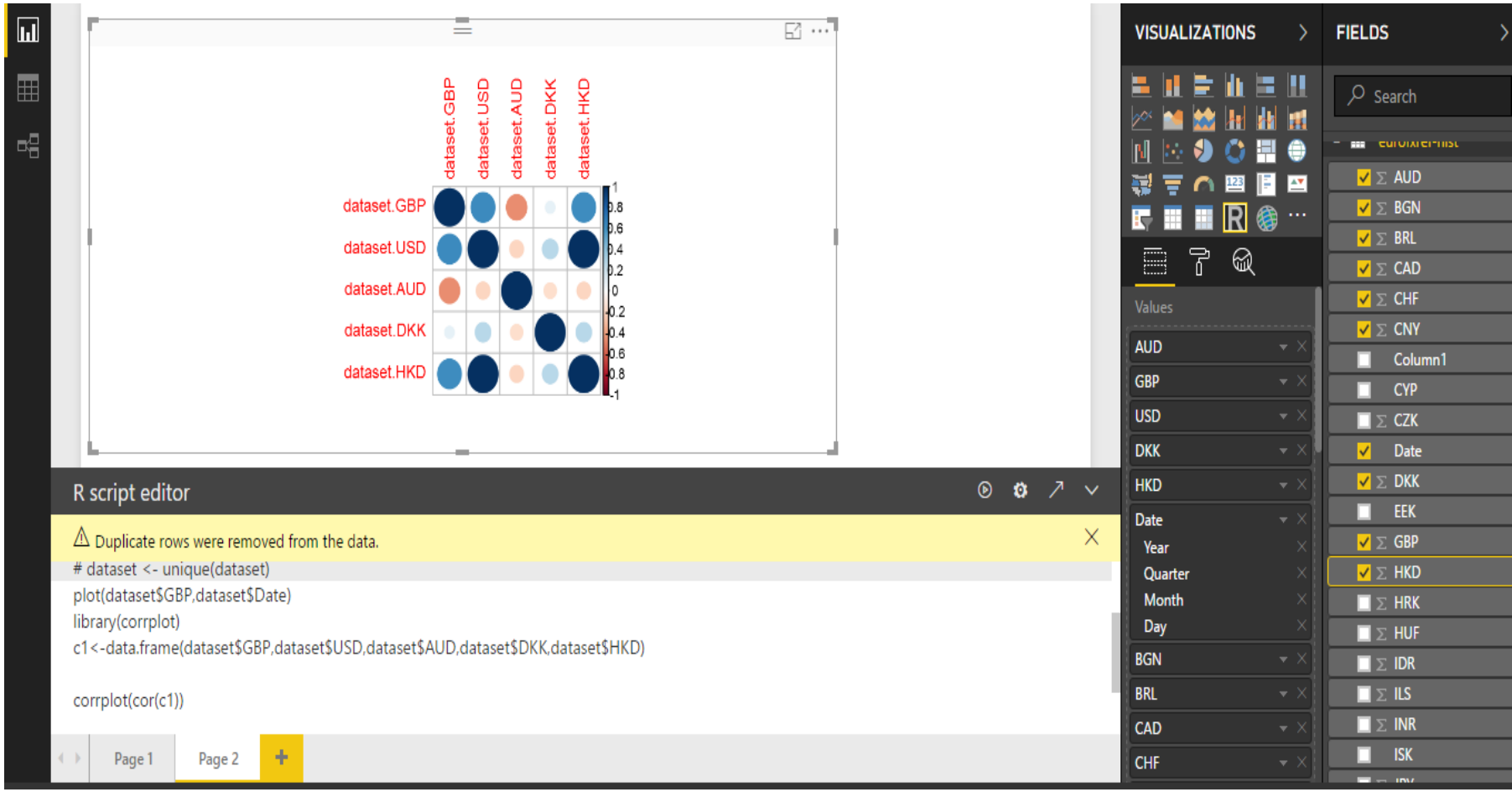
```
library(ggplot2)
qplot(carat,data = diamonds, geom = "histogram", fill = color)
```

```
library(ggplot2)
qplot(Sepal.Length, Petal.Length,data = iris, color = Species)
```



```
plot(dataset$GBP,dataset$Date)
library(corrplot)
c1<-
data.frame(dataset$GBP,dataset$USD,dataset$AUD,dataset$DK
K,dataset$HKD)

corrplot(cor(c1))
```



```
#forecast
c1<-data.frame(dataset$GBP)
library(forecast)
fitm<-auto.arima(c1[c(1:100),c(1)])
plot(forecast(fitm.h=10))
```

Resources

Get Power BI (Free)	http://tinyurl.com/hj5hdg6
Power BI Jump Start	http://bit.ly/1ktON16
Power BI Getting Started	http://bit.ly/1FF88KA
Power BI Team Blog	http://bit.ly/1vwbTLG
Power BI Channel 9	http://bit.ly/1a9Q0gv
Power BI	https://powerbi.microsoft.com

Thank You For Attending !

Q & A