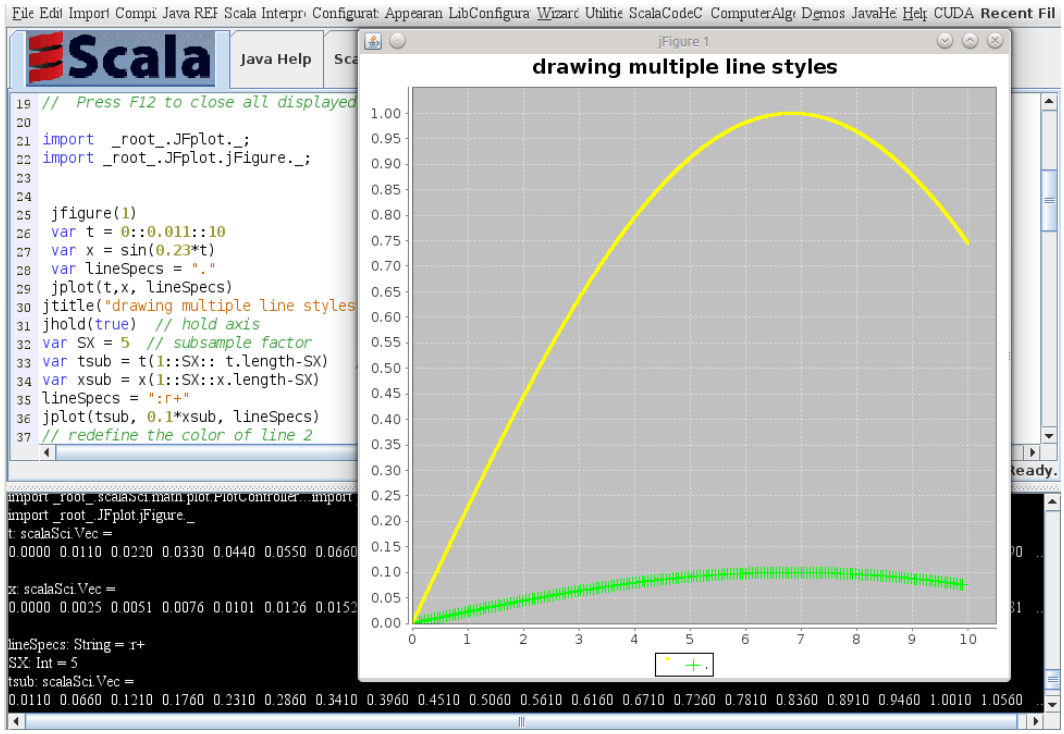
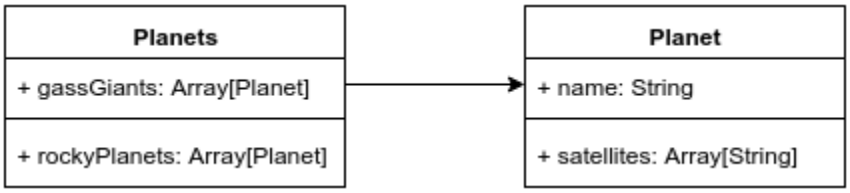
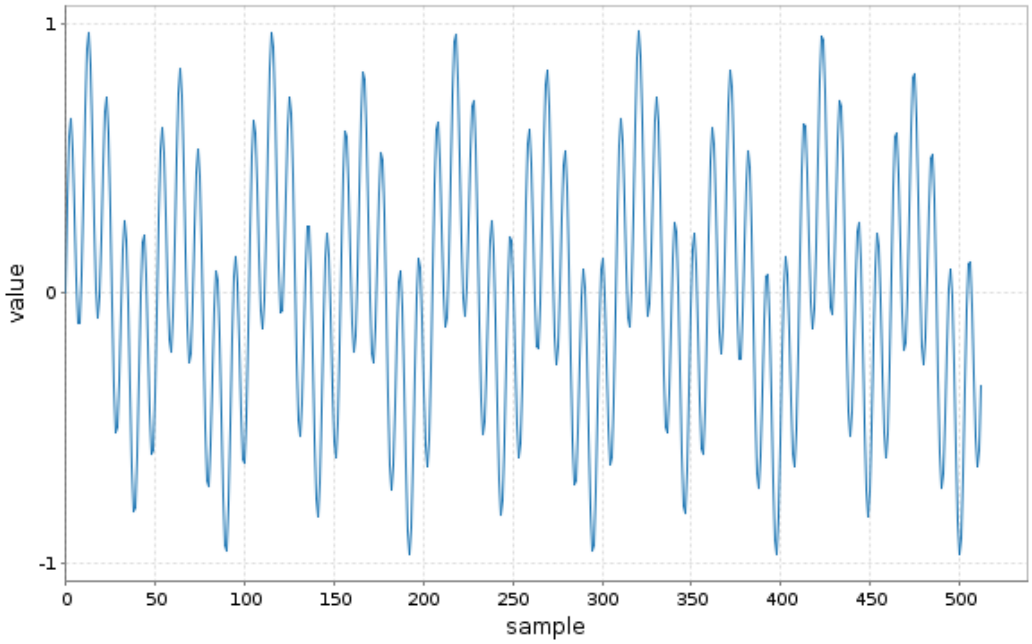
Chapter 1: Introducing Scientific Computing with Scala

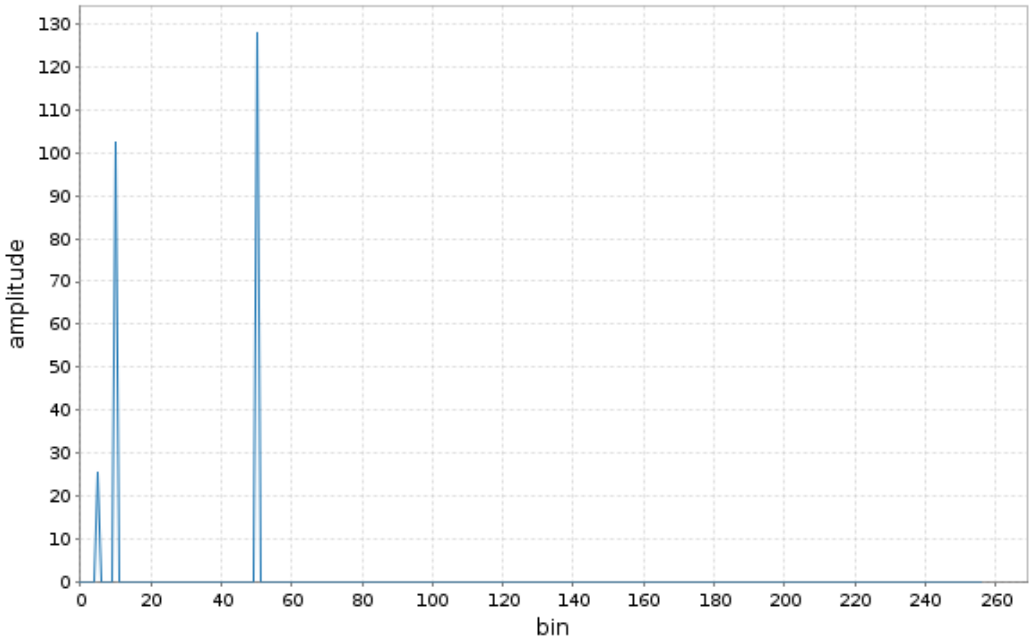


Chapter 2: Storing and Retrieving Data

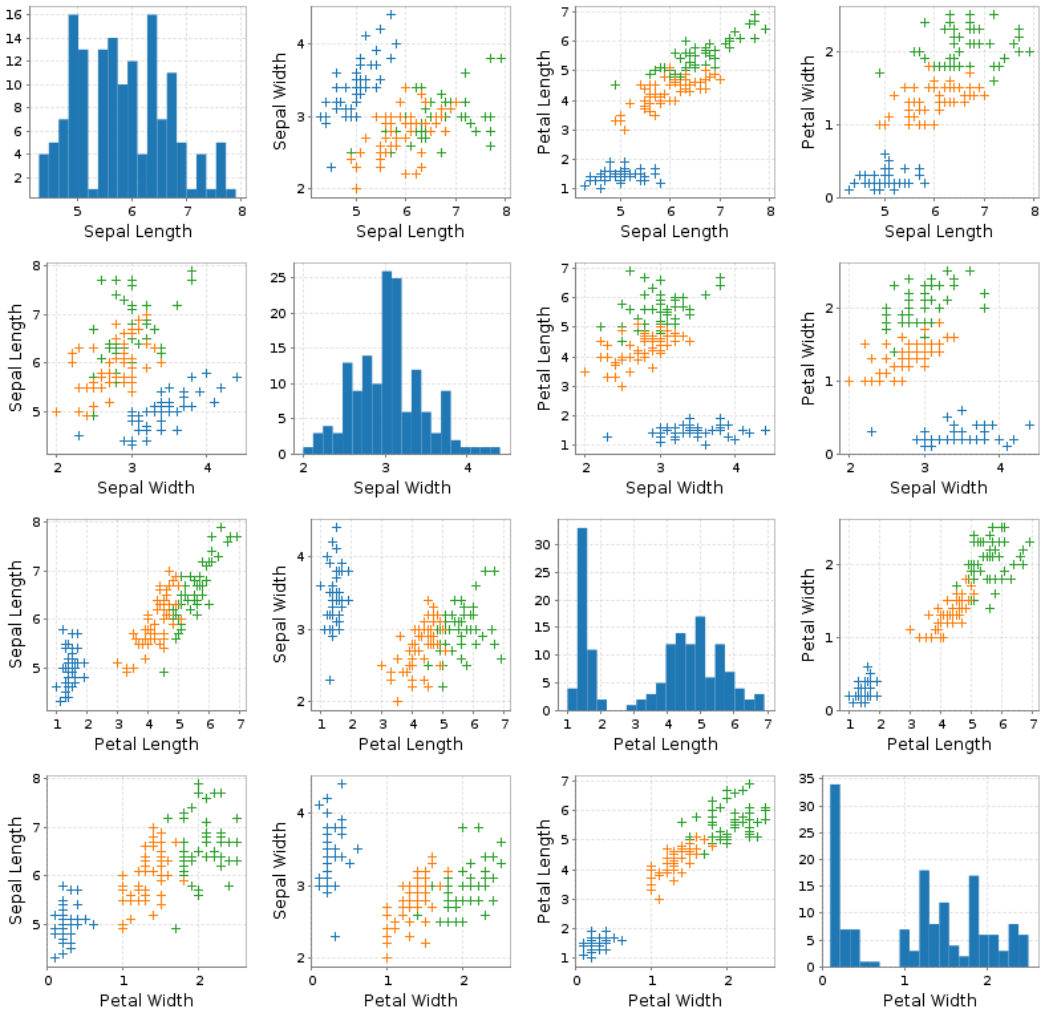


Chapter 3: Numerical Computing with Breeze

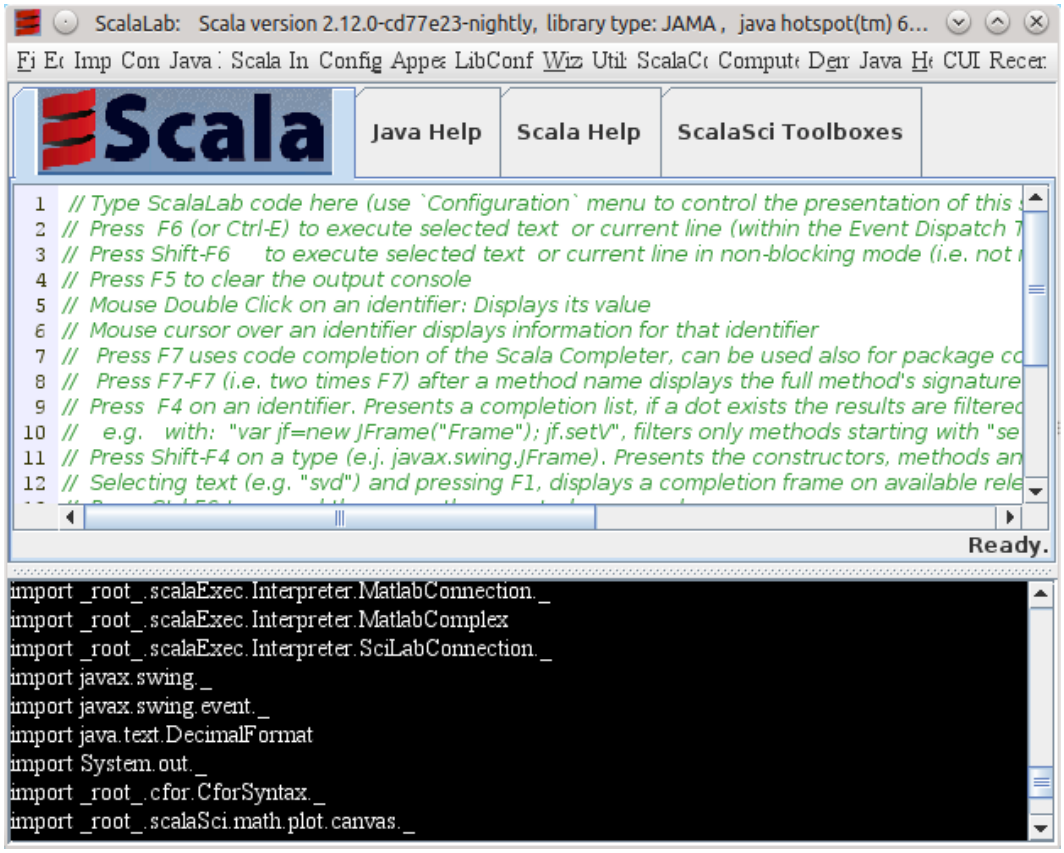


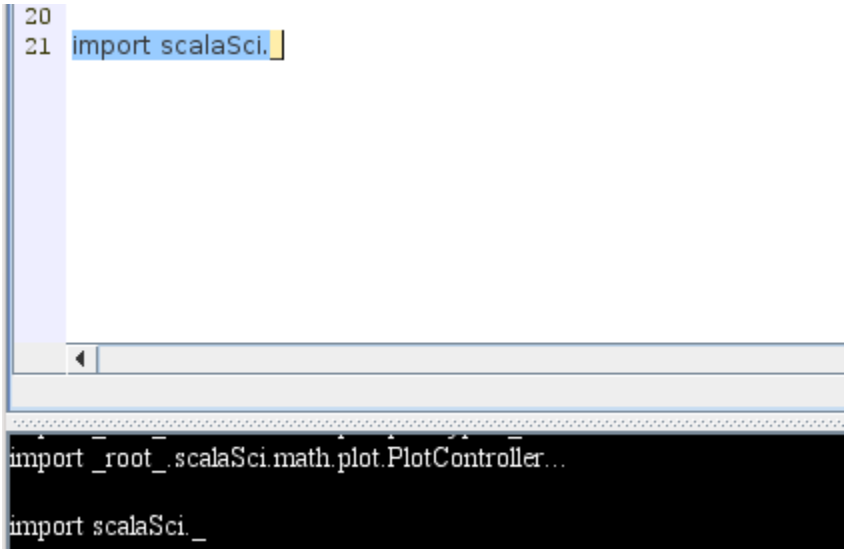

amplitude
bin
0
10
20
30
40
50
60
70
80
90
100
110
120
130
0
20
40
60
80
100
120
140
160
180
200
220
240
260

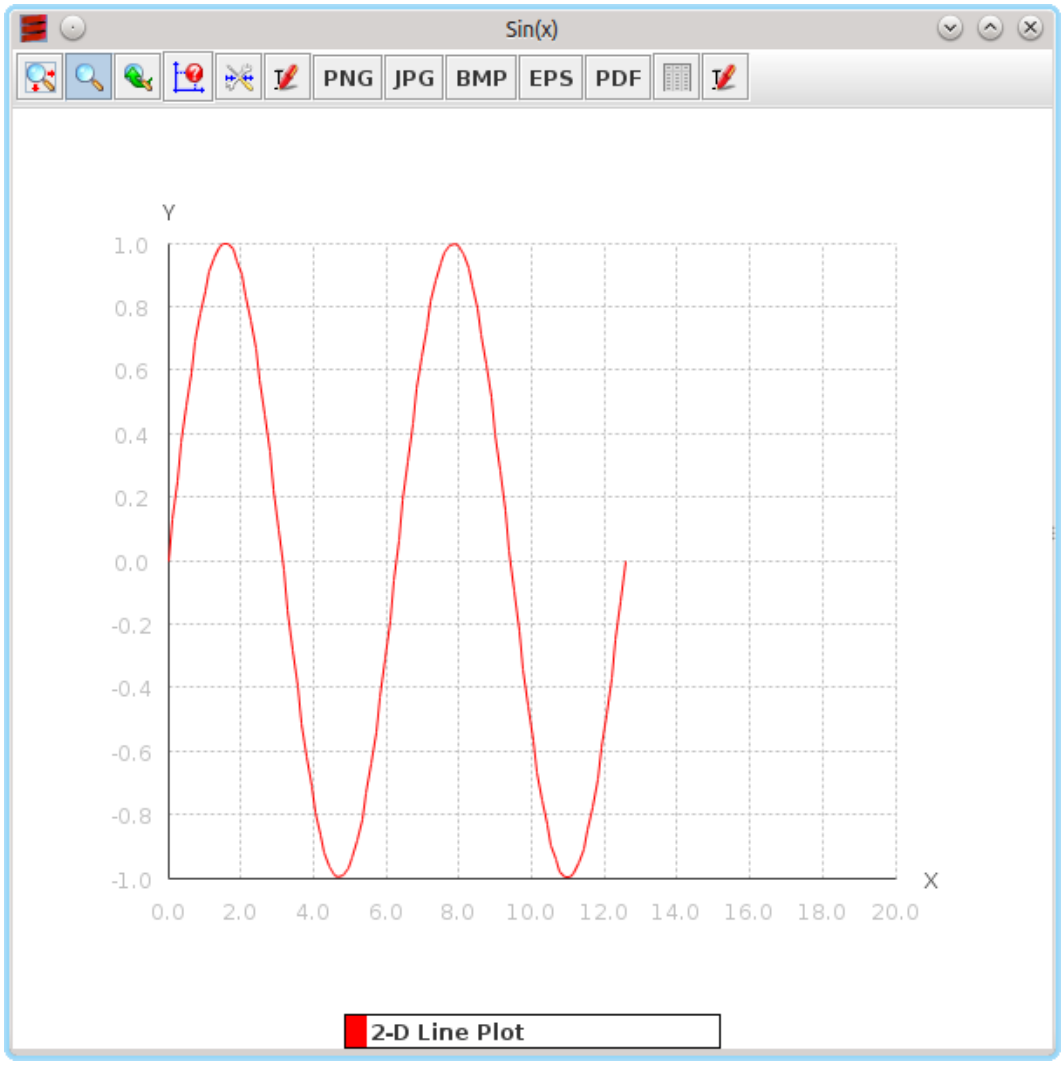
Chapter 4: Using Saddle for Data Analysis



Chapter 5: Interactive Computing with ScalaLab




20
21 import scalaSci._
import _root_.scalaSci.math.plot.PlotController...
import scalaSci._


Sin(x)
PNG
JPG
BMP
EPS
PDF
Y
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
X
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
2-D Line Plot

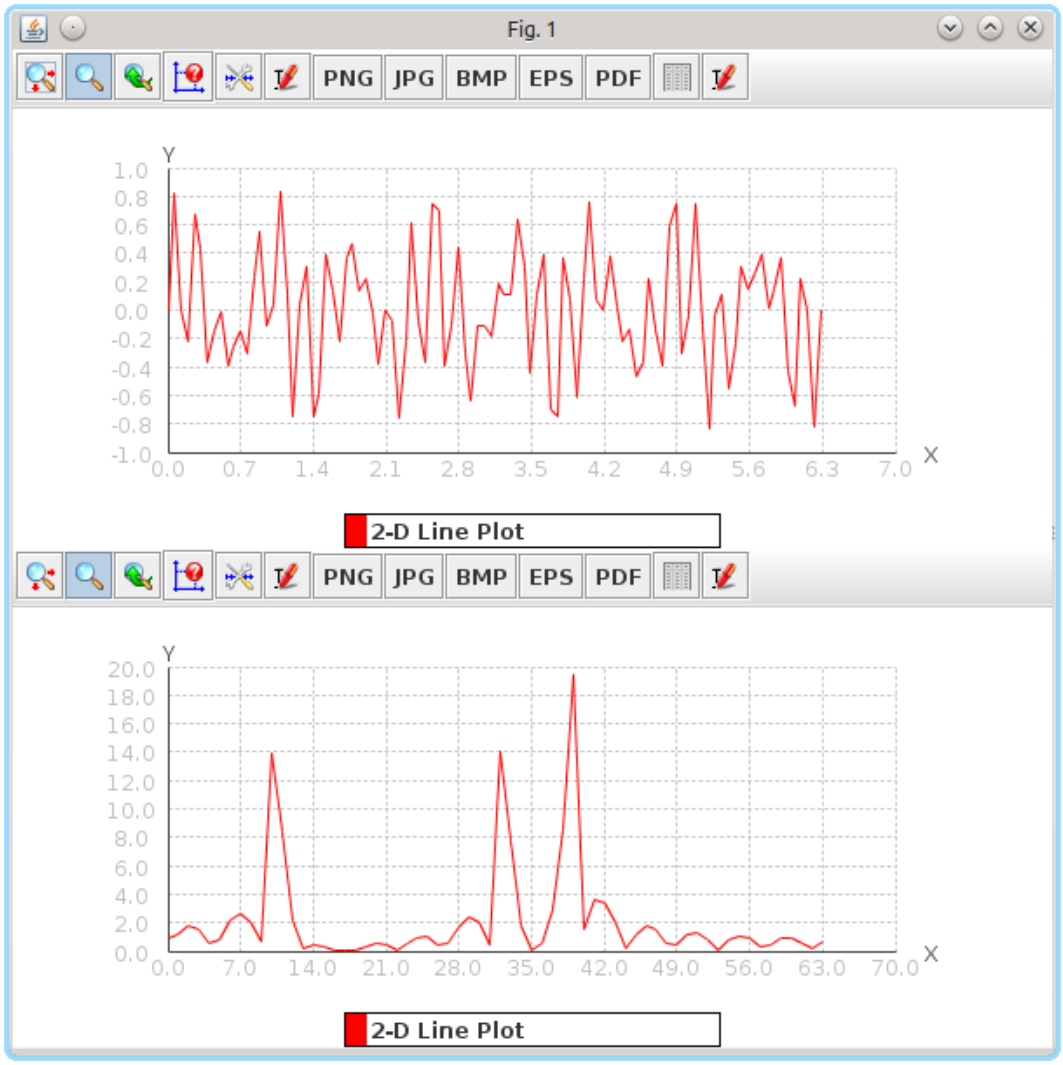


Fig. 1
PNG
JPG
BMP
EPS
PDF
Y
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
0.0
0.7
1.4
2.1
2.8
3.5
4.2
4.9
5.6
6.3
7.0
X
2-D Line Plot
PNG
JPG
BMP
EPS
PDF
Y
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
7.0
14.0
21.0
28.0
35.0
42.0
49.0
56.0
63.0
70.0
X
2-D Line Plot

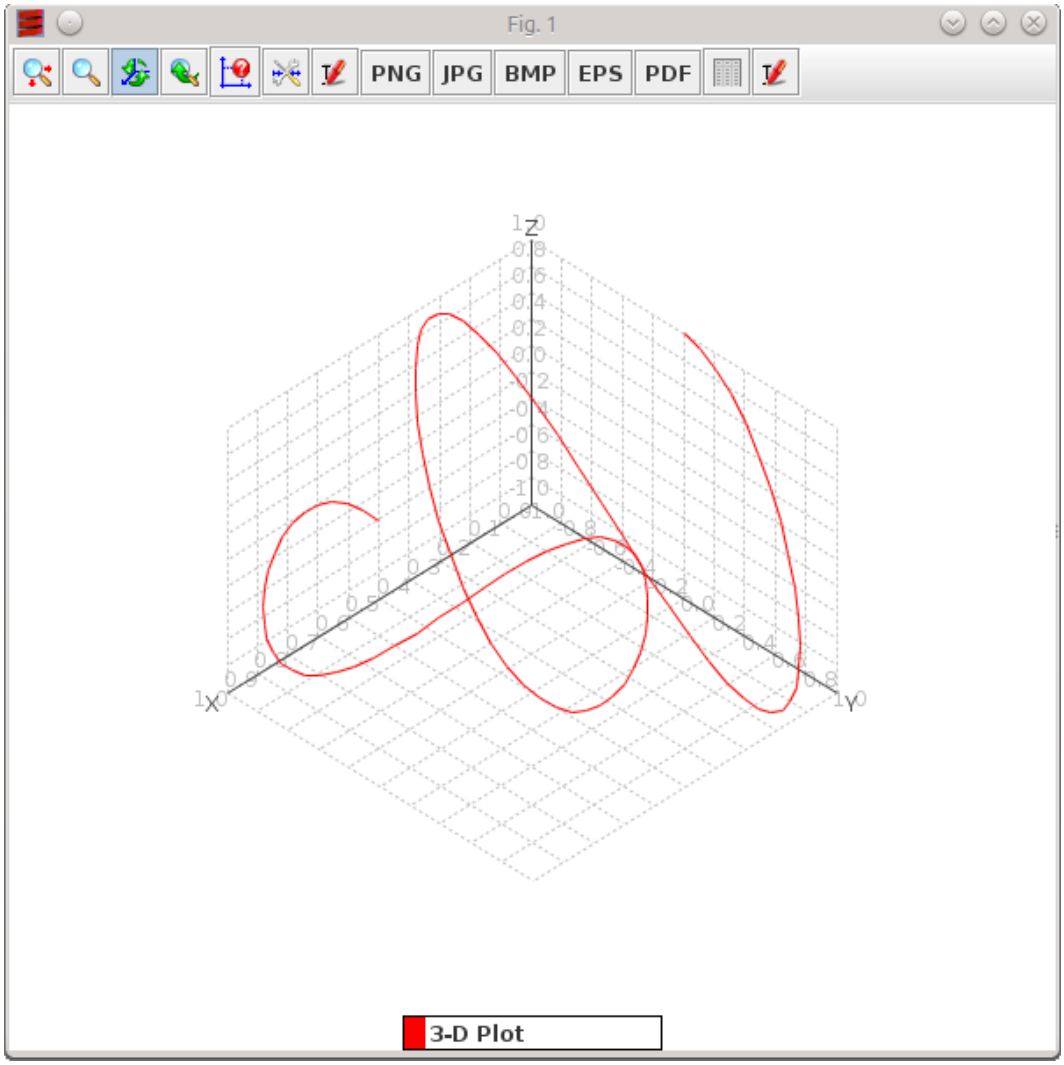
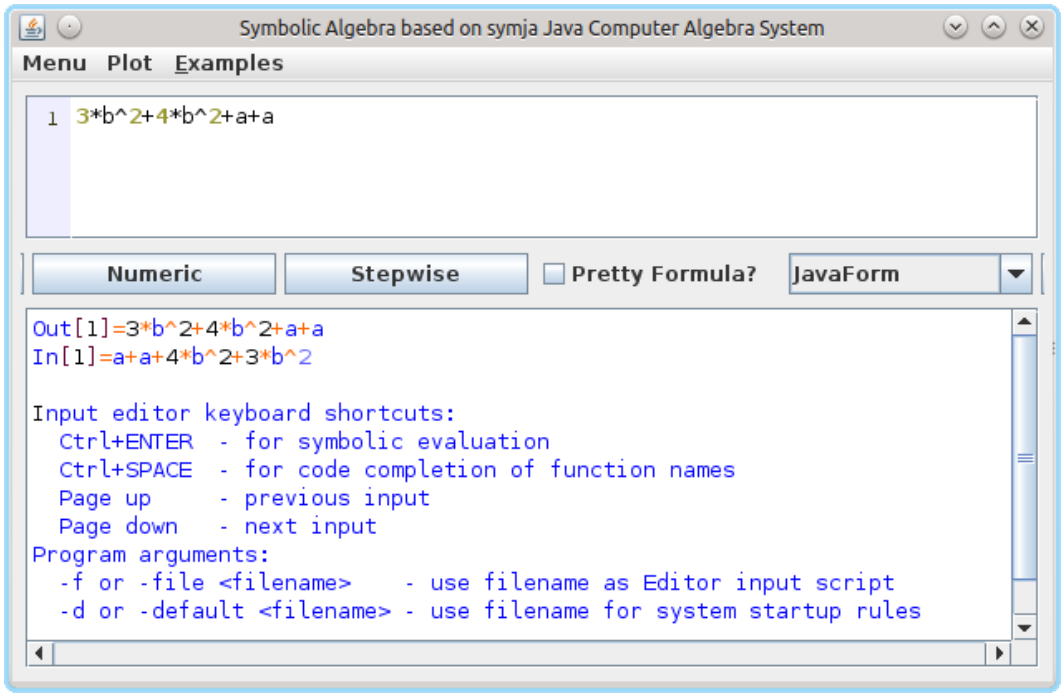
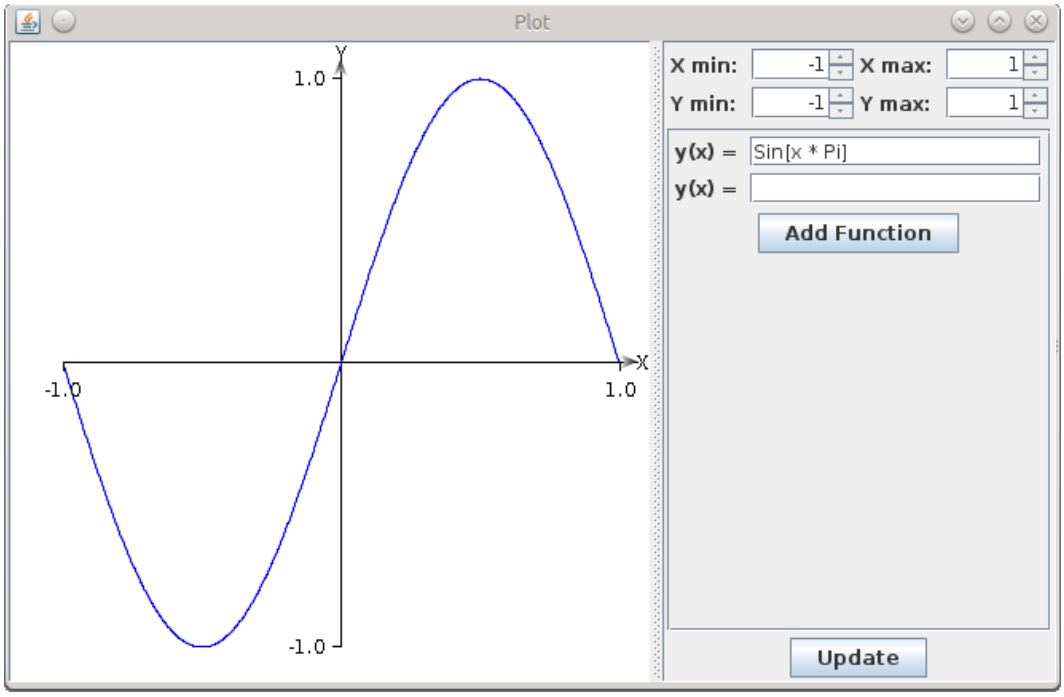
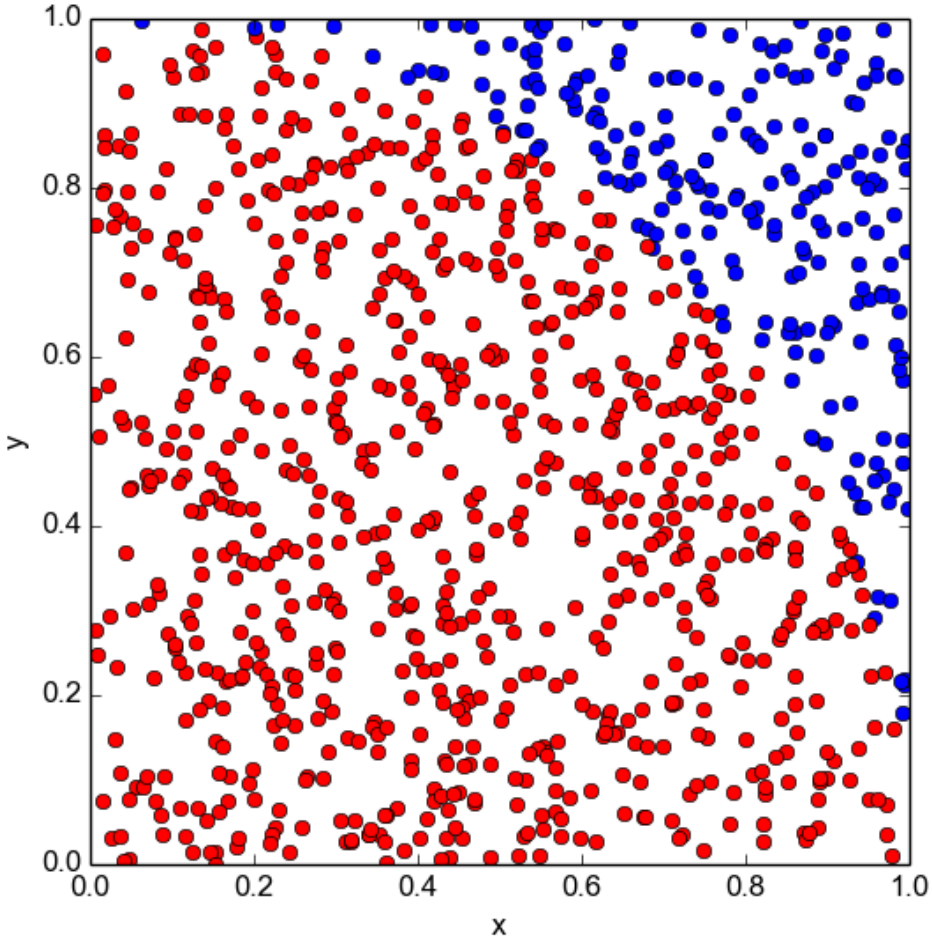


Fig. 1
PNG
JPG
BMP
EPS
PDF
Z
X
Y
3-D Plot

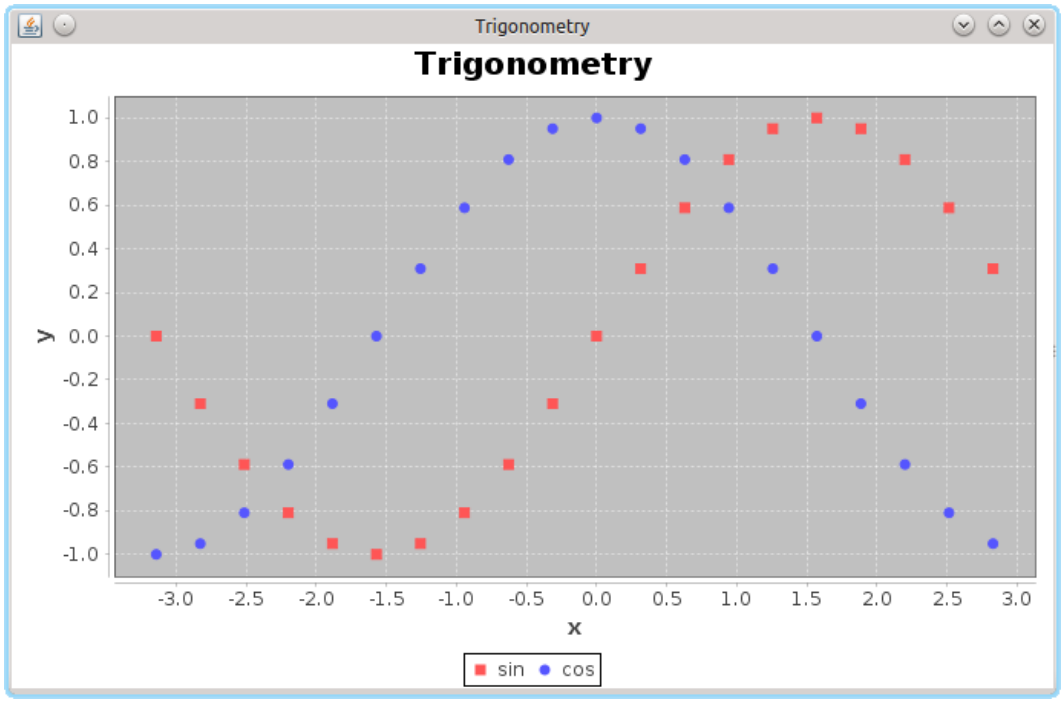

Symbolic Algebra based on symja Java Computer Algebra System
Menu Plot Examples
1 3*b^2+4*b^2+a+a
Numeric
Stepwise
Pretty Formula?
JavaForm
Out[1]=3*b^2+4*b^2+a+a
In[1]=a+a+4*b^2+3*b^2
Input editor keyboard shortcuts:
Ctrl+ENTER - for symbolic evaluation
Ctrl+SPACE - for code completion of function names
Page up - previous input
Page down - next input
Program arguments:
-f or -file <filename> - use filename as Editor input script
-d or -default <filename> - use filename for system startup rules

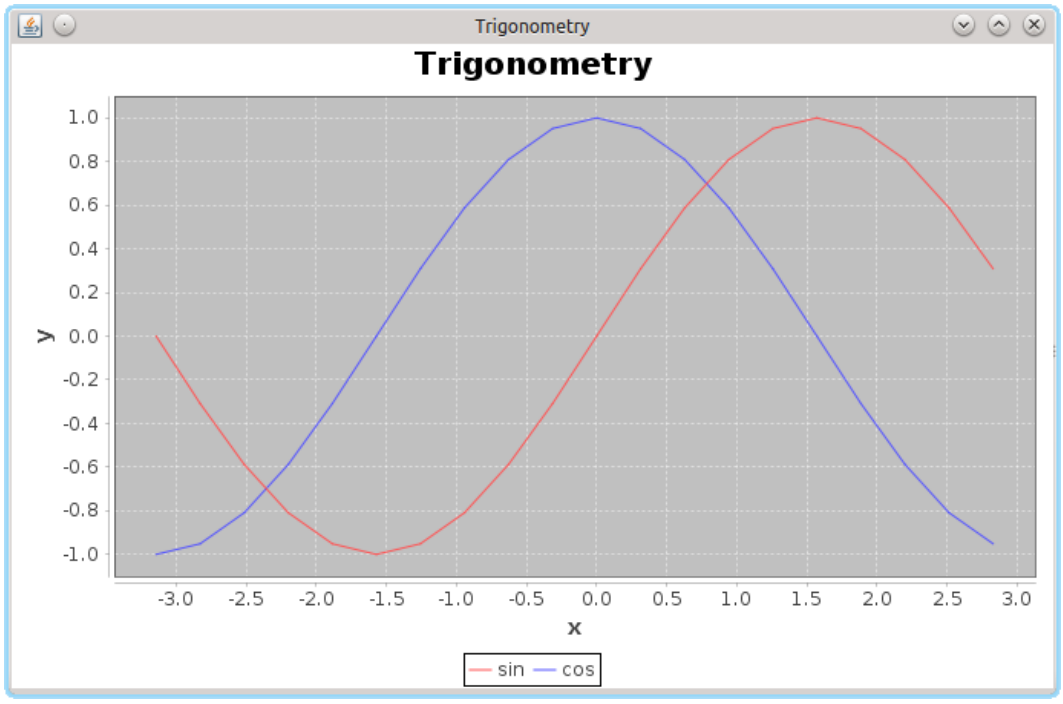

Plot
Y
1.0
X
-1.0
1.0
-1.0
X min: -1
X max: 1
Y min: -1
Y max: 1
y(x) = Sin[x * Pi]
y(x) =
Add Function
Update

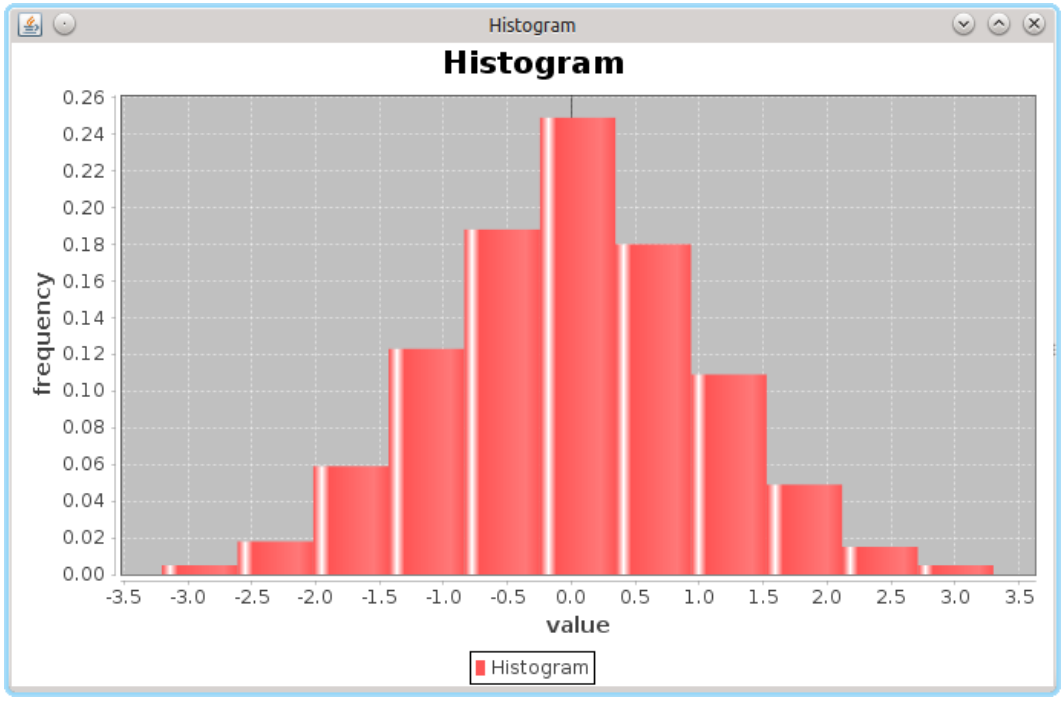
Chapter 6: Parallel Programming in Scala

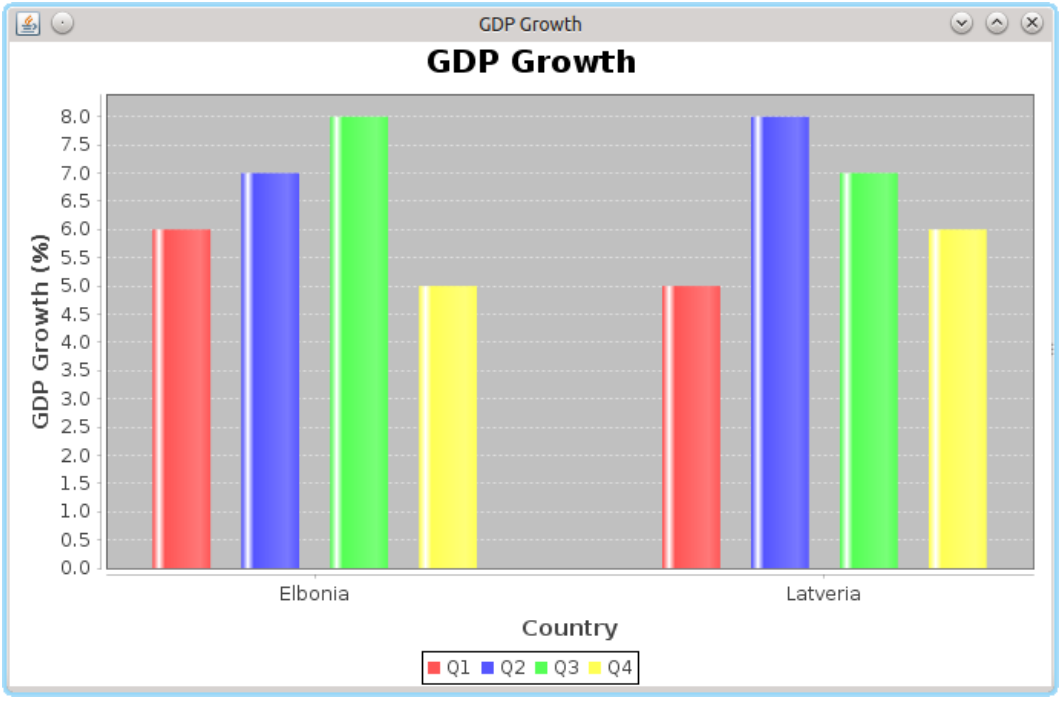


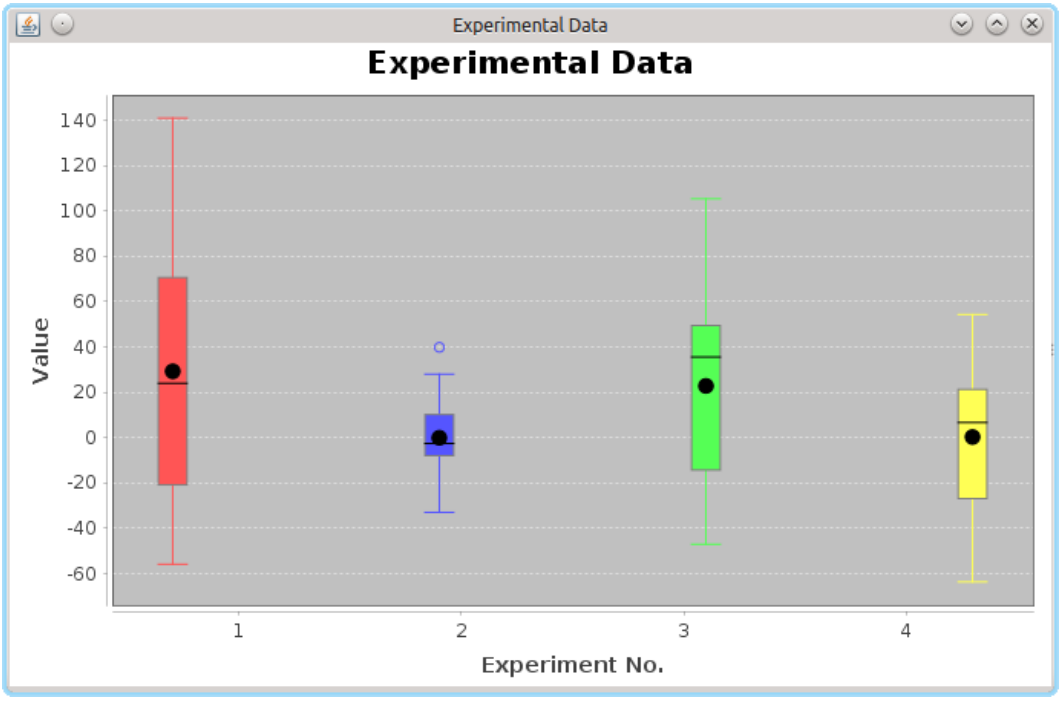
Chapter 8: Scientific Plotting with Scala

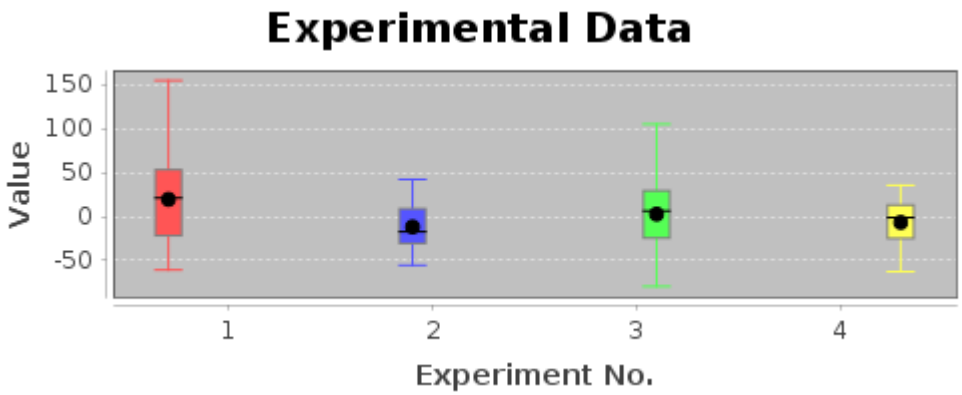


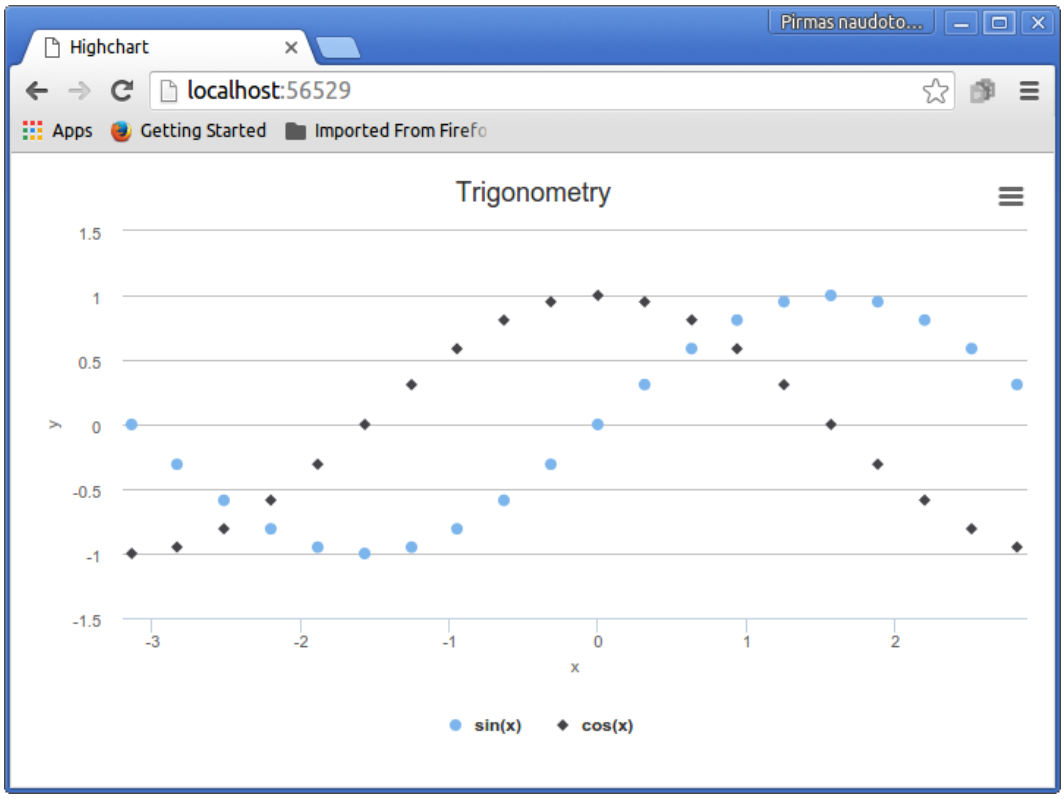

Trigonometry
Trigonometry
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
y
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
x
sin
cos

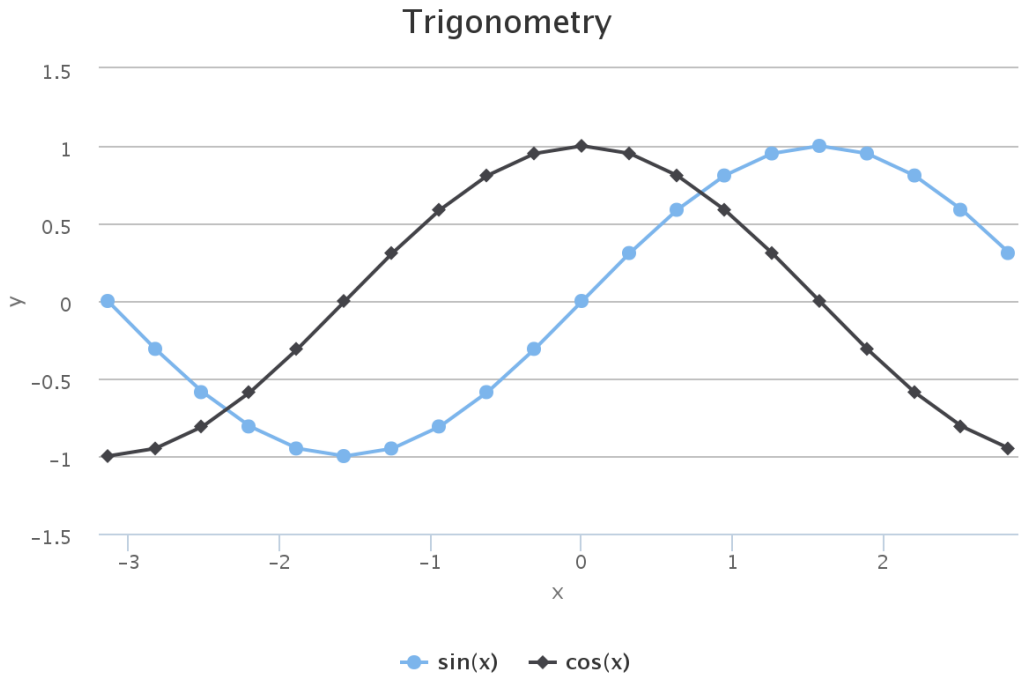

Histogram
Histogram
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
frequency
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
value
Histogram

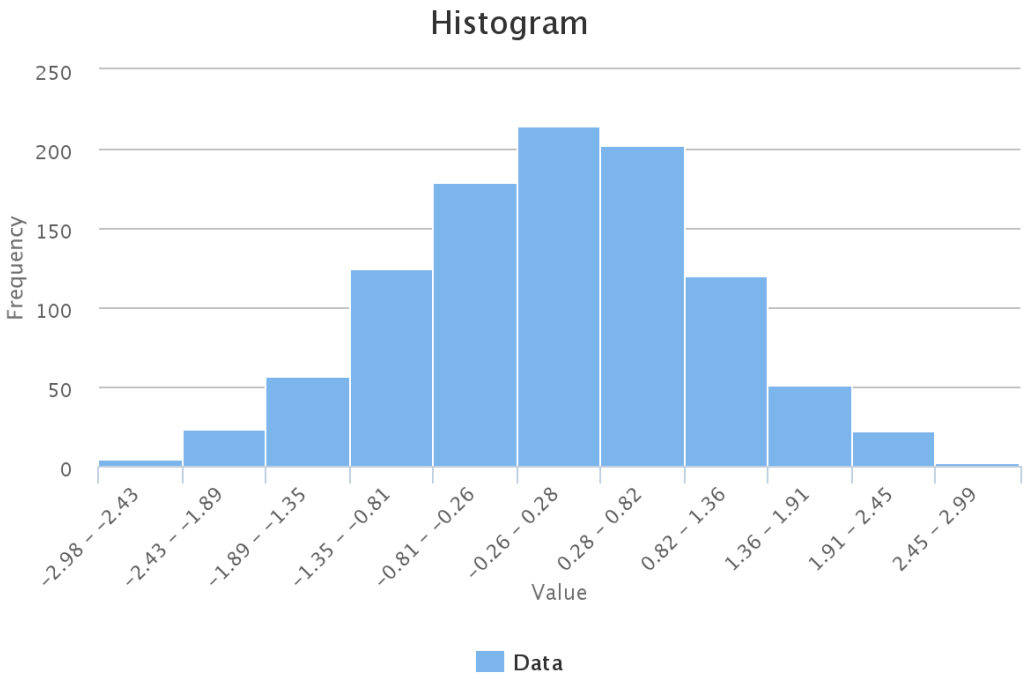

GDP Growth
GDP Growth
GDP Growth (%)
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Elbonia
Latveria
Country
Q1 Q2 Q3 Q4

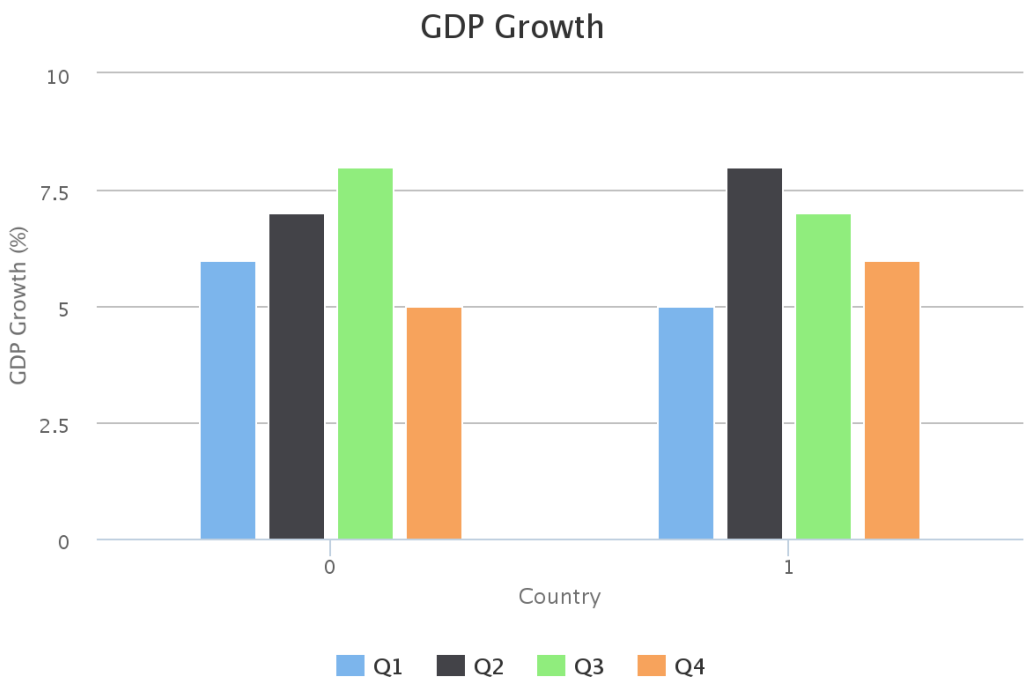

Experimental Data
Experimental Data
Value
140
120
100
80
60
40
20
0
-20
-40
-60
1
2
3
4
Experiment No.

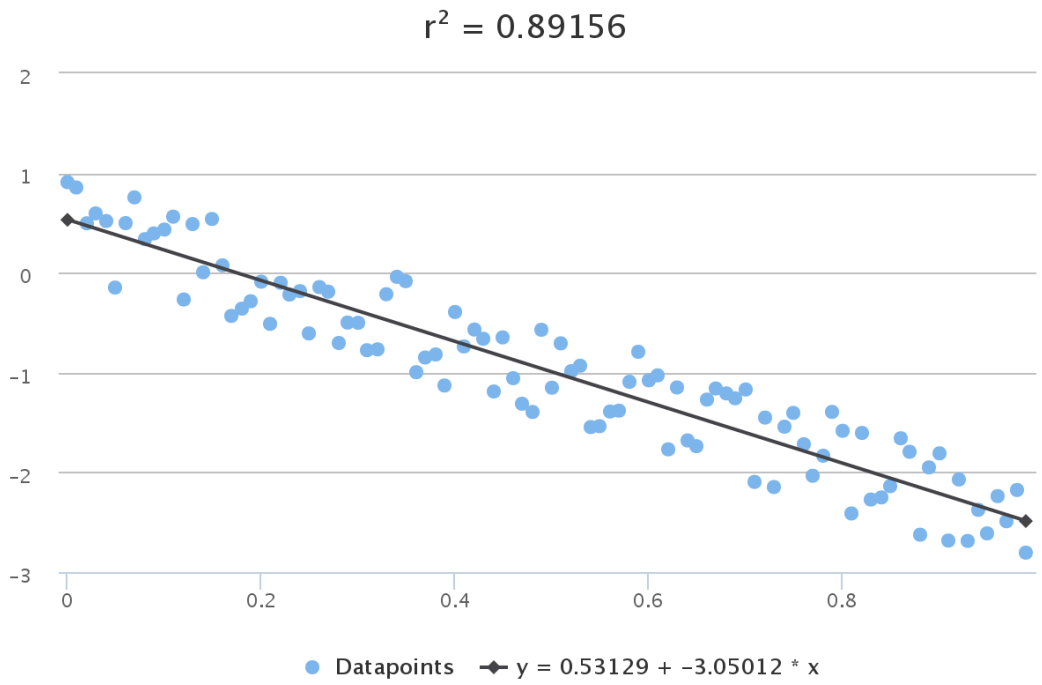

Experimental Data
150
100
50
0
-50
Value
1
2
3
4
Experiment No.


Highchart
localhost:56529
Apps
Getting Started
Imported From Firefo
Trigonometry
1.5
1
0.5
0
-0.5
-1
-1.5
y
-3
-2
-1
0
1
2
x
sin(x)
cos(x)

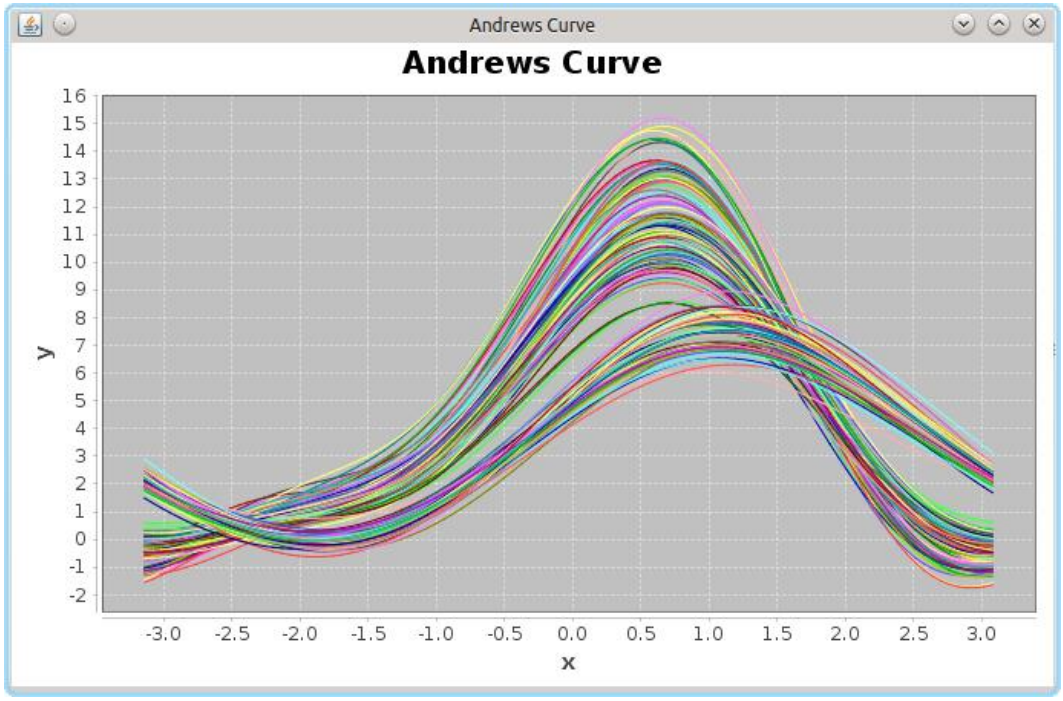

Trigonometry
1.5
1
0.5
0
-0.5
-1
-1.5
y
-3
-2
-1
0
1
2
x
sin(x)
cos(x)

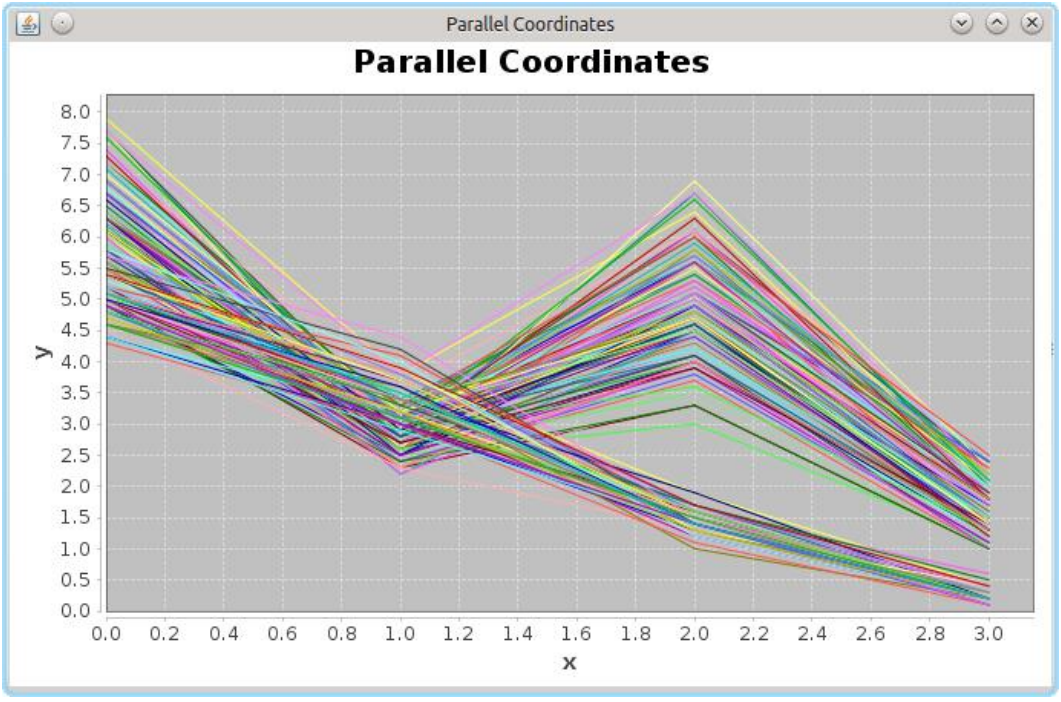

Histogram
250
200
150
100
50
0
Frequency
-2.98 – -2.43
-2.43 – -1.89
-1.89 – -1.35
-1.35 – -0.81
-0.81 – -0.26
-0.26 – 0.28
0.28 – 0.82
0.82 – 1.36
1.36 – 1.91
1.91 – 2.45
2.45 – 2.99
Value
Data

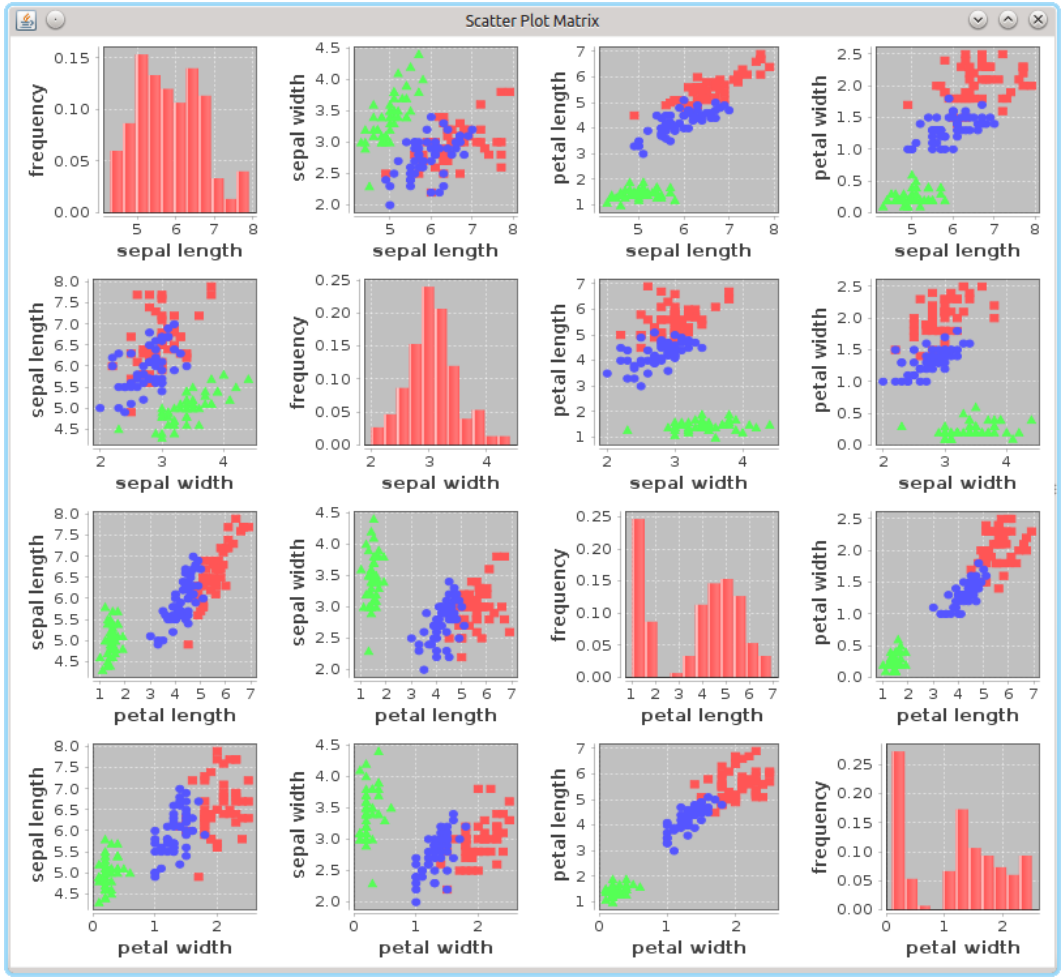

GDP Growth
10
7.5
5
2.5
0
GDP Growth (%)
0
1
Country
Q1
Q2
Q3
Q4

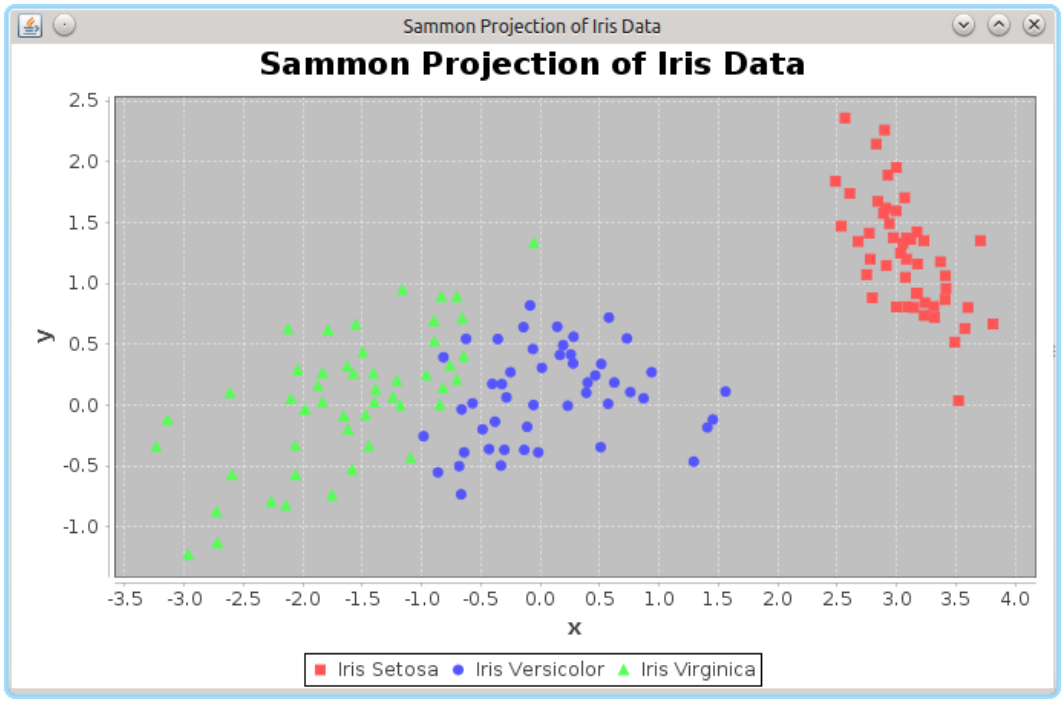

r² = 0.89156
2
1
0
-1
-2
-3
0
0.2
0.4
0.6
0.8
Datapoints
y = 0.53129 + -3.05012 * x

Chapter 9: Visualizing Multi-Dimensional Data in Scala




Parallel Coordinates
Parallel Coordinates
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
y
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
x


Scatter Plot Matrix
frequency
sepal length
sepal width
petal length
petal width


Sammon Projection of Iris Data
Sammon Projection of Iris Data
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
y
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
x
Iris Setosa
Iris Versicolor
Iris Virginica