

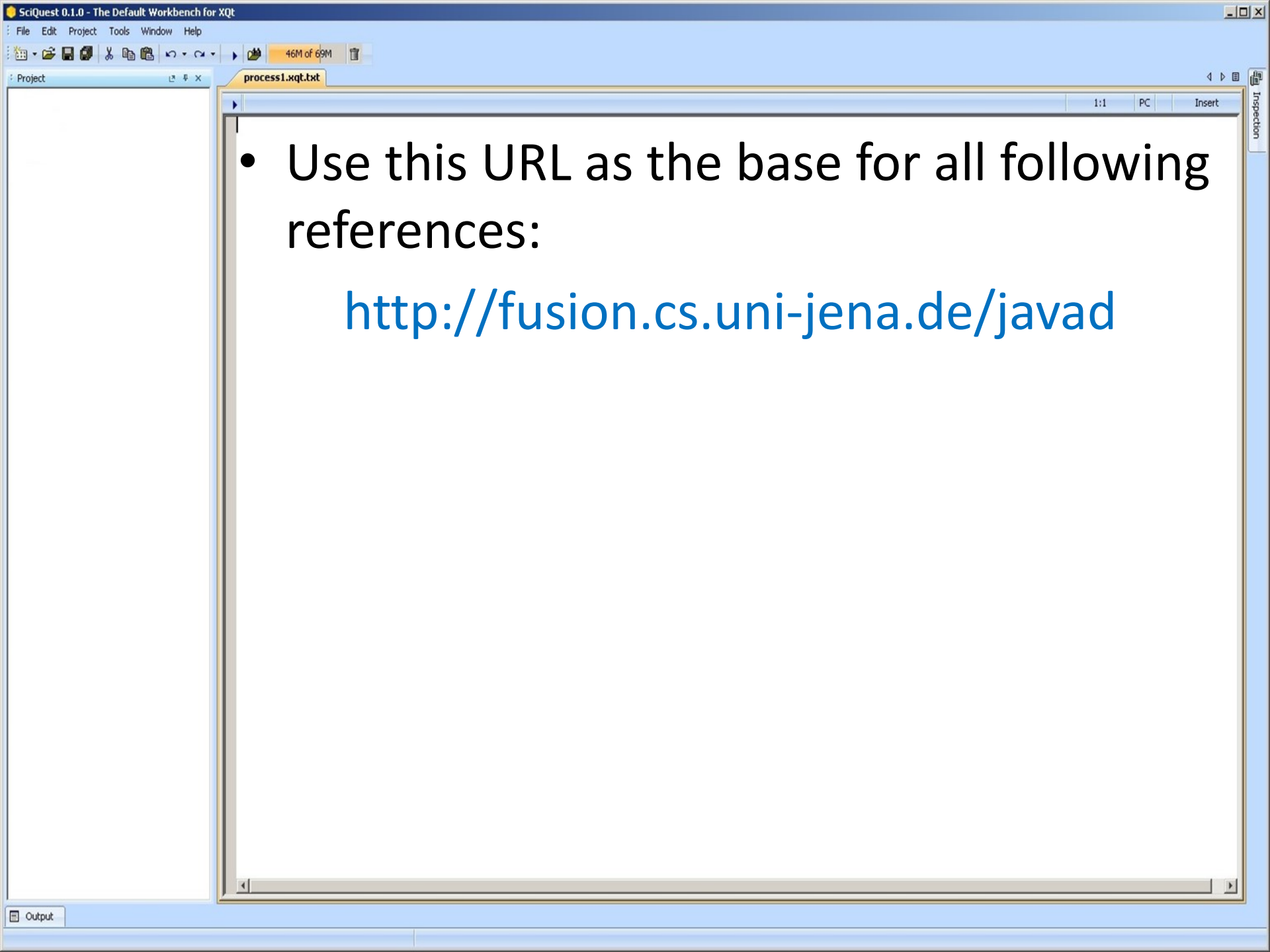
A Short Tutorial to QUIS 0.4.0

Javad Chamanara

University of Jena, Germany

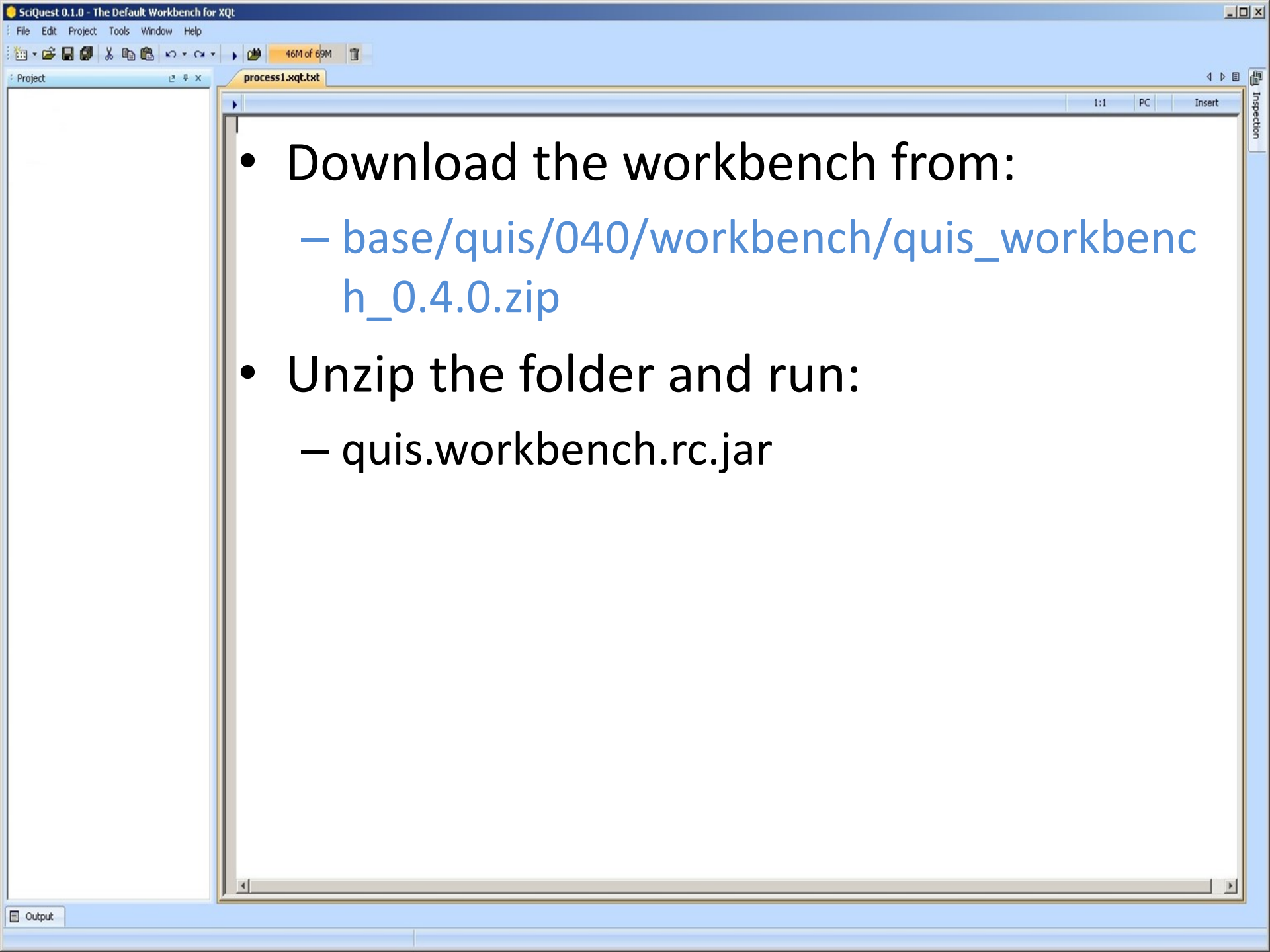
June 2016

QUIS 0.4.0

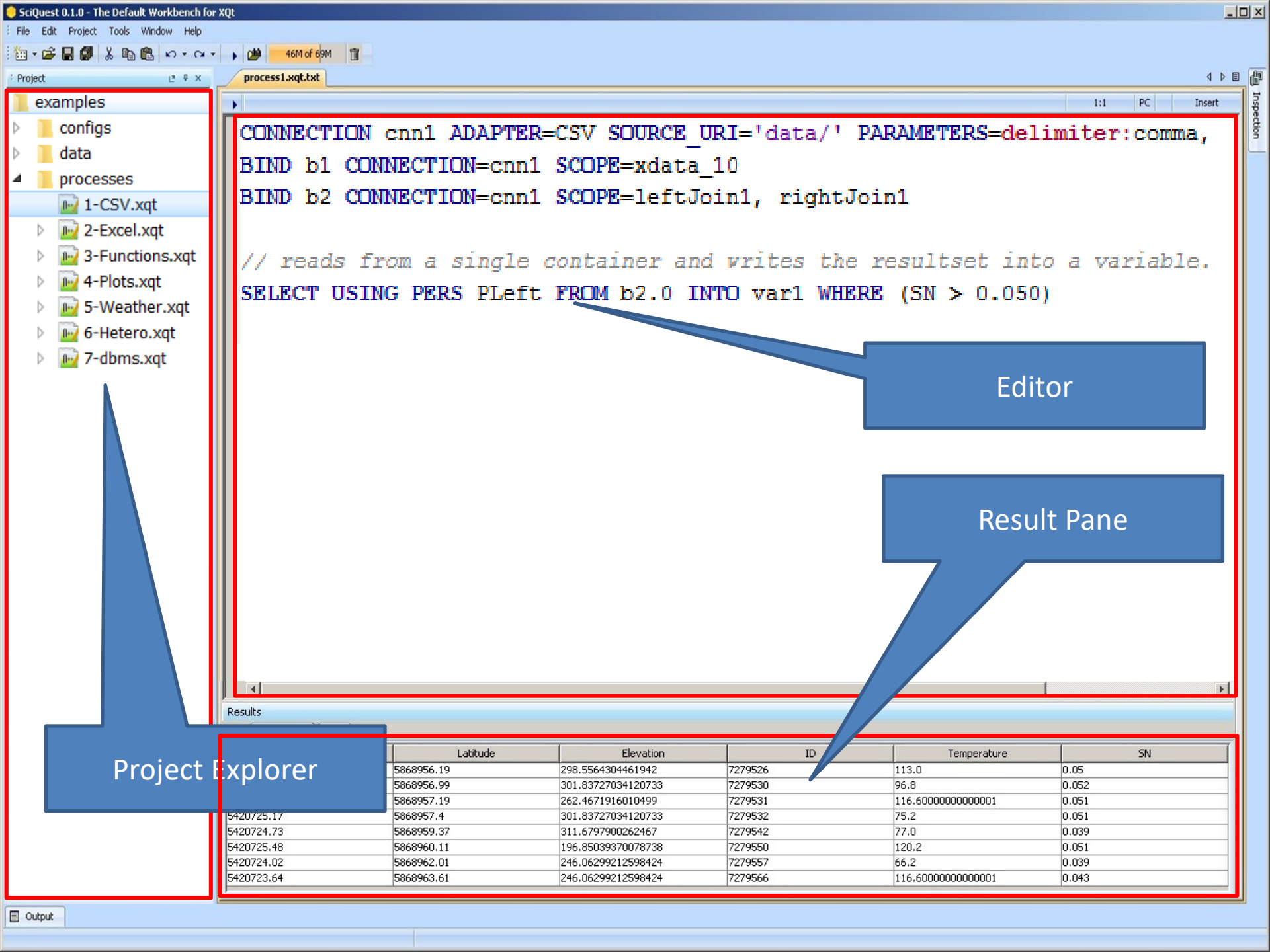
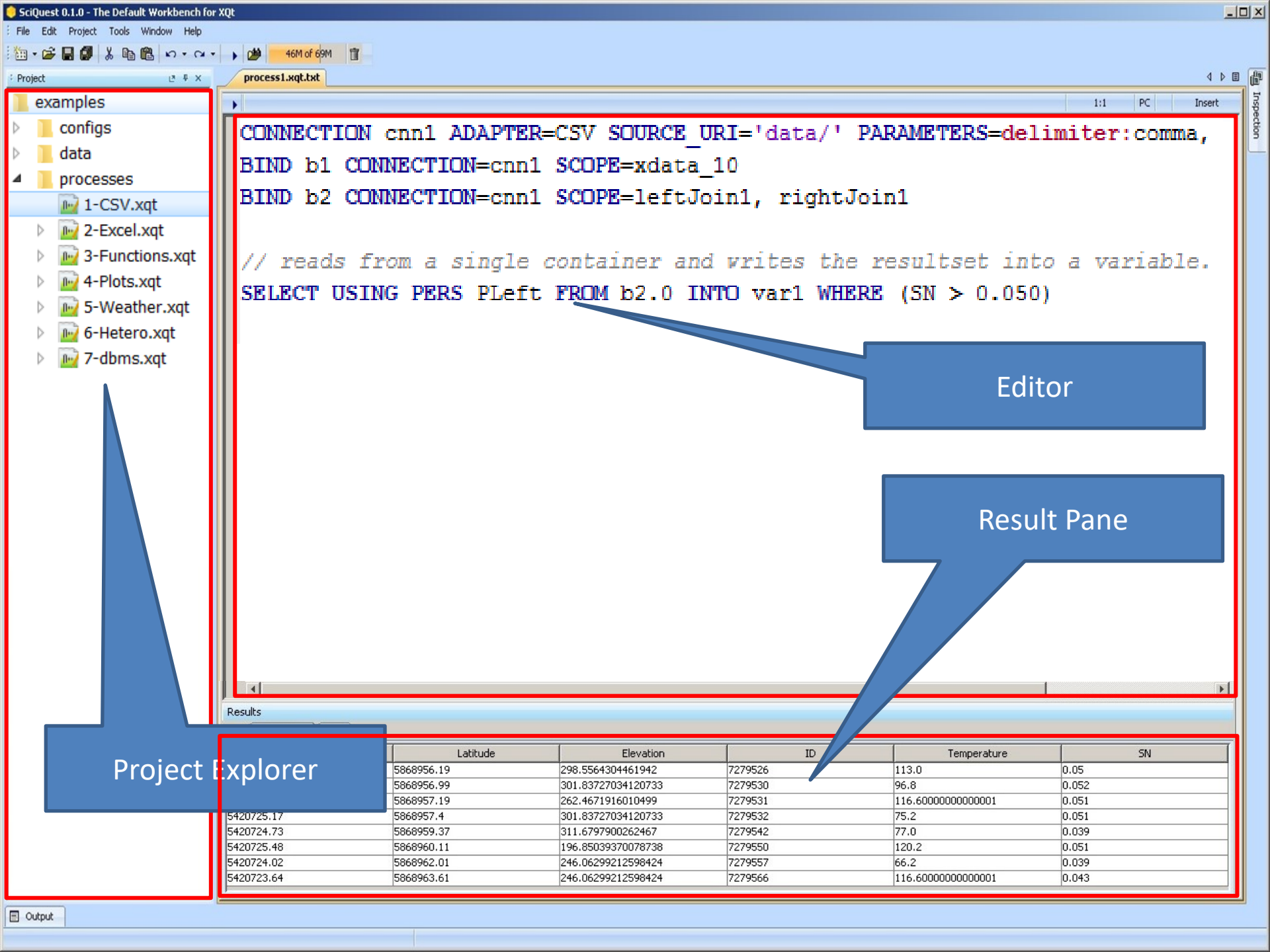


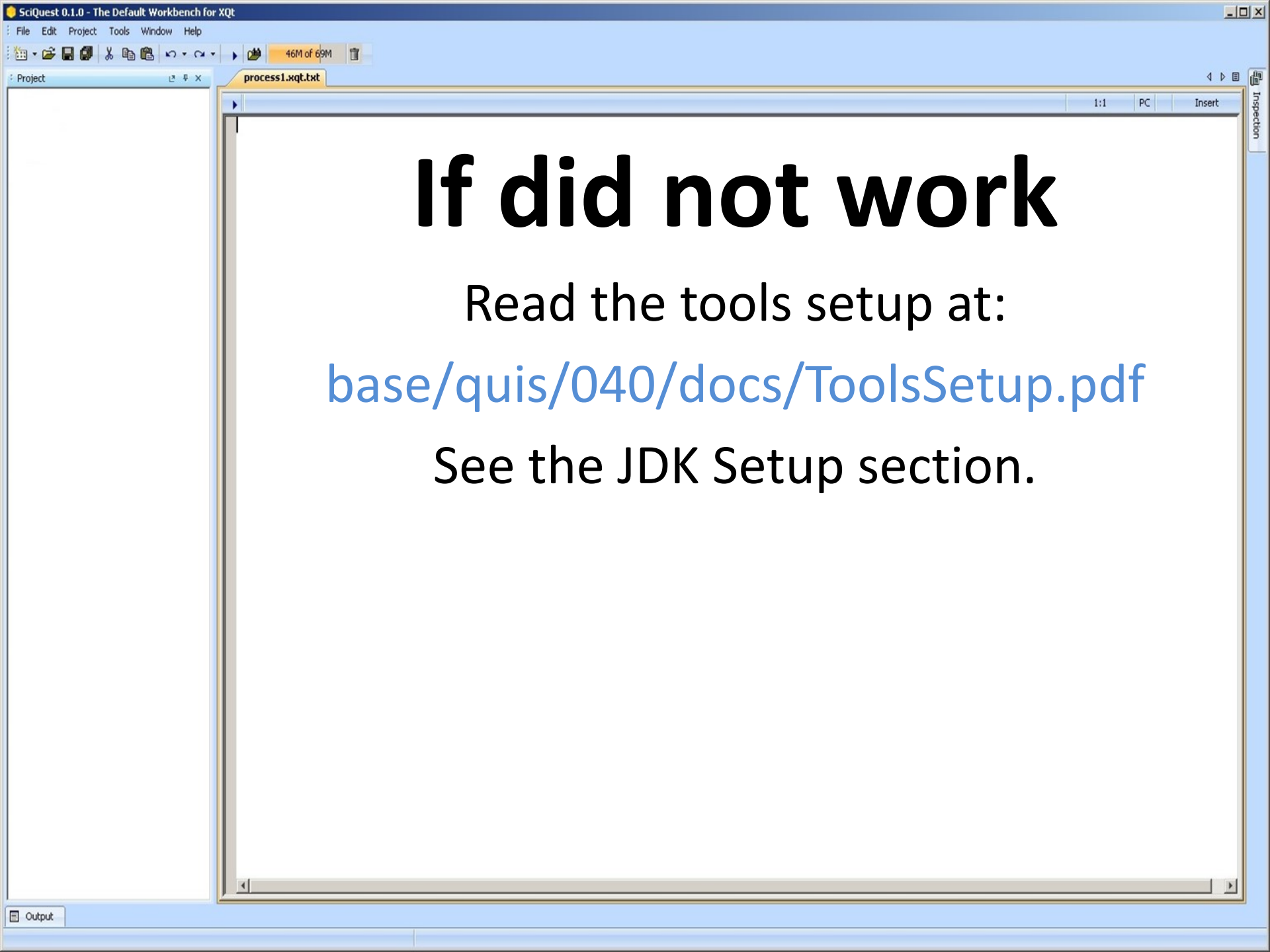
- Use this URL as the base for all following references:

<http://fusion.cs.uni-jena.de/javad>



- Download the workbench from:
 - base/quis/040/workbench/quis_workbench_0.4.0.zip
- Unzip the folder and run:
 - `quis.workbench.rc.jar`



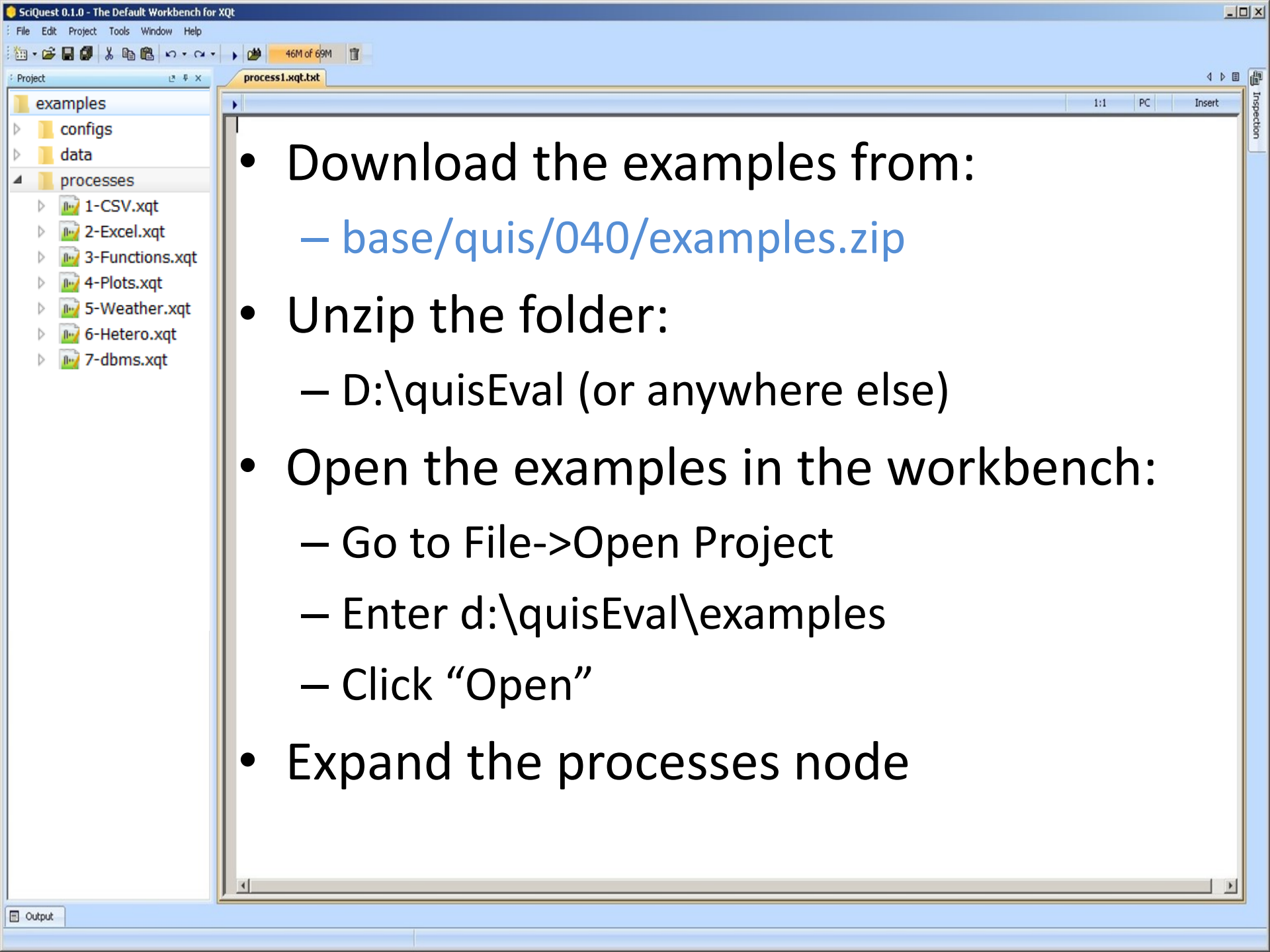


If did not work

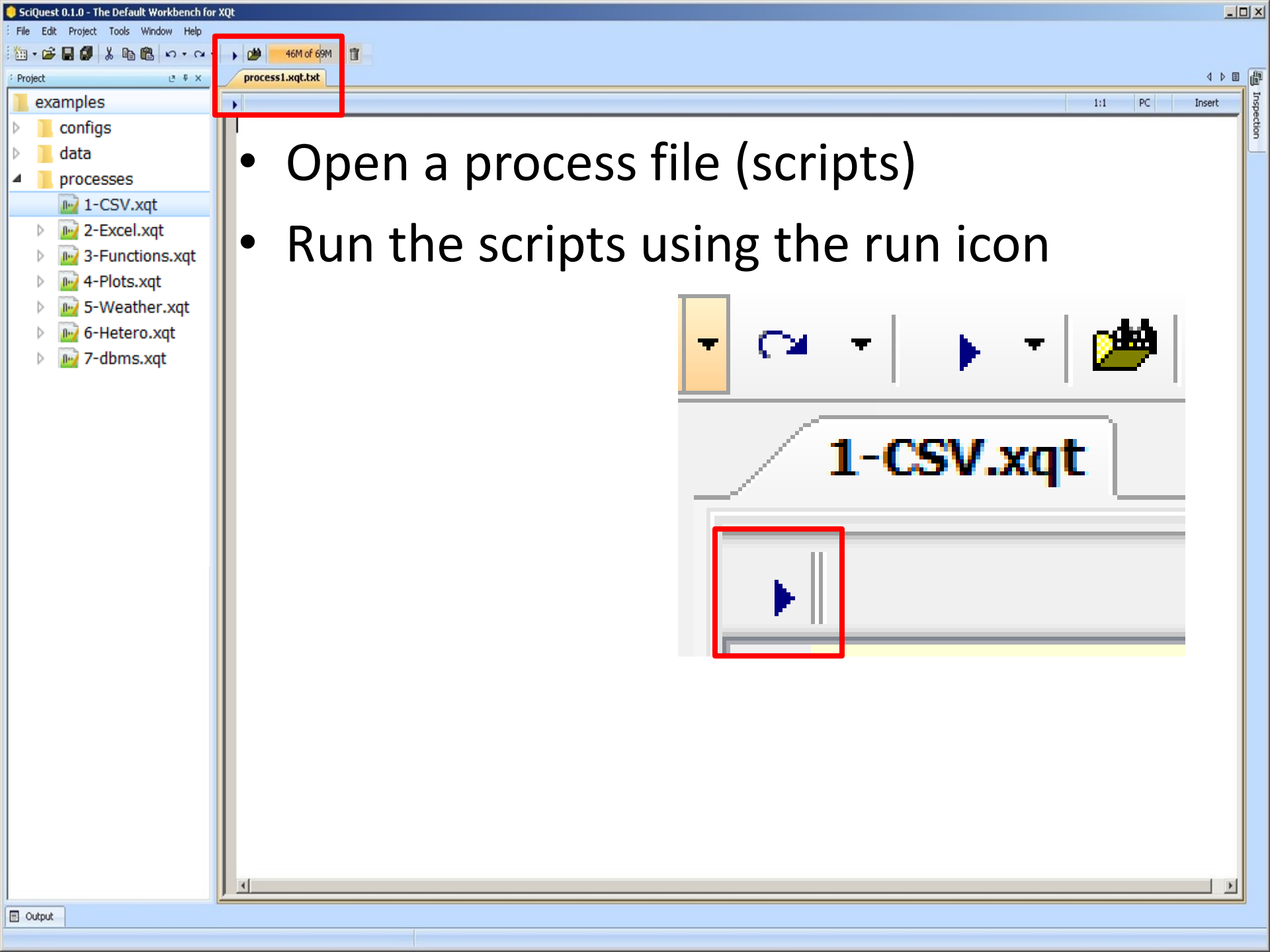
Read the tools setup at:

<base/quis/040/docs/ToolsSetup.pdf>

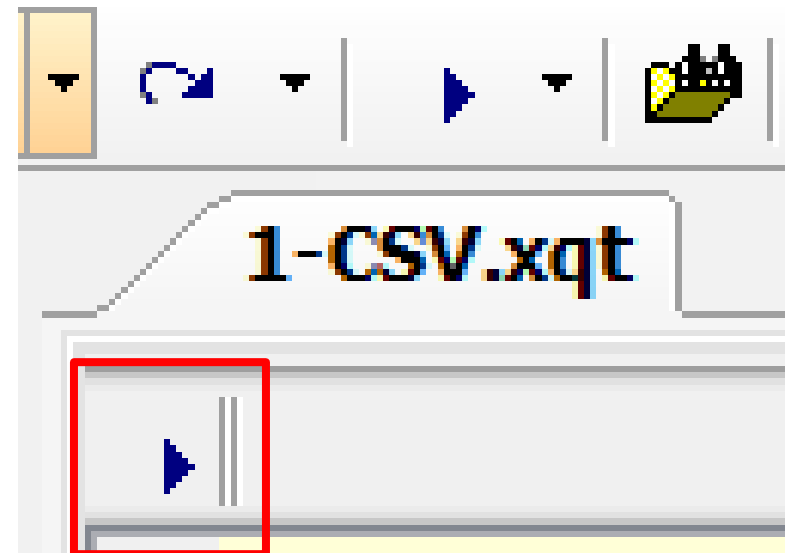
See the JDK Setup section.



- Download the examples from:
 - base/quis/040/examples.zip
- Unzip the folder:
 - D:\quisEval (or anywhere else)
- Open the examples in the workbench:
 - Go to File->Open Project
 - Enter d:\quisEval\examples
 - Click “Open”
- Expand the processes node

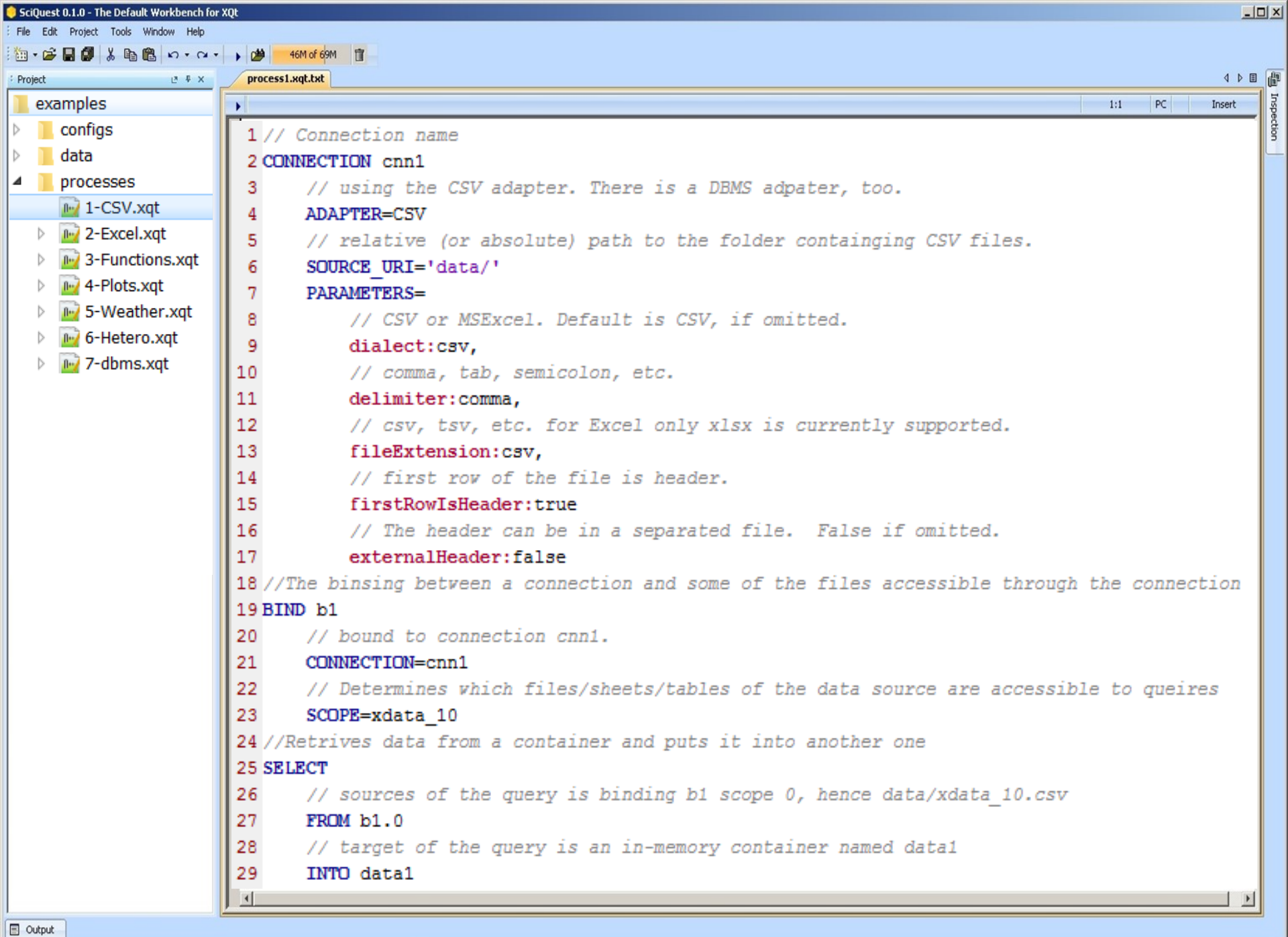


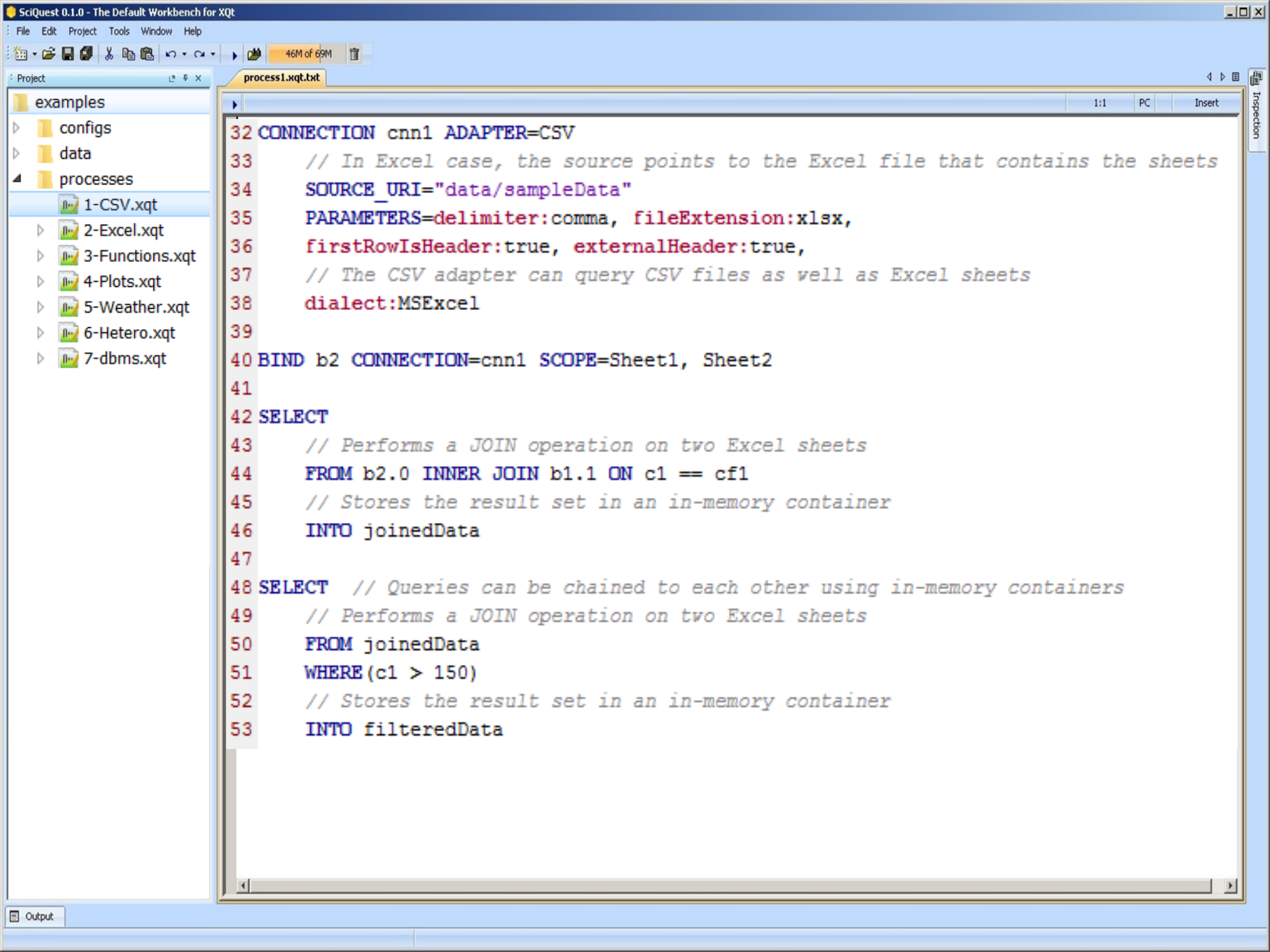
- Open a process file (scripts)
- Run the scripts using the run icon

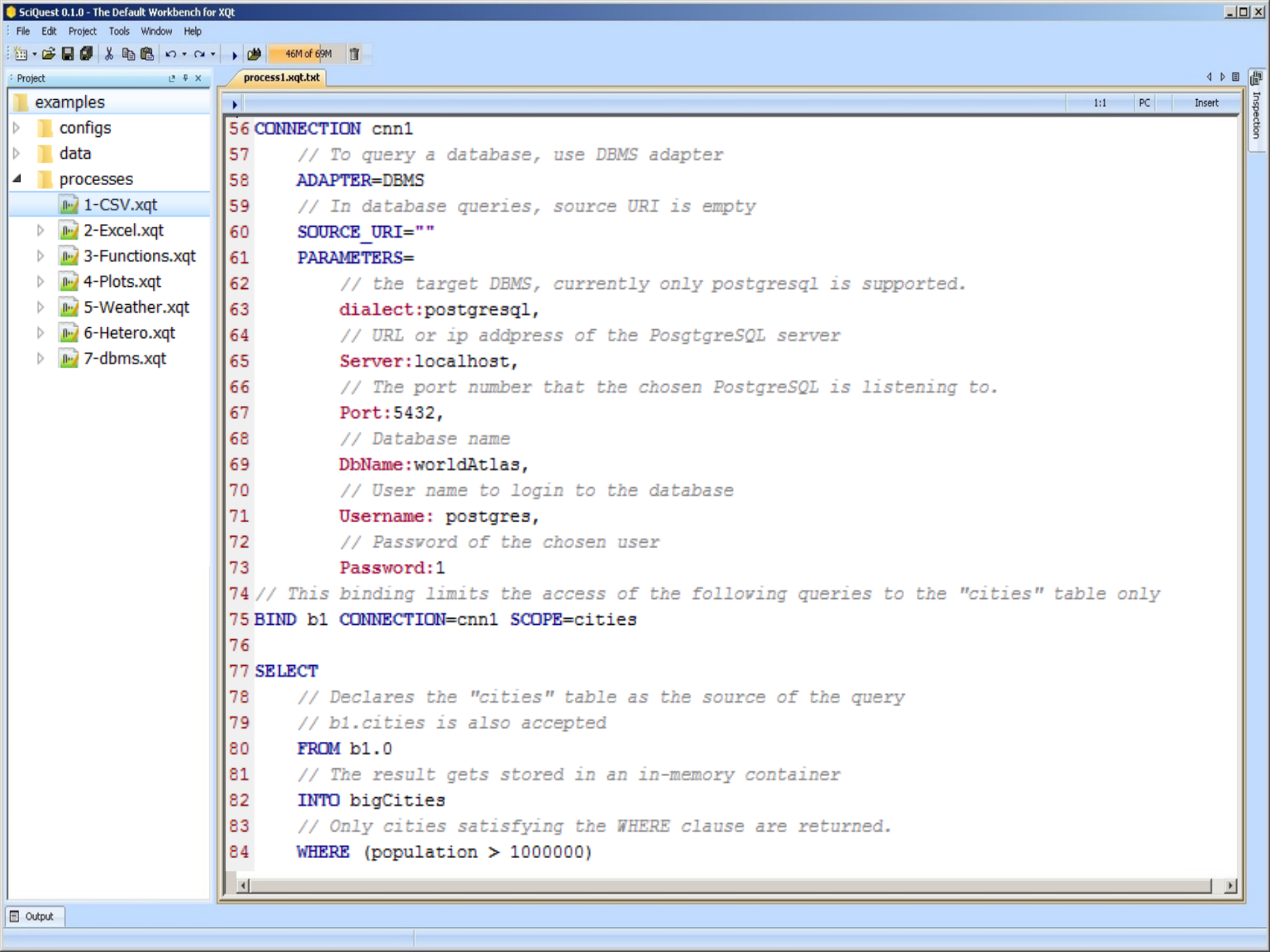


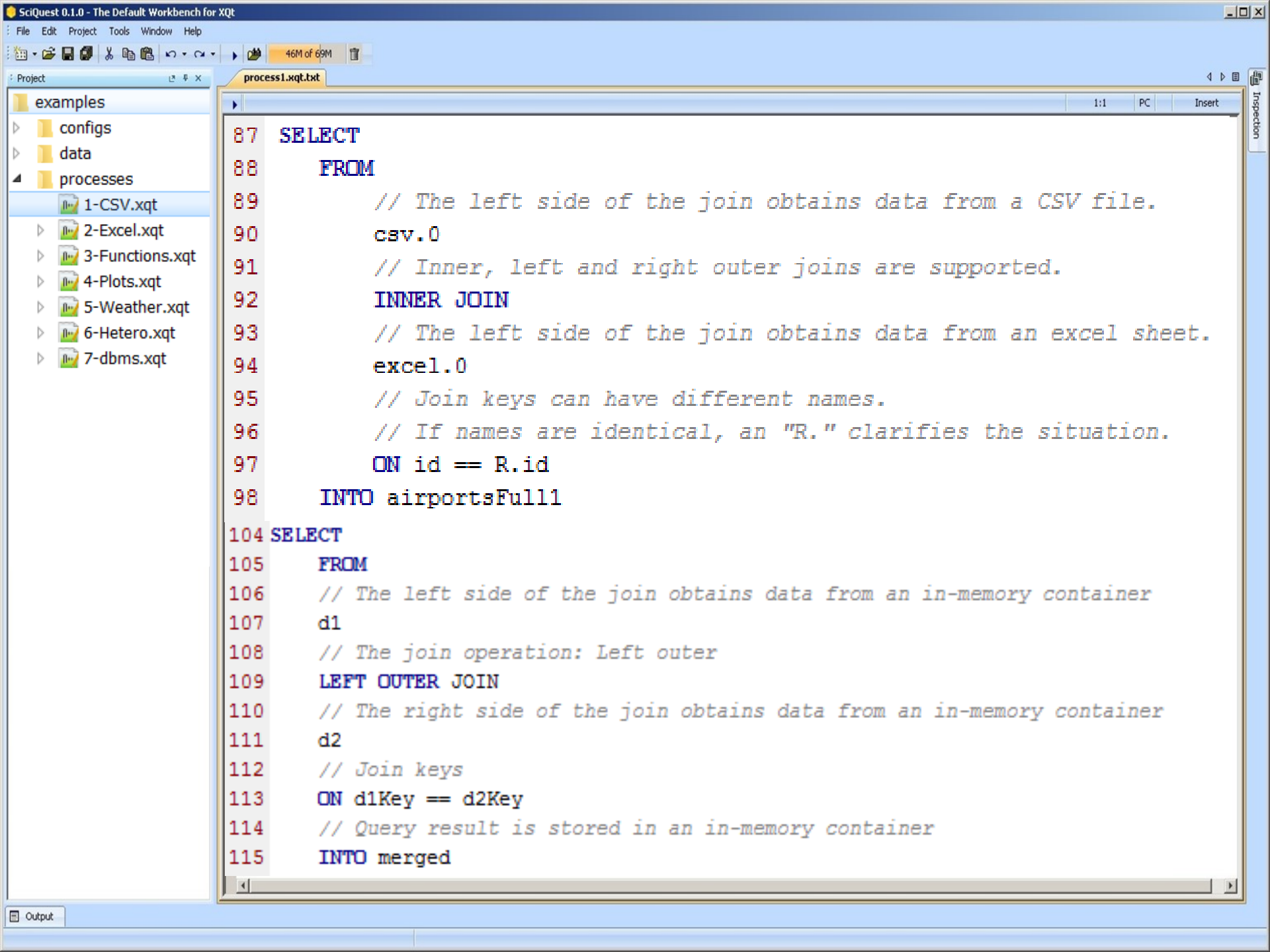
Examples

- Query a CSV file
- Query an Excel sheet
- Query a PostgreSQL database table
- Make Joins
- Use of Explicit or Inline Perspectives
- Aggregate and non-aggregate functions
- Data Types









examples

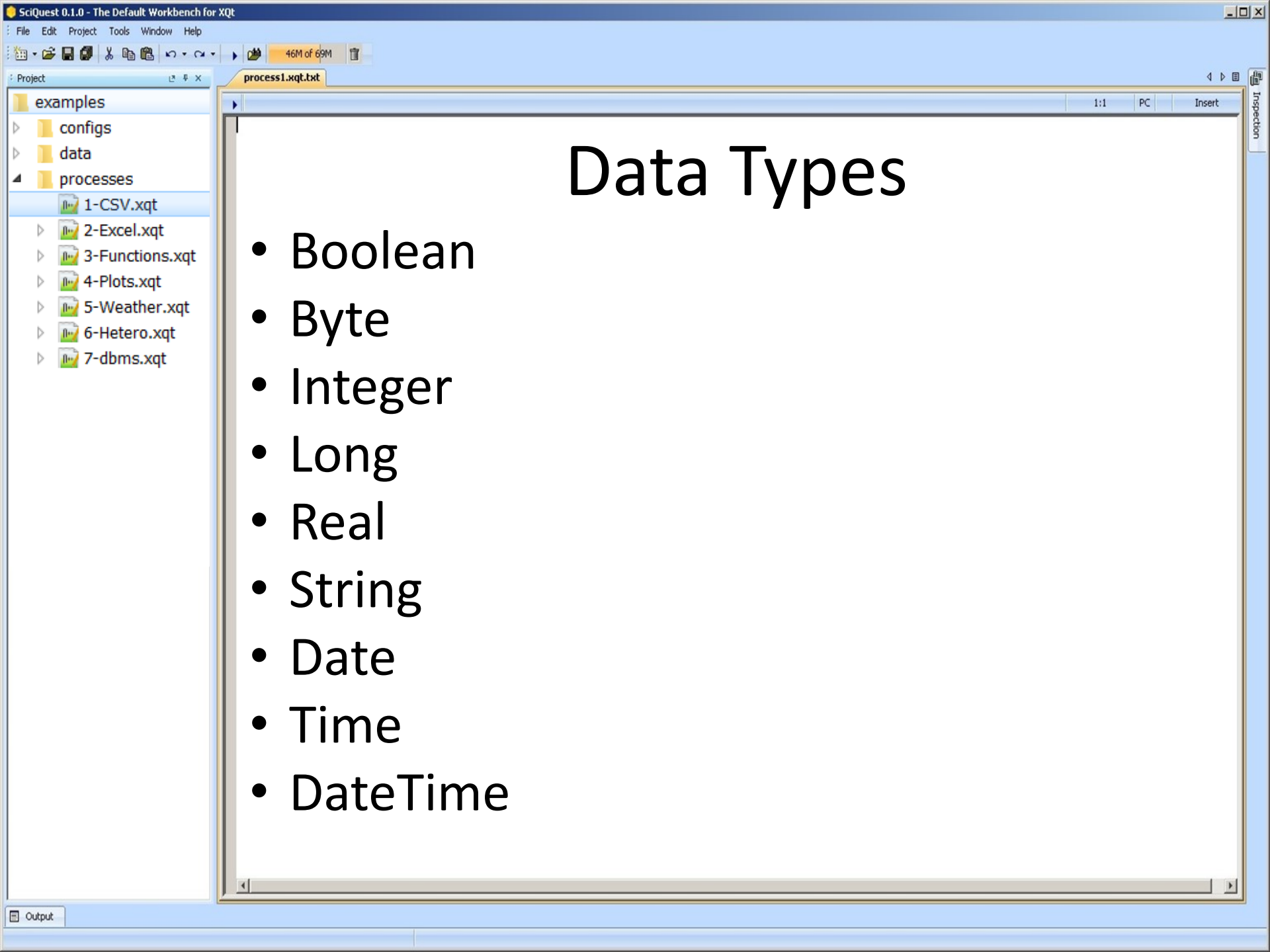
- configs
- data
- processes
 - 1-CSV.xqt
 - 2-Excel.xqt
 - 3-Functions.xqt
 - 4-Plots.xqt
 - 5-Weather.xqt
 - 6-Hetero.xqt
 - 7-dbms.xqt

```
117 // Declare a virtual schema over the actual data
118 PERSPECTIVE observation
119 {
120     // ID is the integr equivalent of the id field, which is string.
121     ATTRIBUTE ID: Integer      MapTo = str.toInteger(id),
122     // Converts the source temperature from Celcius to Fahrenheit
123     ATTRIBUTE Temperature: Real MapTo = 1.8 * temperature + 32,
124     // Converts the source wind speed from meter per second to km/h
125     ATTRIBUTE WS: Real        MapTo = windspeaad * 3.6,
126     // Note that the last attribute has comma, as well.
127 }
128
129 SELECT
130     // Asks the query to use the "observation" perspective as its result schema
131     USING PERSPECTIVE observation
132     FROM
133         // The data in the container will be converted according to the perspective
134         csv.0
135     INTO data
136     // WS is defined in the perspective
137     // Filters the records with wind speed greather than 70 km/h
138     WHERE (WS > 70)
```

examples

- configs
- data
- processes
 - 1-CSV.xqt
 - 2-Excel.xqt
 - 3-Functions.xqt
 - 4-Plots.xqt
 - 5-Weather.xqt
 - 6-Hetero.xqt
 - 7-dbms.xqt

```
140 // Queries a table containg grades of student on various courses
141 // Computes the average and minimum grades per per student
142 SELECT
143     // Declares an inline perspective.
144     // Inline perspectives are similar to explicit perspectives.
145     // They apply on one query only, and define the result set schema.
146     USING INLINE
147         // computes the average over the "grade" field.
148         avg(grade) AS meanGrade,
149         // computes the minimum over the "grade" field.
150         min(grade) AS minGrade,
151         // Causes the query to have an implicit GROUP BY.
152         // Any non-aggregated attribute of the perspective is used in grouping.
153         // Use of explicit GROUP BY clause is also supported.
154         id as studentId
155 FROM dbms.0
156 INTO averageGrades
```

Data Types

- Boolean
- Byte
- Integer
- Long
- Real
- String
- Date
- Time
- DateTime

RQUIS

- A package for R users
- To access QUIS functionalities
- From inside R

URL: base/quis/040/rquis/RQUIS_0.4.0.zip

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

1

You can download the setupEval.R
from:

base/eval/setupEval.R

And run it.

Or follow the next slides

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R
version.string R version 3.2.2 (2015-08-14)
nickname      Fire Safety
> |
```

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

1

```
download.file(url = "http://fusion.cs.uni-  
jena.de/javad/quis/040/rquis/rJava_0.9-  
8.zip", destfile = "c:/r/rJava_0.9-8.zip")
```

```
remove.packages("rJava")
```

```
install.packages("c:/r/rJava_0.9-8.zip",,  
repos = NULL)
```

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1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R  
version.string R version 3.2.2 (2015-08-14)  
nickname      Fire Safety  
> |
```

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

1

```
download.file(url = "http://fusion.cs.uni-  
jena.de/javad/quis/040/rquis/RQUIS_0.4.0.z  
ip", destfile = "c:/r/RQUIS_0.4.0.zip")
```

```
remove.packages("RQUIS")
```

```
install.packages("c:/r/RQUIS_0.4.0.zip",,  
repos = NULL)
```

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R  
version.string R version 3.2.2 (2015-08-14)  
nickname      Fire Safety  
> |
```

Environment History Build

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Files Plots Packages Help

Zoom Export

RQUIS.R * WeatherQ.R * Untitled1 *

Source on Save

Run Source

1

```
demo(package="RQUIS", Test1)
```

```
demo(package="RQUIS", WeatherQ)
```

```
demo(package="RQUIS", WeatherR)
```

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R
version.string R version 3.2.2 (2015-08-14)
nickname      Fire Safety
> |
```



File Edit Code View Plots Session Build Debug Tools Help

Go to file/function

rquis ▾

RQUIS.R * WeatherQR * Untitled1 *

☐ Source on Save

Run Source ▾

1

```
library(RQUIS)
library(ggplot2)
library(plyr)
```

1:1 (Top Level) ▾

R Script ▾

Console D:/Projects/PhD/Src/rquis/

```
language      R
version.string R version 3.2.2 (2015-08-14)
nickname      Fire Safety
> |
```

Environment History Build

Import Dataset ▾

Global Environment ▾

Environment is empty

Files Plots Packages Help

Zoom Export ▾

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

```
1 engine <- quis.getEngine()
```

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export

Console D:/Projects/PhD/Src/rquis/

```
language      R
version.string R version 3.2.2 (2015-08-14)
nickname      Fire Safety
> |
```

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

1

```
file <- "d:\quisEval\demo.xqt"  
ld <- quis.loadProcess(engine, file)
```

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R  
version.string R version 3.2.2 (2015-08-14)  
nickname      Fire Safety  
> |
```

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

1

```
rn <- quis.runProcess(engine)
err <- quis.getRunReport(engine)
```

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R
version.string R version 3.2.2 (2015-08-14)
nickname      Fire Safety
> |
```

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export


```
1 data <- quis.getVariable(engine,
  "meanDailyTemp")

schema <-
  quis.getVariableSchema(engine,
    "meanDailyTemp")
```

Global Environment		
	meantemp	dayindex
1	8.73125	1
2	10.53750	2
3	11.43333	3
4	10.06585	4
5	13.00417	5
6	11.14583	6
7	11.93462	7
8	12.92000	8
9	12.34062	9
10	11.70690	10
11	10.48333	11
		12
		13

	name	type	constraints	annotation
1	meantemp	Real	NA	NA
2	dayindex	Integer	NA	NA



File Edit Code View Plots Session Build Debug Tools Help

Go to file/function

rquis

RQUIS.R * WeatherQ.R * Untitled1 *

☐ Source on Save

Run Source

1

```
ggplot(data,  
aes(dayindex, meantemp)) +  
geom_line() +  
xlab("") +  
ylab("Mean Temperature C°") +  
ggtitle("2014 Average Daily Temperature  
at SFO")
```

1:1 (Top Level)

R Script

Console D:/Projects/PhD/Src/rquis/

```
language      R  
version.string R version 3.2.2 (2015-08-14)  
nickname      Fire Safety  
> |
```

Environment History Build

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help

Zoom Export

RQUIS.R * WeatherQR * Untitled1 *

Source on Save

Run Source

Environment History Build

Import Dataset

Global Environment

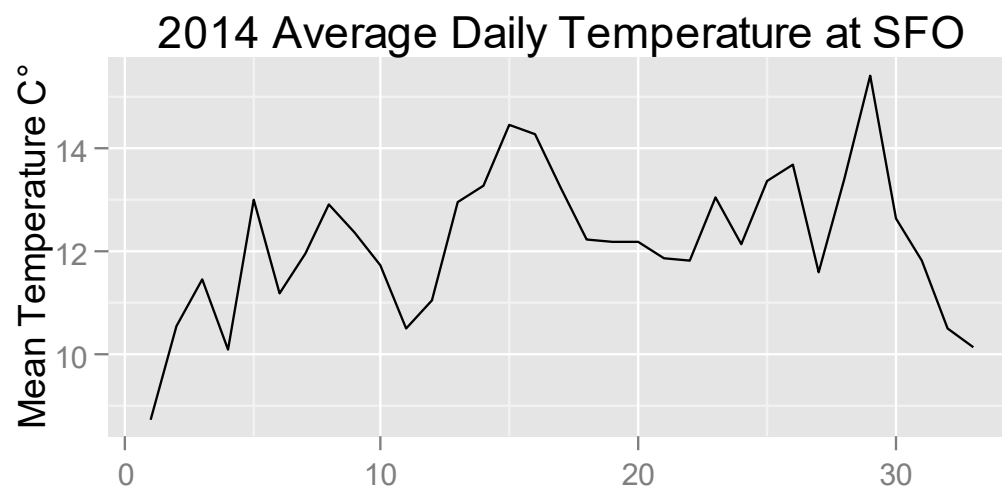
Environment is empty

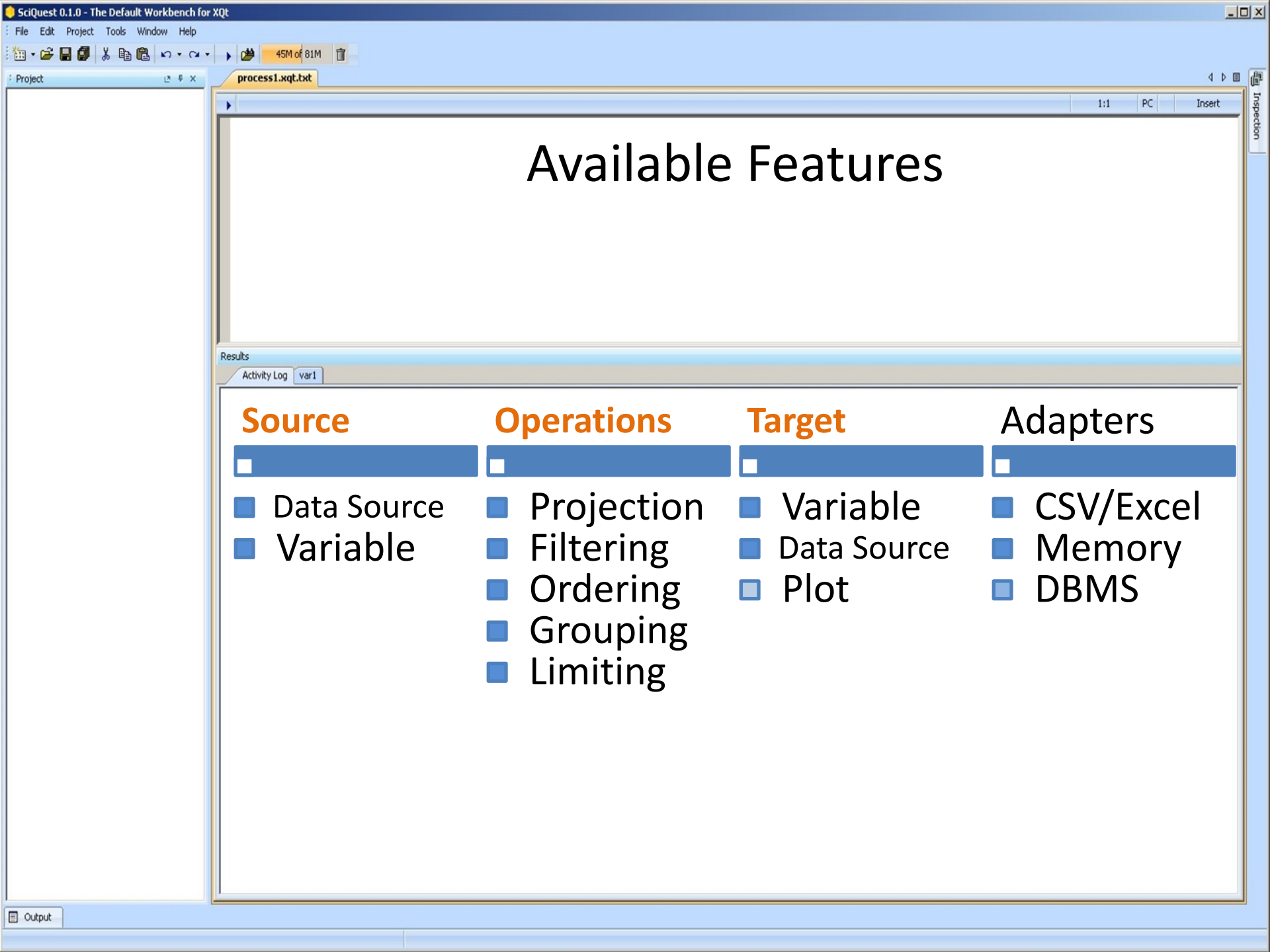
```
1 ggplot(data,  
  aes(dayindex, meantemp)) +  
  geom_line() +  
  xlab("") +  
  ylab("Mean Temperature C°") +  
  ggtitle("2014 Average Daily Temperature  
at SFO")
```

1:1 (Top Level)

Console D:/Projects/PhD/Src/rquis/

```
language      R  
version.string R version 3.2.2 (2015-08-14)  
nickname      Fire Safety  
> |
```





Available Features

Source

- ☐ Data Source
- ☐ Variable

Operations

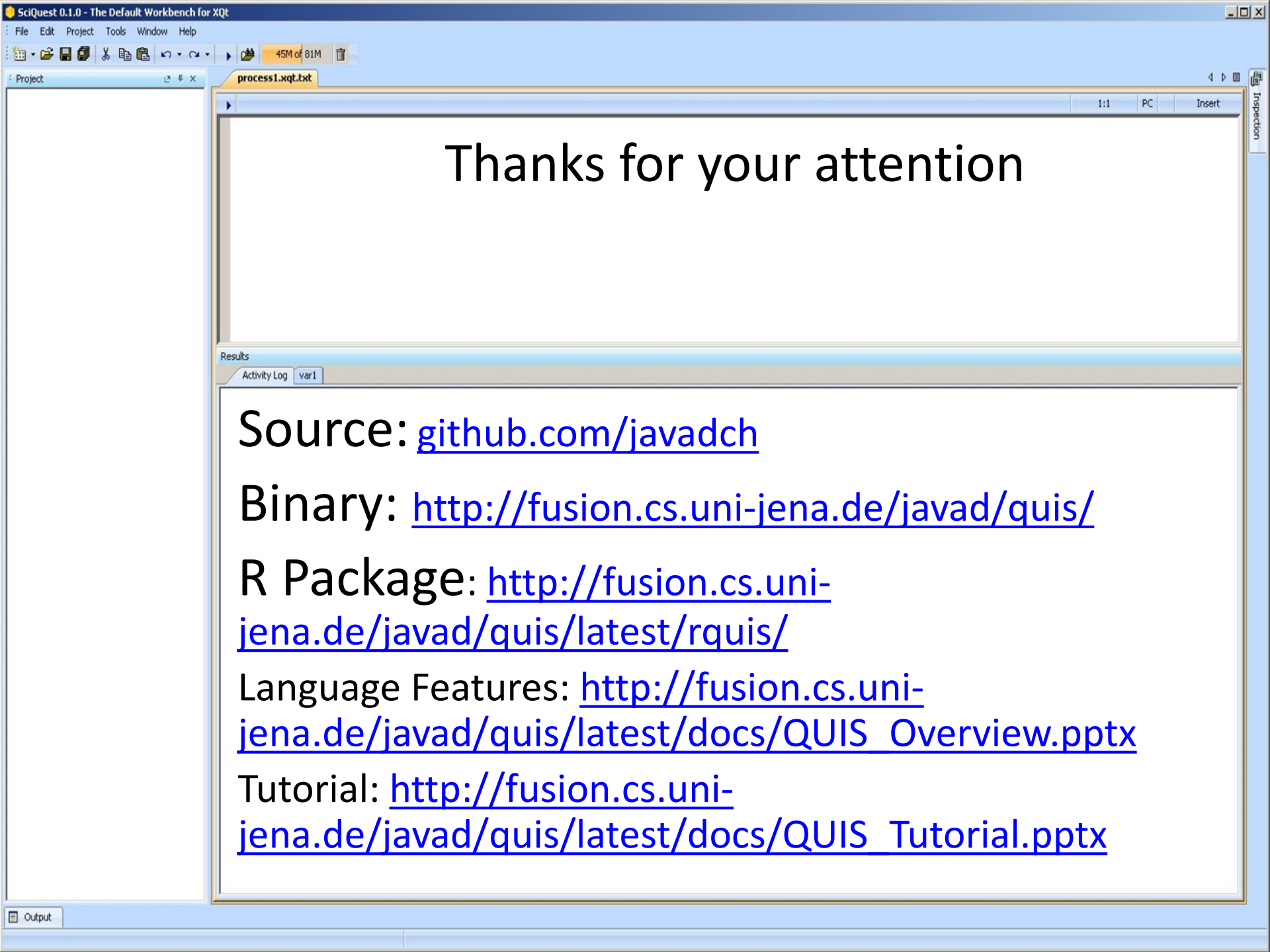
- ☐ Projection
- ☐ Filtering
- ☐ Ordering
- ☐ Grouping
- ☐ Limiting

Target

- ☐ Variable
- ☐ Data Source
- ☐ Plot

Adapters

- ☐ CSV/Excel
- ☐ Memory
- ☐ DBMS



Thanks for your attention

Source: github.com/javadch

Binary: <http://fusion.cs.uni-jena.de/javad/quis/>

R Package: <http://fusion.cs.uni-jena.de/javad/quis/latest/rquis/>

Language Features: [http://fusion.cs.uni-jena.de/javad/quis/latest/docs/QUIS Overview.pptx](http://fusion.cs.uni-jena.de/javad/quis/latest/docs/QUIS_Overview.pptx)

Tutorial: [http://fusion.cs.uni-jena.de/javad/quis/latest/docs/QUIS Tutorial.pptx](http://fusion.cs.uni-jena.de/javad/quis/latest/docs/QUIS_Tutorial.pptx)