# Programming Oldies But Goodies

By:

R.G. (Dick) Baldwin

# Programming Oldies But Goodies

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R.G. (Dick) Baldwin

### Online:

< http://cnx.org/content/col11478/1.23/ >



### Table of Contents

# Obg0105: Preface to Programming Oldies But Goodies<sup>1</sup>

#### 1.1 Table of contents

- Preface (p. 1)
- Miscellaneous (p. 2)

#### 1.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

In the meantime, this collection titled **Programming Oldies But Goodies** gathers many of the tutorials in their original HTML format into a common location to make them readily available for Connexions users.

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NOTE: Legacy versus openstax presentation format Early in 2014, cnx.org <sup>2</sup> began a transition from a legacy presentation format <sup>3</sup> to a new openstax <sup>4</sup> presentation format. As of April 7, 2014, some of the functionality of the legacy presentation format that is required by this module has not yet been ported to the openstax presentation format. (In particular, image files referenced by hyperlinks in the HTML versions of the tutorials may not display properly in the openstax presentation format.)

<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m49765/1.2/">http://cnx.org/content/m49765/1.2/</a>.

 $<sup>^2 \</sup>mathrm{http://cnx.org}/$ 

<sup>&</sup>lt;sup>3</sup> http://cnx.org/content/col11441/latest/

 $<sup>^4</sup>$ http://cnx.org/contents/fb64661c-5b3f-4ea8-97c6-e48df112438a

I expect this issue to be resolved in the future. In the meantime, I am adding PDF versions of each of the tutorials that are compatible with the **openstax** presentation format.

Therefore, one of your options is to select and view the PDF versions of the tutorials using the PDF links provided in the other modules in this collection.

A second option is to click the **Legacy Site** link at the top of this page (assuming that you are not already on the Legacy Site) and view the tutorials in their original HTML format. (You can also view the PDF versions from the **Legacy Site** but the HTML format is much more reliable than the PDF format, particularly with regard to source code listings.)

Later, when the compatibility issue mentioned above is resolved, you can select either the PDF version or the HTML version directly from the **openstax** presentation page, whichever you prefer.

#### 1.3 Miscellaneous

This section contains a variety of miscellaneous information.

NOTE: Housekeeping material

• Module name: Obg0105: Preface to Programming Oldies But Goodies

File: Obg0105.htmPublished: 04/10/14

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# Obg0110: Adaptive Filtering<sup>1</sup>

#### 2.1 Table of contents

• Moved (p. 3)

• Miscellaneous (p. 3)

#### 2.2 Moved

This material was moved to here  $^2$  .

#### 2.3 Miscellaneous

This section contains a variety of miscellaneous information.

#### Housekeeping material

• Module name: Obg0110: Adaptive Filtering

File: Obg0110-a.htm
Published: 01/03/13
Revised: 01/06/16

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 $<sup>^2</sup>$ http://cnx.org/contents/mNJTwIBE

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# Obg0120: Digital Signal Processing (DSP)<sup>1</sup>

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- Miscellaneous (p. 5)

#### 3.2 Moved

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#### 3.3 Miscellaneous

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#### Housekeeping material

• Module name: Obg0120: Digital Signal Processing (DSP)

File: Obg0120-a.htm
Published: 01/03/13
Revised: 01/06/16

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m <http://cnx.org/content/m45594/1.6/>}$ .

<sup>&</sup>lt;sup>2</sup>http://cnx.org/contents/ycm9ykKB

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# Obg0130: Multimedia Programming<sup>1</sup>

#### 4.1 Table of contents

• Moved (p. 7)

• Miscellaneous (p. 7)

#### 4.2 Moved

This material was moved to here  $^2$  on 01/04/2016.

#### 4.3 Miscellaneous

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• Module name: Obg0130: Multimedia Programming

File: Obg0130.htm
Published: 01/03/13
Revised: 01/04/16

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 $<sup>^2 \</sup>rm http://cnx.org/contents/ycm9ykKB$ 

# Obg0140: Data Structures<sup>1</sup>

#### 5.1 Table of contents

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• Miscellaneous (p. 9)

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#### 5.3 Miscellaneous

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• Module name: Obg0140: Data Structures

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 $<sup>^2</sup>$ http://cnx.org/contents/-2RmHFs\_

# Obg0150: Java2D Graphics<sup>1</sup>

#### 6.1 Table of contents

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• Miscellaneous (p. 11)

#### 6.2 Moved

This material was moved to here  $^2$  on 01/01/2016.

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• Module name: Obg0150: Java2D Graphics

File: Obg0150.htm
Published: 01/04/13
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 $<sup>^2</sup>$ http://cnx.org/contents/7tjDQie6

# Obg0160: Processing Image Pixels<sup>1</sup>

#### 7.1 Table of contents

• Moved (p. 13)

• Miscellaneous (p. 13)

#### 7.2 Moved

This material was moved to here  $^2$  on 01/03/2016.

#### 7.3 Miscellaneous

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#### Housekeeping material

• Module name: Obg0160: Processing Image Pixels Components

File: Obg0160.htm
Published: 01/04/13
Revised: 01/03/16

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 $<sup>^2 {\</sup>rm http://cnx.org/contents/ycm9ykKB}$ 

# Obg0170: JavaBeans Components<sup>1</sup>

#### 8.1 Table of contents

• Moved (p. 15)

• Miscellaneous (p. 15)

#### 8.2 Moved

This material was moved to here  $^2$  on 01/01/2016.

#### 8.3 Miscellaneous

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• Module name: Obg0170: JavaBeans Components

File: Obg0170.htm
Published: 01/04/13
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<sup>&</sup>lt;sup>2</sup>http://cnx.org/contents/u\_b-KzFY

# Obg0180: Network Programming<sup>1</sup>

#### 9.1 Table of contents

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• Miscellaneous (p. 17)

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#### 9.3 Miscellaneous

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• Module name: Obg0180: Network Programming

File: Obg0180-a.htm
Published: 01/04/13
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# Obg0190: RMI and CORBA<sup>1</sup>

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- Preface (p. 19)
- Tutorial links (p. 19)
- Miscellaneous (p. 20)

#### 10.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

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#### 10.3 Tutorial Links

- Java600 <sup>3</sup> RMI, Introduction to Remote Method Invocation
- Java601 <sup>4</sup> RMI with Multiple Objects of the Same Type Having Multiple Methods
- Java602 <sup>5</sup> RMI with Multiple Objects of Different Types Having Multiple Methods

 $<sup>^{1}\</sup>mathrm{This}$  content is available online at  $<\!\mathrm{http://cnx.org/content/m45603/1.1/}\!>$ .

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45603/latest/Java600.htm

 $<sup>^4</sup>$ http://cnx.org/content/m45603/latest/Java601.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45603/latest/Java602.htm

- Java603 <sup>6</sup> RMI, Passing and Returning Remote and Ordinary Objects
- Java620 <sup>7</sup> CORBA, Introduction to Common Object Request Broker Architecture
- Java624 <sup>8</sup> CORBA, Java IDL, Under the Hood
- Java628 <sup>9</sup> CORBA, IDLs with Multiple Modules Having Interfaces with Multiple Operations
- Java632 <sup>10</sup> CORBA, Using Stringified Object References in Java
- Java636 <sup>11</sup> CORBA, Passing References to Remote Objects Callback Methods
- Java640 <sup>12</sup> CORBA, Stringified Object References and FTP Servers
- Java644 <sup>13</sup> CORBA, Passing Parameters to Remote Methods

#### 10.4 Miscellaneous

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File: Obg0190.htmPublished: 01/04/13

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<sup>&</sup>lt;sup>6</sup>http://cnx.org/content/m45603/latest/Java603.htm

 $<sup>^{7} \,</sup> http://cnx.org/content/m45603/latest/Java620.htm$ 

<sup>8</sup> http://cnx.org/content/m45603/latest/Java624.htm

 $<sup>^9</sup> http://cnx.org/content/m45603/latest/Java628.htm$ 

 $<sup>^{10} \</sup>rm http://cnx.org/content/m45603/latest/Java632.htm$ 

 $<sup>^{11} \</sup>rm http://cnx.org/content/m45603/latest/Java636.htm$ 

<sup>12</sup> http://cnx.org/content/m45603/latest/Java640.htm

<sup>&</sup>lt;sup>13</sup> http://cnx.org/content/m45603/latest/Java644.htm

# Obg0200: JDBC and Servlets<sup>1</sup>

#### 11.1 Table of contents

- Preface (p. 21)
- Tutorial links (p. 21)
- Miscellaneous (p. 22)

#### 11.2 Preface

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#### 11.3 Tutorial Links

- Java660 <sup>3</sup> JDBC, Introduction to JDBC and Database Access
- Java662 <sup>4</sup> Using JDBC with MySQL, Getting Started
- Java679 <sup>5</sup> Getting Started with Jakarta Tomcat, Servlets, and JSP (Also see 696 under Ajax.)

<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45604/1.2/">http://cnx.org/content/m45604/1.2/</a>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45604/latest/Java660.htm

<sup>4</sup> http://cnx.org/content/m45604/latest/Java662.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45604/latest/Java679.htm

- Java680 <sup>6</sup> Servlets, Introduction to Servlets
- Java682 <sup>7</sup> Servlets, Forms, and Databases
- Java684 <sup>8</sup> Servlets, Server-Side Includes
- Java686 <sup>9</sup> Servlets, They Can Remember
- $\bullet~$  Java<br/>688  $^{10}$  Servlets and the JDBC ResultSetMetaData Interface
- Java690 <sup>11</sup> Servlets, Originating Email in Servlets
- Java691 <sup>12</sup> Servlets, Session Tracking Using Hidden Fields
- Java692 <sup>13</sup> Servlets, Session Tracking Using URL Rewriting
- Java693 <sup>14</sup> Servlets, Session Tracking Using Cookies
- Java694 <sup>15</sup> Servlets, Session Tracking Using the Session Tracking API
- Java695 <sup>16</sup> Servlets, Session Tracking Using Basic Authentication

Also see the supplemental material published here  $^{17}$  .

#### 11.4 Miscellaneous

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# Obg0210: Security<sup>1</sup>

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- Preface (p. 23)
- Tutorial links (p. 23)
- Miscellaneous (p. 24)

#### 12.2 Preface

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#### 12.3 Tutorial Links

- $\bullet~$  Java<br/>700  $^3$  Security, A Very Brief Introduction
- Java702 <sup>4</sup> Security, Overview of Security in JDK 1.2
- Java705 <sup>5</sup> Security, Servlets, Using Basic Authentication

This content is available online at <http://cnx.org/content/m45605/1.1/>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45605/latest/Java700.htm

 $<sup>^4</sup>$ http://cnx.org/content/m45605/latest/Java702.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45605/latest/Java705.htm

- Java710 <sup>6</sup> Security, Introduction to Message Digests
- Java711 <sup>7</sup> Security, Passphrase Protected Message Digests
- Java712 <sup>8</sup> Security, Message Digest Streams
- Java714 <sup>9</sup> Security, Introduction to Symmetric-Key Cryptography
- Java715 <sup>10</sup> Security, Policy Files in JDK 1.2
- Java720 <sup>11</sup> Security, Introduction to Key Pairs and Digital Signatures
- Java725 <sup>12</sup> Security, Digital Certificates
- Java727 <sup>13</sup> Public Key Cryptography 101 Using Java
- Java728 <sup>14</sup> Digital Signatures 101 using Java
- Java729 <sup>15</sup> Message Digests 101 using Java
- Java730 <sup>16</sup> Digital Signatures using Message Digests with Java
- Java731 <sup>17</sup> Signing Messages using Redundancy Functions in Java
- Java732 <sup>18</sup> Steganography 101 using Java
- Java734 <sup>19</sup> Wireless Home Security and Java

#### 12.4 Miscellaneous

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#### NOTE: Housekeeping material

• Module name: Obg0210: Security

File: Obg0210.htmPublished: 01/04/13

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<sup>6</sup>http://cnx.org/content/m45605/latest/Java710.htm
7http://cnx.org/content/m45605/latest/Java711.htm
8http://cnx.org/content/m45605/latest/Java712.htm
9http://cnx.org/content/m45605/latest/Java714.htm
10http://cnx.org/content/m45605/latest/Java715.htm
11http://cnx.org/content/m45605/latest/Java720.htm
12http://cnx.org/content/m45605/latest/Java725.htm
13http://cnx.org/content/m45605/latest/Java727.htm
14http://cnx.org/content/m45605/latest/Java728.htm
15http://cnx.org/content/m45605/latest/Java729.htm
16http://cnx.org/content/m45605/latest/Java730.htm
17http://cnx.org/content/m45605/latest/Java731.htm
18http://cnx.org/content/m45605/latest/Java732.htm
19http://cnx.org/content/m45605/latest/Java732.htm

# Obg0220: JavaServer Pages (JSP)<sup>1</sup>

#### 13.1 Table of contents

- Preface (p. 25)
- Tutorial links (p. 25)
- Miscellaneous (p. 26)

#### 13.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

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#### 13.3 Tutorial Links

- Java750 <sup>3</sup> JavaServer Pages, Introduction to JSP
- Java752 <sup>4</sup> JavaServer Pages, Comments, Declaration, and Expressions
- Java754 <sup>5</sup> JavaServer Pages, Scriptlets

<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45606/1.2/">http://cnx.org/content/m45606/1.2/</a>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45606/latest/Java750.htm

http://cnx.org/content/m45606/latest/Java752.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45606/latest/Java754.htm

- Java756 <sup>6</sup> JavaServer Pages, The Include Directive
- $\bullet~$  Java<br/>758  $^7$  Java Server Pages, The Page Directive
- $\bullet~$  Java<br/>760  $^8$  JavaServer Pages, jsp.<br/>forward
- Java762 <sup>9</sup> JavaServer Pages and JavaBean Components, Part I
- Java764 <sup>10</sup> JavaServer Pages and JavaBean Components, Part II
- Java766 <sup>11</sup> JavaServer Pages and JavaBean Components, Part III

Also see the supplemental material published here  $^{12}$ .

#### 13.4 Miscellaneous

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#### Housekeeping material

• Module name: Obg0220: JavaServer Pages (JSP)

File: Obg0220.htm
Published: 01/04/13
Revised: 01/12/16

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 $<sup>^6</sup>_{\tt} http://cnx.org/content/m45606/latest/Java756.htm$ 

<sup>&</sup>lt;sup>7</sup>http://cnx.org/content/m45606/latest/Java758.htm

<sup>&</sup>lt;sup>8</sup> http://cnx.org/content/m45606/latest/Java760.htm

 $<sup>^9</sup> http://cnx.org/content/m45606/latest/Java762.htm$ 

 $<sup>^{10} \</sup>rm http://cnx.org/content/m45606/latest/Java764.htm$ 

 $<sup>^{11}</sup>$  http://cnx.org/content/m45606/latest/Java766.htm

<sup>12</sup> http://cnx.org/contents/-2RmHFs\_:L8sFlP5I

# Obg0230: Swing from A to Z - moved<sup>1</sup>

#### 14.1 Table of contents

- Moved (p. 27)
- Miscellaneous (p. 27)

#### 14.2 Moved

This material was moved to here  $^2$  on 01/01/2016.

#### 14.3 Miscellaneous

This section contains a variety of miscellaneous information.

#### Housekeeping material

• Module name: Obg0230: Swing from A to Z

File: Obg0230-a.htm
Published: 11/22/13
Revised: 01/02/16

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<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45607/1.3/">http://cnx.org/content/m45607/1.3/</a>.

 $<sup>^2</sup> http://cnx.org/contents/JbJvdDy4$ 

## Obg0240: Enterprise JavaBeans<sup>1</sup>

#### 15.1 Table of contents

- Preface (p. 29)
- Tutorial links (p. 29)
- Miscellaneous (p. 30)

#### 15.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

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#### 15.3 Tutorial Links

- Java1305 <sup>3</sup> Enterprise JavaBeans: Java 2 Platform, Enterprise Edition, Part 1
- Java1306 <sup>4</sup> Enterprise JavaBeans: Java 2 Platform, Enterprise Edition, Part 2
- Java1307 <sup>5</sup> Enterprise JavaBeans: Java 2 Platform, Enterprise Edition, Part 3

 $<sup>^{1}\</sup>mathrm{This}$  content is available online at  $<\!\mathrm{http://cnx.org/content/m45608/1.2/}\!>$ .

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45608/latest/Java1305.htm

<sup>&</sup>lt;sup>4</sup>http://cnx.org/content/m45608/latest/Java1306.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45608/latest/Java1307.htm

- Java1310 <sup>6</sup> Enterprise JavaBeans: Getting Started with EJB, Part 1
   Java1311 <sup>7</sup> Enterprise JavaBeans: Getting Started with EJB, Part 2
   Java1312 <sup>8</sup> Enterprise JavaBeans: Getting Started with EJB, Part 3
   Java1313 <sup>9</sup> Enterprise JavaBeans: Getting Started with EJB, Part 4
- Java1314 <sup>10</sup> Enterprise JavaBeans: Getting Started with EJB, Part 5
- Java1314 <sup>15</sup> Enterprise JavaBeans: Getting Started with EJB, Part 5
   Java1315 <sup>11</sup> Enterprise JavaBeans: Getting Started with EJB, Part 6
- Java1316 <sup>12</sup> Enterprise JavaBeans: Getting Started with EJB, Part 7
- Java1320 <sup>13</sup> Enterprise JavaBeans: Middle-Tier Servers and J2EE
- Java1322 <sup>14</sup> Enterprise JavaBeans: Helper Classes

Also see supplemental material published here  $^{15}$  .

#### 15.4 Miscellaneous

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#### Housekeeping material

• Module name: Obg0240: Enterprise JavaBeans

File: Obg0240.htm
Published: 01/04/13
Revised: 01/12/16

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<sup>&</sup>lt;sup>6</sup>http://cnx.org/content/m45608/latest/Java1310.htm <sup>7</sup>http://cnx.org/content/m45608/latest/Java1311.htm

<sup>&</sup>lt;sup>8</sup> http://cnx.org/content/m45608/latest/Java1312.htm

<sup>&</sup>lt;sup>9</sup>http://cnx.org/content/m45608/latest/Java1313.htm

 $<sup>^{10} \</sup>rm http://cnx.org/content/m45608/latest/Java1314.htm$ 

<sup>11</sup> http://cnx.org/content/m45608/latest/Java1315.htm

<sup>12</sup> http://cnx.org/content/m45608/latest/Java1316.htm

<sup>&</sup>lt;sup>13</sup>http://cnx.org/content/m45608/latest/Java1320.htm

<sup>14</sup> http://cnx.org/content/m45608/latest/Java1322.htm

<sup>&</sup>lt;sup>15</sup>http://cnx.org/contents/-2RmHFs :Vzt MQZt

# Obg0250: Fun with Java<sup>1</sup>

#### 16.1 Table of contents

• Moved (p. 31)

• Miscellaneous (p. 31)

#### 16.2 Moved

This material was moved to here  $^2$  .

#### 16.3 Miscellaneous

This section contains a variety of miscellaneous information.

#### Housekeeping material

• Module name: Obg0250: Fun with Java

File: Obg0250-a.htm
Published: 01/19/13
Revised: 01/11/16

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<sup>&</sup>lt;sup>1</sup>This content is available online at <http://cnx.org/content/m45679/1.2/>.

 $<sup>^2</sup>$ http://cnx.org/contents/3T7WEdtD

 $\operatorname{-end-}$ 

## Obg0260: Java 3D API

#### 17.1 Table of contents

- Preface (p. 33)
- Tutorial links (p. 33)
- Miscellaneous (p. 34)

#### 17.2 Preface

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#### 17.3 Tutorial Links

- 1540 <sup>3</sup> Understanding Lighting in the Java 3D API
- 1541 <sup>4</sup> Back to Basics in the Java 3D API
- $\bullet$  1542 <sup>5</sup> Digging a Little Deeper into the Java 3D API

 $<sup>\</sup>overline{\ ^{1}}$  This content is available online at < http://cnx.org/content/m45682/1.1/>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45682/latest/Java1540.htm

<sup>&</sup>lt;sup>4</sup>http://cnx.org/content/m45682/latest/Java1541.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45682/latest/Java1542.htm

- 1544 <sup>6</sup> Simple Animation with the Java 3D API
- 1546 <sup>7</sup> Understanding the Alpha Time-Base Class in Java 3D
- 1548 <sup>8</sup> Combining Rotation and Translation in Java 3d
- 1550 <sup>9</sup> Understanding Transforms in Java 2D
- 1552 <sup>10</sup> Understanding Transforms in Java 3D

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• Module name: Obg0260: Java 3D API

File: Obg0260:.htmPublished: 01/19/13

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 $<sup>^6</sup> http://cnx.org/content/m45682/latest/Java1544.htm$ 

<sup>&</sup>lt;sup>7</sup>http://cnx.org/content/m45682/latest/Java1546.htm

<sup>8</sup> http://cnx.org/content/m45682/latest/Java1548.htm

<sup>9</sup>http://cnx.org/content/m45682/latest/Java1550.htm

 $<sup>^{10} \</sup>rm http://cnx.org/content/m45682/latest/Java1552.htm$ 

# Obg0270: Java Sound

#### 18.1 Table of contents

• Moved (p. 35)

• Miscellaneous (p. 35)

#### **18.2** Moved

This material was moved to here  $^2$  .

#### 18.3 Miscellaneous

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#### Housekeeping material

• Module name: Obg0270: Java Sound

File: Obg0270-a.htm
Published: 01/20/13
Revised: 01/07/16

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<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45693/1.2/">http://cnx.org/content/m45693/1.2/</a>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/contents/COh26rPj

# Obg0280: Java and SVG Graphics<sup>1</sup>

#### 19.1 Table of contents

- Preface (p. 37)
- Tutorial links (p. 37)
- Miscellaneous (p. 38)

#### 19.2 Preface

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#### 19.3 Tutorial Links

- $\bullet~$  2212  $^3$  Java JAXP, Creating Graphics Using Java and SVG
- 2214 An Improved Approach for Creating SVG/XML Code and SVG/XML DOM Nodes using Java
- 2216 <sup>5</sup> Using Java to Produce SVG Code in XHTML Data

 $<sup>^{1}</sup> This\ content\ is\ available\ online\ at\ < http://cnx.org/content/m45689/1.1/>.$ 

 $<sup>^{2}</sup>$ http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45689/latest/Java2212.htm

http://cnx.org/content/m45689/latest/Java2214.htm

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45689/latest/Java2216.htm

- 2218 <sup>6</sup> Writing Java Servlets to Produce XHTML Code That References External SVG Files
- 2220 <sup>7</sup> Drawing grids, Bezier Curves and Elliptical Arcs Using Java and SVG
- $\bullet~$  2222  $^8$  Graphics, using Java and JDOM with SVG, Part 1
- 2224 <sup>9</sup> Graphics, using Java and JDOM with SVG, Part 2

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• Module name: Obg0280: Java and SVG Graphics

File: Obg0280.htmPublished: 01/20/13

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 $<sup>^6 \</sup>mathrm{http://cnx.org/content/m} 45689/\mathrm{latest/Java} 2218.\mathrm{htm}$ 

<sup>7</sup> http://cnx.org/content/m45689/latest/Java2220.htm

<sup>&</sup>lt;sup>8</sup>http://cnx.org/content/m45689/latest/Java2222.htm

http://cnx.org/content/m45689/latest/Java2224.htm

# Obg0290: Data Compression<sup>1</sup>

#### 20.1 Table of contents

• Moved (p. 39)

• Miscellaneous (p. 39)

#### 20.2 Moved

This material was moved to here  $^2$  .

#### 20.3 Miscellaneous

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#### Housekeeping material

• Module name: Obg0290: Data Compression

File: Obg0290.htm
Published: 01/03/13
Revised: 01/0616

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 $<sup>^2</sup>$ http://cnx.org/contents/mNJTwIBE

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# Obg0310: Midlets and the Sun Java Wireless Toolkit<sup>1</sup>

#### 21.1 Table of contents

- Preface (p. 41)
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- Miscellaneous (p. 42)

#### 21.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

In the meantime, this is one of the modules in a collection titled Programming Oldies But Goodies <sup>2</sup> that gathers many of the tutorials in their original HTML format into a common location to make them readily available for Connexions users.

The tutorials linked to this module cannot be downloaded from cnx.org in PDF format. However, the original HTML files along with image files and other support files can be downloaded in the Connexions offline.zip format.

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#### 21.3 Tutorial Links

- 2570 <sup>3</sup> Getting Started with Midlets and the Sun Java Wireless Toolkit
- 2572 <sup>4</sup> Capturing Output Produced by Programs Running in a Child Process

<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45684/1.1/">http://cnx.org/content/m45684/1.1/>.

<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

 $<sup>^3</sup> http://cnx.org/content/m45684/latest/Java2570.htm$ 

 $<sup>^4</sup> http://cnx.org/content/m45684/latest/Java2572.ht\,m$ 

- 2574 <sup>5</sup> Back to Basics with MIDlets and the Sun Java Wireless Toolkit for CLDC
- 2576 <sup>6</sup> Introduction to the MIDlet User Interface, A First Look
- 2578 <sup>7</sup> Handling Life-Cycle Issues with the MIDlet User Interface
- 2580 <sup>8</sup> Using Alerts, Images, Timers, and Gauges in MIDlets
- 2582 9 Using Lists in MIDlets
- 2584 <sup>10</sup> Using Forms and Items in MIDlets
- 2586 <sup>11</sup> Programming MIDlets for Interactive Behavior
- 2588 <sup>12</sup> Programming MIDlet Graphics using the Canvas Class
- 2590 <sup>13</sup> Images, Drawn Graphics, and Event Handling in a MIDlet

This section contains a variety of miscellaneous information.

#### NOTE: Housekeeping material

• Module name: Obg0310: Midlets and the Sun Java Wireless Toolkit

File: Obg0310.htmPublished: 01/20/13

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**Affiliation**: I am a professor of Computer Information Technology at Austin Community College in Austin, TX.

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m45684/latest/Java2574.htm

 $<sup>^6</sup> http://cnx.org/content/m45684/latest/Java2576.htm$ 

<sup>&</sup>lt;sup>7</sup>http://cnx.org/content/m45684/latest/Java2578.htm

<sup>8</sup> http://cnx.org/content/m45684/latest/Java2580.htm

<sup>&</sup>lt;sup>9</sup>http://cnx.org/content/m45684/latest/Java2582.htm

<sup>10</sup> http://cnx.org/content/m45684/latest/Java2584.htm

 $<sup>^{11} \</sup>mathrm{http://cnx.org/content/m45684/latest/Java2586.ht\,m}$ 

<sup>&</sup>lt;sup>12</sup>http://cnx.org/content/m45684/latest/Java2588.htm

 $<sup>^{13}</sup> http://cnx.org/content/m45684/latest/Java2590.htm$ 

# Obg0500: Miscellaneous Java Tutorials<sup>1</sup>

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- Tutorial links (p. 43)
- Miscellaneous (p. 47)

#### 22.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

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#### 22.3 Tutorial Links

- Java058 <sup>3</sup> Threads of Control
- Java060 <sup>4</sup> Input and Output Streams
- Java061 <sup>5</sup> Stream Tokenizer

<sup>&</sup>lt;sup>1</sup>This content is available online at <a href="http://cnx.org/content/m45597/1.7/">http://cnx.org/content/m45597/1.7/>.

 $<sup>^2 \</sup>rm http://cnx.org/content/col11478/latest/$ 

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45597/latest/Java058.htm

<sup>&</sup>lt;sup>4</sup>http://cnx.org/content/m45597/latest/Java060.htm

 $<sup>^5 \</sup>mathrm{http://cnx.org/content/m} 45597/\mathrm{latest/Java} 061.\mathrm{htm}$ 

- Java074 <sup>6</sup> Linked-Lists, Stacks, and Queues
- Java075 <sup>7</sup> Ordered Linked-Lists
- Java076 <sup>8</sup> Vectors, Hashtables, and Enumerations
- Java086 <sup>9</sup> Requesting the Focus
- $\bullet~$  Java<br/>088  $^{10}$  Building a Custom Focus-Traversal Method
- Java1840 <sup>11</sup> Focus Traversal Policies in Java Version 1.4
- Java1844 <sup>12</sup> Focusability in Java Version 1.4
- Java1848 <sup>13</sup> Changing Focus Traversal Keys in Java V1.4
- Java1852 <sup>14</sup> Programmatic Focus Traversal in Java V1.4
- Java103 <sup>15</sup> Introduction to the Toolkit Class, Peers, and Lightweight Components
- Java106 <sup>16</sup> Component Impersonation
- Java108 <sup>17</sup> Printing with AWT and Swing
- Java111 <sup>18</sup> The Swing Package, A Preview of Pluggable Look and Feel
- Java1780 <sup>19</sup> Understanding the Buffer class in Java
- Java1782 <sup>20</sup> The ByteBuffer Class in Java
- Java1784 <sup>21</sup> Processing Stack Trace Data in Java
- Java1786 <sup>22</sup> FileChannel Objects in Java, Background Information
- Java1788 <sup>23</sup> FileChannel Objects in Java, ByteBuffer Type
- Java1790 <sup>24</sup> FileChannel Objects in Java, Using View Objects for Different Types
- Java1792 <sup>25</sup> FileChannel Objects in Java, Records with Mixed Types
- Java124 <sup>26</sup> Swing, Hidden Buttons with Icons, Icon Images, Borders, Tool Tips, Nested Buttons, and Other Fun Stuff
- $\bullet~$  Java 130  $^{27}$  The Container, Panel, Window, and Frame Classes
- Java132 <sup>28</sup> The Button, Checkbox, Choice, and List Classes
- Java134 <sup>29</sup> The TextField, TextArea, and Label Classes
- Java138 <sup>30</sup> The Dialog Class
- Java140 <sup>31</sup> Ordinary Menus
- $\bullet~$  Java<br/>142  $^{32}$  Checkbox Menus
- Java144 <sup>33</sup> Popup Menus

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6 http://cnx.org/content/m45597/latest/Java074.htm
 ^7 \mathrm{http://cnx.org/content/m45597/latest/Java075.htm}
 8 http://cnx.org/content/m45597/latest/Java076.htm
 <sup>9</sup>http://cnx.org/content/m45597/latest/Java086.htm
<sup>10</sup>http://cnx.org/content/m45597/latest/Java088.htm
11 http://cnx.org/content/m45597/latest/Java1840.htm
<sup>12</sup>http://cnx.org/content/m45597/latest/Java1844.htm
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<sup>31</sup> http://cnx.org/content/m45597/latest/Java140.htm
<sup>32</sup>http://cnx.org/content/m45597/latest/Java142.htm
<sup>33</sup>http://cnx.org/content/m45597/latest/Java144.htm
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Available for free at Connexions <a href="http://cnx.org/content/col11478/1.23">http://cnx.org/content/col11478/1.23</a>

- Java176 <sup>34</sup> Lightweight Components, A Lightweight 3D Button Class
- Java178 <sup>35</sup> Lightweight Components, Exercising the Lightweight 3D Button Class
- Java180 <sup>36</sup> Lightweight Components, A Named Inner-Class Source/Listener Version of the Lightweight 3D Button Class.
- Java182 <sup>37</sup> Lightweight Components, An Anonymous Inner-Class Source/Listener Version of the Lightweight 3D Button Class.
- Java190 <sup>38</sup> Swing, Creating and Using Trees
- Java191 <sup>39</sup> Swing, Custom Rendering of Tree Nodes
- Java200 <sup>40</sup> Implementing the Model-View-Controller Paradigm using Observer and Observable
- Java209 <sup>41</sup> Swing, Simplified Lists in Swing
- Java210 <sup>42</sup> Swing, Understanding Component MVC Models
- Java211 <sup>43</sup> Swing, Custom Rendering of JList Cells
- Java212 44 Swing, Custom List Selection Model for JList Objects
- Java250 <sup>45</sup> Object Serialization, A First Look
- Java252 <sup>46</sup> Object Serialization, Saving/Restoring a GUI Context with Inner Classes
- Java260 <sup>47</sup> Reflection and the Method Class I
- Java261 <sup>48</sup> Reflection and the Method Class II
- $\bullet~$  Java 262  $^{49}$  Reflection and the Method Class - III
- Java270 <sup>50</sup> Using Reflection with Object Serialization and Retrieved Objects
- Java900 <sup>51</sup> Controlling the Visible Text in a Text Area on Startup
- Java901 <sup>52</sup> Horizontal Text Scrolling
- Java902 <sup>53</sup> Preserving Default Key Behavior
- Java903 <sup>54</sup> Controlling Position in a GridLayout
- $\bullet~$  Java<br/>1794  $^{55}$  Introduction to Memory-Mapped IO in Java
- Java1796 <sup>56</sup> Java, Memory-Mapped IO for Data of Mixed Types
- Java1840 <sup>57</sup> Focus Traversal Policies in Java Version 1.4
- Java1854 <sup>58</sup> The Opposite Focus Component
- $\bullet~$  Java<br/>1857  $^{59}$  Window Focus and State in Java, Part 1 of<br/> 2
- Java1858 <sup>60</sup> Window Focus and State in Java, Part 2

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<sup>34</sup>http://cnx.org/content/m45597/latest/Java176.htm
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<sup>42</sup> http://cnx.org/content/m45597/latest/Java210.htm

<sup>43</sup> http://cnx.org/content/m45597/latest/Java211.htm

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<sup>46</sup> http://cnx.org/content/m45597/latest/Java252.htm

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<sup>60</sup> http://cnx.org/content/m45597/latest/Java1858.htm

- Java2300 <sup>61</sup> Generics in J2SE, Getting Started
- Hs00301 <sup>62</sup> Getting Started with the Greenfoot Java IDE
- Java $2600^{63}$  Getting Back to Basics with GUIs
- ==The following documents have been moved==
- Moved to here  $^{64}$  Java073 The AWT and Swing, A Preview Moved to here  $^{65}$  Java110 The AWT Package, An Overview
- Moved to here <sup>66</sup> Java146 The Canvas Component
- Moved to here <sup>67</sup> Java160 Graphics Getting Started
- Moved to here <sup>68</sup> Java162 Graphics and Colors, An Overview
- Moved to here  $^{69}$  Java164 Graphics The Utility Methods
- Moved to here <sup>70</sup> Java166 Graphics Working with Shapes
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- Moved to here <sup>72</sup> Java170 Graphics Introduction to Images
- Moved to here <sup>73</sup> Java172 Graphics Animation and Double Buffering
- Moved to here <sup>74</sup> Java174 Graphics Overview of Advanced Image Processing Capabilities
- Moved to here <sup>75</sup> Java1632 The Essence of OOP using Java, Static Initializer Blocks
- Moved to here <sup>76</sup> Java1634 The Essence of OOP using Java, Instance Initializers
- Moved to here <sup>77</sup> Java1642 The Essence of OOP using Java, Nested Top-Level Classes
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- Moved to here <sup>86</sup> Java087 Swing, Understanding getContentPane() and other JFrame Layers

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^{61} \mathrm{http://cnx.org/content/m} 45597/\mathrm{latest/Java} 2300.\mathrm{htm}
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 $<sup>^{62}</sup>$ http://cnx.org/content/m45597/latest/Hs00301.htm

 $<sup>^{63}</sup>$ http://cnx.org/content/m45597/latest/Java2600.htm

 $<sup>^{64} \</sup>rm http://cnx.org/contents/rrRQJ3ZS:DHabim1Z$ 

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 $<sup>^{69} \</sup>mathrm{http://cnx.org/contents/rrRQJ3ZS:n6h74W3d}$ 

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 $<sup>^{73} \, \</sup>mathrm{http://cnx.org/contents/rrRQJ3ZS:-Wpra7tM}$ 

<sup>74</sup> http://cnx.org/contents/rrRQJ3ZS:d69eq136

<sup>&</sup>lt;sup>75</sup>http://cnx.org/contents/-2RmHFs :4Z8lfSlU

 $<sup>^{76} {\</sup>rm http://cnx.org/contents/-2RmHFs\_:} Igqoo4qo$ 

<sup>&</sup>lt;sup>77</sup>http://cnx.org/contents/-2RmHFs :Ki8Zm2bE

<sup>&</sup>lt;sup>78</sup>http://cnx.org/contents/-2RmHFs\_:0pd-9uyZ
<sup>79</sup>http://cnx.org/contents/-2RmHFs\_:VX-n-84Y

<sup>80</sup> http://cnx.org/contents/-2RmHFs :xiiBKTqh

 $<sup>^{81}</sup>$  http://cnx.org/contents/-2RmHFs\_:OtyhpDwY

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 $<sup>^{83}</sup>$ http://cnx.org/contents/-2RmHFs\_:2zrKnTnT

 $<sup>^{84}</sup>$ http://cnx.org/contents/-2RmHFs\_:KnZtzHUp

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- Moved to here <sup>87</sup> Java090 Scrollbar (Adjustment) Event Handling
- Moved to here <sup>88</sup> Java092 Mouse Motion Events
- Moved to here  $^{89}$  Java 094 Using Abbreviated Inner Classes
- Moved to here <sup>90</sup> Java095 Container Events and More on Inner Classes
- Moved to here <sup>91</sup> Java096 Program-Generated Events and the AWTEventMulticaster Class
- Moved to here <sup>92</sup> Java097 Component Events
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- Moved to here <sup>95</sup> Java101 Paint Events
- Moved to here <sup>96</sup> Java102 Handling Events in Extended Components without Listener Objects
- Moved to here <sup>97</sup> Java104 Posting Synthetic Events to the System Event Queue
- Moved to here  $^{98}$  Java 105 Text Events
- Moved to here <sup>99</sup> Java107 Understanding Action Objects in Java
- Moved to here <sup>100</sup> Java112 Placing Components in Containers, Absolute Coordinates
- Moved to here <sup>101</sup> Java114 BorderLayout
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- Moved to here <sup>103</sup> Java118 GridLayout
- Moved to here  $^{104}$  Java120 CardLayout
- Moved to here <sup>105</sup> Java1855 The KeyEventDispatcher in Java
- Moved to here <sup>106</sup> Java1856 The KeyEventPostProcessor in Java (Capturing Keyboard Strokes in Java)

This section contains a variety of miscellaneous information.

#### Housekeeping material

- Module name: Obg0500: Miscellaneous Java Tutorials
- File: Obg050.htm • Published: 01/04/13 • Revised: 01/15/16

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87 http://cnx.org/contents/-2RmHFs :tXY6dOgY
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 $<sup>^{88} \</sup>rm http://cnx.org/contents/-2RmHFs\_:TfufWrLh$ 

 $<sup>^{89}</sup>$  http://cnx.org/contents/-2RmHFs\_:NCuQSbIe

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<sup>91</sup> http://cnx.org/contents/-2RmHFs :o-x2woTz

<sup>92</sup> http://cnx.org/contents/-2RmHFs :Hh2PvriS

<sup>93</sup> http://cnx.org/contents/-2RmHFs\_:fyRIfrHC

<sup>94</sup> http://cnx.org/contents/-2RmHFs\_:0LFS3vt4 95 http://cnx.org/contents/-2RmHFs\_:Tvs9Yqc2

<sup>96</sup> http://cnx.org/contents/-2RmHFs :wTTZk0pe

<sup>97</sup> http://cnx.org/contents/-2RmHFs :aAEdFdBi

 $<sup>^{98}</sup>$ http://cnx.org/contents/-2RmHFs\_:8jb1fjOA

 $<sup>^{99}</sup> http://cnx.org/contents/-2RmHFs\_:k\_MdCUDt$ 

<sup>1000</sup> http://cnx.org/contents/-2RmHFs\_:4UyL0T6J
1010 http://cnx.org/contents/-2RmHFs\_:Egh-Vkwb

<sup>102</sup> http://cnx.org/contents/-2RmHFs\_:An6ZyEMb

 $<sup>^{103} \</sup>rm http://cnx.org/contents/-2RmHFs\_:u9QFS5fj$ 

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<sup>106</sup> http://cnx.org/contents/-2RmHFs :zKrRLaSi

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**Affiliation**: I am a professor of Computer Information Technology at Austin Community College in Austin, TX.

# Obg0510: Programming Fundamentals<sup>1</sup>

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#### 23.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

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The tutorials that are available at the following links are supplemental to the Programming Fundamentals  $^3$  modules at Object-Oriented Programming (OOP) with Java  $^4$ .

#### 23.3 Tutorial Links

• Java002 <sup>5</sup> The Importance of Sun's Java Documentation

 $<sup>^1{</sup>m This}$  content is available online at  ${
m <http://cnx.org/content/m48033/1.1/>}$ .

 $<sup>^{2}</sup>$ http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m45179/latest/?collection=col11441/latest

http://cnx.org/content/col11441/latest/

<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m48033/latest/Java002.htm

- Java004 <sup>6</sup> Object-Oriented Programming
- Java008 <sup>7</sup> Similarities and Differences between Java and C++
- Java017 <sup>8</sup> Introduction to Graphical User Interfaces (GUI)
- Java018 <sup>9</sup> Introduction to Applets
- Java031 <sup>10</sup> OOD The Painter's Canvas Problem
- Java034 <sup>11</sup> Standard Input and Output Streams
- Java036 <sup>12</sup> Objects
- Java038 <sup>13</sup> Classes
- Java040 <sup>14</sup> Access Control
- Java042 <sup>15</sup> Instance Members, Class Members, Constructors, and Finalization
- Java044 <sup>16</sup> More on Inheritance
- Java046 <sup>17</sup> More on Interfaces
- Java052 <sup>18</sup> Setting Program Attributes
- Java054 <sup>19</sup> Using System Resources
- Java056 <sup>20</sup> Handling Errors using Exceptions
- Java057 <sup>21</sup> Chained Exceptions in Java
- Java905 <sup>22</sup> Types, Classes, and Objects

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^{16} http://cnx.org/content/m48033/latest/Java044.htm
<sup>17</sup> http://cnx.org/content/m48033/latest/Java046.htm
<sup>18</sup> http://cnx.org/content/m48033/latest/Java052.htm
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<sup>20</sup>http://cnx.org/content/m48033/latest/Java056.htm
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Obg0520: JAXP<sup>1</sup>

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- Tutorial links (p. 53)
- Miscellaneous (p. 54)

#### 24.2 Preface

Over the years, I have published a large number of tutorials in the areas of computer programming and digital signal processing (DSP). As I have time available, I am converting the more significant of those tutorials into cnxml code and re-publishing them at cnx.org.

In the meantime, this is one of the modules in a collection titled Programming Oldies But Goodies <sup>2</sup> that gathers many of the tutorials in their original HTML format into a common location to make them readily available for Connexions users.

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#### 24.3 Tutorial Links

- Java2200 <sup>3</sup> Java API for XML Processing (JAXP), Getting Started
- Java2202 <sup>4</sup> Java JAXP and XSL Transformations (XSLT), Getting Started
- Java2204 <sup>5</sup> Java JAXP, Exposing a DOM Tree

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<sup>&</sup>lt;sup>2</sup>http://cnx.org/content/col11478/latest/

<sup>&</sup>lt;sup>3</sup>http://cnx.org/content/m48037/latest/Java2200.htm

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<sup>&</sup>lt;sup>5</sup>http://cnx.org/content/m48037/latest/Java2204.htm

- Java2206 <sup>6</sup> Java JAXP, Implementing Default XSLT Behavior in Java
- Java2208 <sup>7</sup> Java JAXP, Writing Java Code to Emulate an XSLT Transformation
- Java2210 <sup>8</sup> Java JAXP, Transforming XML to XHTML

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 $<sup>^7 \, \</sup>text{http://cnx.org/content/m48037/latest/Java2208.htm}$ 

<sup>8</sup> http://cnx.org/content/m48037/latest/Java2210.htm

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