



CSIE33000 Network Programming in Java

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Textbook and References

- Recommended: Jan Graba, *An Introduction to Network Programming with Java, 2nd Edition*, Springer, 2007.
(<http://www.springer.com/computer/communications/book/978-1-84628-380-2>)
- References:
 - Elliotte Rusty Harold. *Java Network Programming, 3rd Edition*. O'Reilly & Associates, 2004.
 - David Reilly and Michael Reilly, *Java Network Programming & Distributed Computing*, Addison-Wesley, 2002. (<http://www.davidreilly.com/jnpbook/>)



Java References

- John Lewis and William Loftus. *Java Software Solutions, 6th Edition*. Addison-Wesley. 2008.
- Bruce Ecke. *Thinking in Java, 4th edition*. Prentice-Hall, 2006 (<http://www.mindview.net/Books/TIJ4>)
- Patrick Niemeyer and Jonathan Knudsen. *Learning Java, 3rd Edition*. O'Reilly & Associates, Inc. 2005.
- Cay S. Horstmann and Gary Cornell. *Core Java, Volume I - Fundamentals, 8th Ed*. Sunsoft Press/Prentice Hall. 2008.
- Cay S. Horstmann and Gary Cornell. *Core Java, Volume II - Advanced Features, 8th Ed*. Sunsoft Press/Prentice Hall. 2008.
- Harvey M. Deitel, Paul J. Deitel, Sean Santry. *Advanced Java 2 Platform How-to Program, 2nd Edition*. Prentice Hall, 2007.

CSIE33000 Network Programming

Course Information 3



Why Java ?

- **TIOBE Programming Community Index**
- Gives among the most authoritative report of the popularity of programming languages
- "The index can be used to check whether your **programming skills** are still **up to date** or to make a **strategic decision** about what programming language **should be adopted** when starting to build a new software system."
- The **September 2008** report says ...

CSIE33000 Network Programming

Course Information 4

Position Sep 2008	Position Sep 2007	Delta in Position	Programming Language	Ratings Sep 2008	Delta Sep 2007	Status
1	1	=	Java	20.715%	-0.99%	A
2	2	=	C	15.379%	+0.47%	A
3	5	↑↑	C++	10.716%	+0.78%	A
4	3	↓	(Visual) Basic	10.490%	-0.26%	A
5	4	↓	PHP	9.243%	-0.96%	A
6	8	↑↑	Python	5.012%	+1.99%	A
7	6	↓	Perl	4.841%	-0.58%	A
8	7	↓	C#	4.334%	+0.75%	A
9	9	=	JavaScript	3.130%	+0.41%	A
10	14	↑↑↑↑	Delphi	3.055%	+1.83%	A
11	10	↓	Ruby	2.762%	+0.70%	A
12	13	↑	D	1.265%	-0.11%	A
13	11	↓↓	PL/SQL	0.700%	-1.16%	A--
14	12	↓↓	SAS	0.640%	-0.76%	B
15	23	↑↑↑↑↑↑↑↑	ActionScript	0.472%	+0.07%	B
16	16	=	Lisp/Scheme	0.419%	-0.21%	B
17	18	↑	Lua	0.415%	-0.16%	B
18	22	↑↑↑↑	Pascal	0.400%	-0.03%	B
19	-	↑↑↑↑↑↑↑↑	PowerShell	0.384%	0.00%	B
20	17	↓↓↓	COBOL	0.360%	-0.27%	B

CSIE33000 Network Programming Course Information 5

Why is Java so popular ?

- Relatively close to C/C++, learning is easy
- Object-oriented programming
- Integrated GUI with AWT and Swing
- **Multithreaded** programming
- Integrated **networking** constructs
- Integrated **Internet/Web** constructs
- **Distributed objects** and **remote invocation**
- **Database** programming with JDBC
- **Mobile device** programming with Java ME
- Applet, Servlet, JavaBeans, Multimedia, ...



Course Information

- Instructor's Office: Engineering Building C308
- Office Hours: Thu 17:00 ~ 18:00
- Phone Number: (03)8634020
- Email Address: showyang@mail.ndhu.edu.tw
- **Grading Policy:**
 - Assignments 25%
 - Midterm 25%
 - Final exam 25%
 - Term project 25%

CSIE33000 Network Programming

Course Information 7



Web Pages

- Course Homepage:
<http://www.csie.ndhu.edu.tw/~showyang/NetProg2008/index.html>
東華e學苑(<http://www.elearn.ndhu.edu.tw>)
- Instructor's Homepage:
<http://www.csie.ndhu.edu.tw/~showyang>

CSIE33000 Network Programming

Course Information 8



Syllabus

- Introduction and system models
- Network and Web basics
- Overview of Java networking
- Addressing and naming
- Multithreading and Multiplexing
- Java I/O and data streams
- Sockets and TCP programming
- UDP programming

CSIE33000 Network Programming

Course Information 9



Syllabus (Cont.)

- URL handling
- HTML and HTTP processing
- Client-server and application protocol design
- Multicasting
- Distributed object and Java object serialization
- Remote Method Invocation (RMI)
- JDBC
- Java Servlets
- Java Server Pages (JSPs)

CSIE33000 Network Programming

Course Information 10



Syllabus (Advanced Topics)*

- Programming mobile devices with Java ME
- Java IDL and CORBA
- JavaBeans
- Enterprise JavaBeans
- Multimedia
- Java Messaging Service (JMS)
- Java Web services
- XML and Ecommerce

CSIE33000 Network Programming

Course Information 11



Term Project

- We will discuss project topics in the class.
- You are welcomed to suggest creative topics before the midterm.
- We will make a decision on the topic the week after the midterm.
- The project is due one week after the final.
- You should prepare for a demo to show your project and to explain your design.
- **Must turn in the project to pass the class!!**

CSIE33000 Network Programming

Course Information 12



Be Prepared !!

- In the Internet/WWW era, network programming is a **must-have skill** for a CSIE student.
- **Programming concept** is the key. Programming language is secondary.
- This is a **heavy loaded class**, as always.
- Keep up with the class.