sections details

presentation

Java Programming – Software App Development

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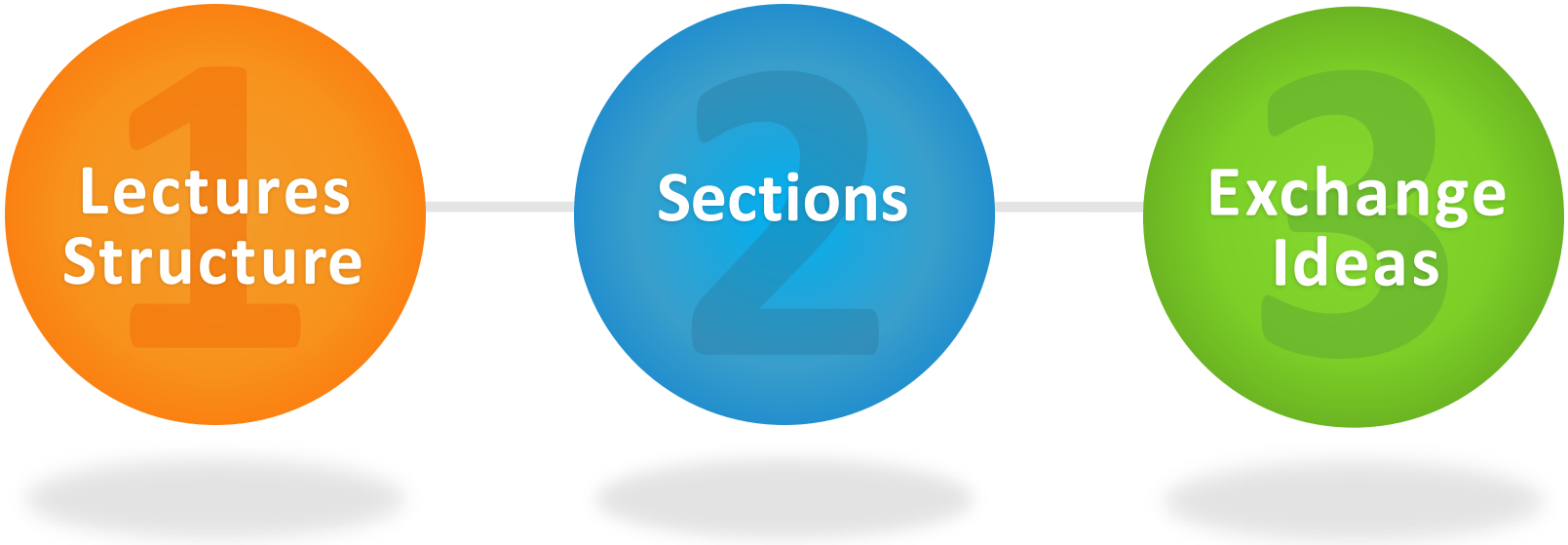
Agenda for Java Programming



DAD Administrative issues, Mission, Target Group Profile

Java Lectures Structure

1.1 Java Lectures Structure

Main issues:

Didactic Activities: Lectures 50% + Lab / Seminar 50%
14 meetings **14 meetings**

Evaluation: PC Exam – 70% | 60% / Seminars tests and/or projects – 30% | 40%

E-Framework: VMs – VM-Ware Virtual Machines with:

- Linux Ubuntu 16 LTS + JDK 8 & 9 & 11 + Eclipse and/or IntelliJ

E-Learning Platform: SAKAI – http://ism.ase.ro | http://acs.ase.ro

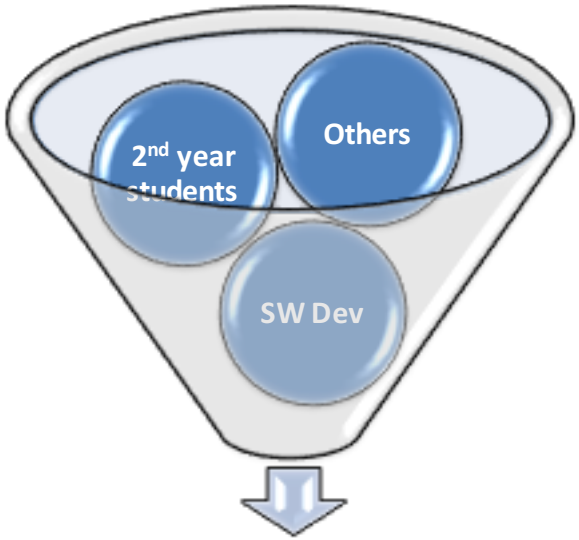
Prerequisites: Fundamentals of C/C++ | Linux/Windows OS | Optional – Compilers & Translators topic

Mission: Technological transfer from university to the students of practical and theoretical issues related with software applications development using multi-paradigm programming in Java SE – Standard Edition.

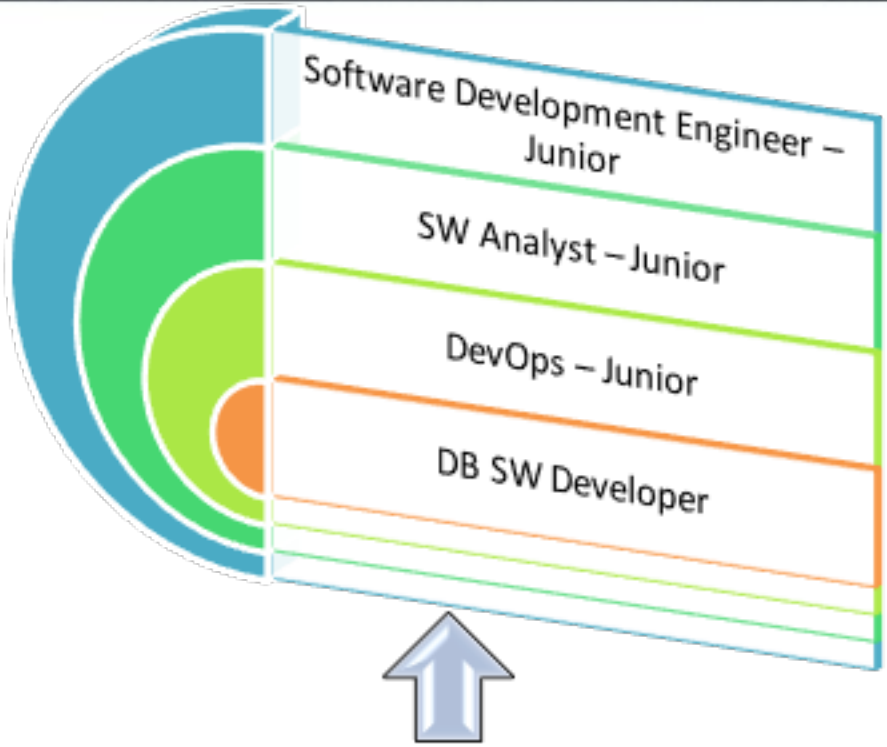
1.2 Target Group Profile

Java Programming

Software Applications Development



Java Programming needs students having C/C++ and OS + Networking Fundamentals Knowledge



Software Development

Multi-paradigm Programming

Java Programming

Sections – OOP, Networking, Java SE

Java Sections & References

2.1 Java Programming Core Topics

1 – Java Language Fundamentals, JDK-JRE, Object Oriented Programming (class, interface, inheritance, polymorphism, …)

2 – Java Generics, Annotations and Reflection (java.lang.annotation.* & java.lang.reflect.*)

3 – JCF – Java Collection Framework (java.util.*)

4 – Intro in Java I/O Streams (java.io.*) and JNI + JDK 9 and 11 Modules ***

5 – Intro in Source Code Design Patterns (Factory Methods, Singleton, Object Pool)

6 – Java 8 New Features – Lambda Expressions/Closures and Functional Programming Streams

7 – Multithreading – concurrency + parallel computing (without java.util.concurrent.*) ***

8 – Networking Intro – Java Socket (java.net.*) & NIO + Reactive Streams***

9 – Storage Programming – JDBC – Java Data-Base Connectivity – RDBMS & NoSQL – MongoDB ***

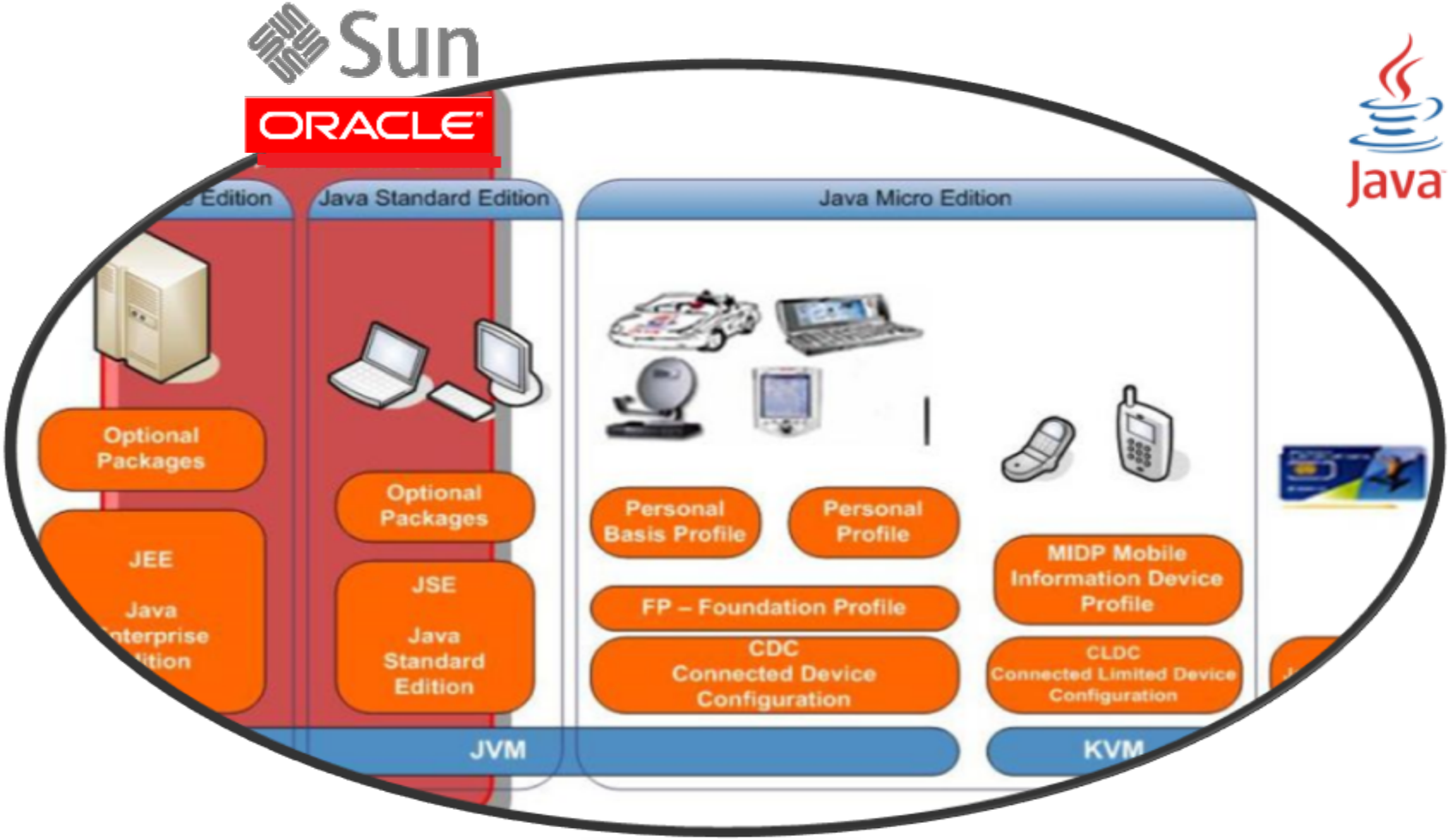
10 – Structured Data Processing – XML Parsing – JAXB and JSON + RegEx

11 – GUI – Graphical User Interface – Java FX - FXML

2.3 References

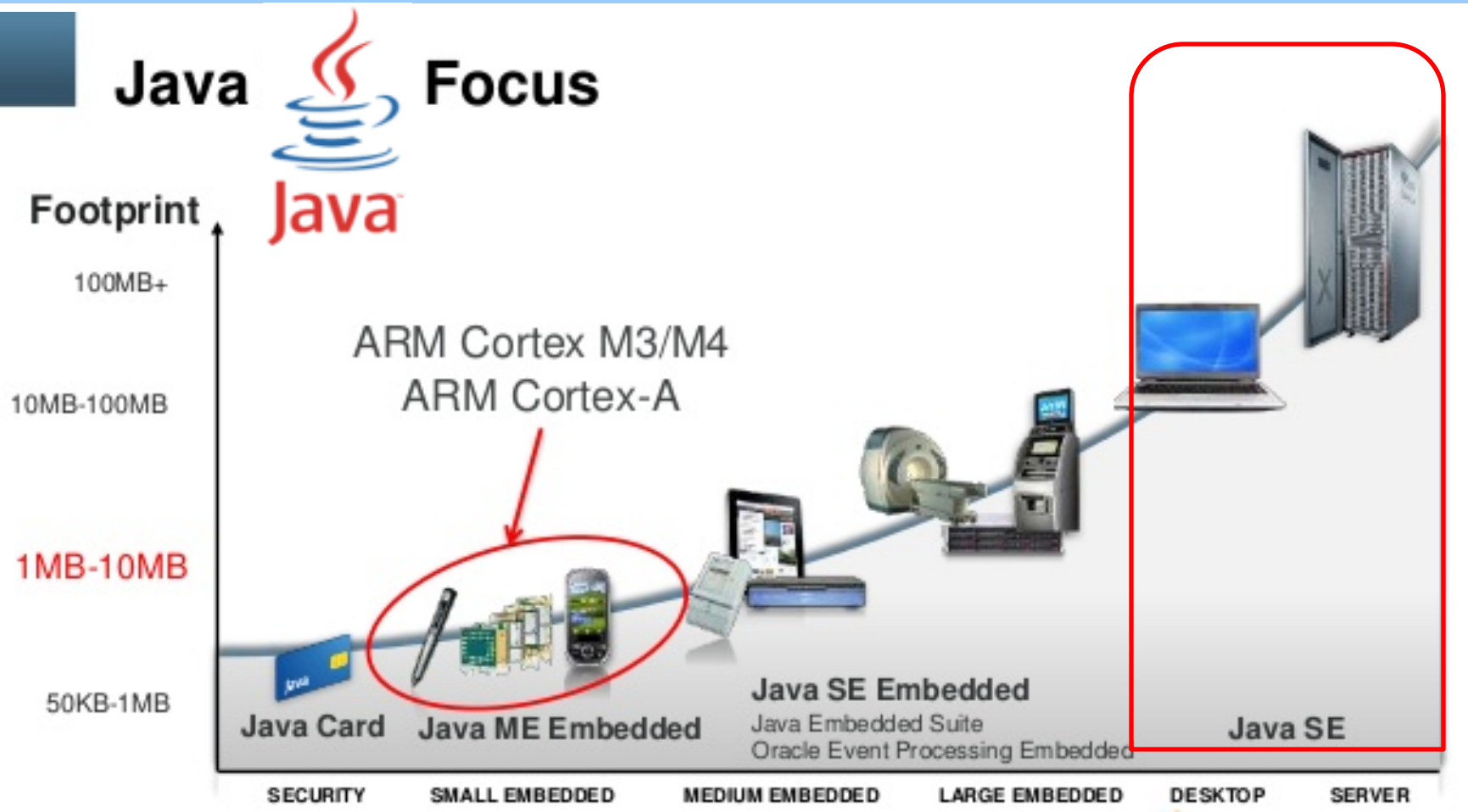
1. Herbert Schildt, "***Java: The Complete Reference, Eleventh Edition, 11th Edition***", Publisher McGraw-Hill, (Dec, 2018), Language: English, ISBN: 9781260440249
2. Joshua Bloch, "***Effective Java 3rd Edition***", Publisher Addison-Wesley (Dec 27, 2017), ISBN: 978-0 9780134686097
3. Elisabeth Freeman, Eric Freeman, Bert Bates, Kathy Sierra, Elisabeth Robson, "***Head First Design Patterns***", Publisher: O'Reilly Media; 1 edition (November 1, 2004), ISBN-10: 0596007124, ISBN-13: 978-0596007126
4. Bruce Eckel, "***Thinking in Java***", Publisher: Prentice Hall; 4 edition (February 20, 2006) , ISBN-10: 0131872486, ISBN-13: 978-0131872486
5. James Gosling, Bill Joy, Guy Steele, Gilad Bracha, Alex Buckley - "***The Java Language Specification, Java SE 7 and 8 Edition***": http://docs.oracle.com/javase/specs/jls/se7/jls7.pdf | http://docs.oracle.com/javase/specs/jls/se8/jls8.pdf
6. Tim Lindholm, Frank Yellin, Gilad Bracha, Alex Buckley – "***The Java Virtual Machine Specification, Java SE 7 and 8 Edition***": http://docs.oracle.com/javase/specs/jvms/se7/jvms7.pdf | http://docs.oracle.com/javase/specs/jvms/se8/jvms8.pdf
7. Bill Venners, "***Inside the Java 2 Virtual Machine***", Publisher: McGraw-Hill Companies; 2nd edition (January 6, 2000), ISBN-10: 0071350934, ISBN-13: 978-0071350938
8. **My Experience** and lectures/labs slides presentations, examples, virtual machines + your visual, kinetic and auditory memory + SAKAI e-Learning System PROVIDED by **ISM – IT&C Security Master** Program - https://86.55.177.71:7443 + http://ism.ase.ro | http://acs.ase.ro
9. Web Resources & Tutorials – Sun/Oracle:
   http://www.oracle.com/technetwork/java/index.html
   http://www.oracle.com/technetwork/index.html
   http://docs.oracle.com/javase/tutorial/

JSE – Java Standard Edition



JSE – Java Standard Edition

Java Focus



TIOBE Programming Languages Index - 2013

Position Mar 2013	Position Mar 2012	Delta in Position	Programming Language	Ratings Mar 2013	Delta Mar 2012	Status
1	1	=	Java	18.156%	+1.05%	A
2	2	=	C	17.141%	+0.05%	A
3	5	↑↑	Objective-C	10.230%	+2.49%	A
4	4	=	C++	9.115%	+1.07%	A
5	3	↓↓	C#	6.597%	-1.65%	A
6	6	=	PHP	4.809%	-0.75%	A
7	7	=	(Visual) Basic	4.607%	+0.24%	A
8	9	↑	Python	4.388%	+1.10%	A
9	13	↑↑↑↑	Ruby	2.150%	+0.74%	A
10	10	=	Perl	1.959%	-0.74%	A
11	8	↓↓↓	JavaScript	1.370%	-2.02%	A
12	48	↑↑↑↑↑↑↑↑↑↑	Bash	1.009%	+0.78%	A-
13	15	↑↑	Lisp	0.942%	+0.02%	A
14	12	↓↓	PL/SQL	0.921%	-0.50%	A--
15	11	↓↓↓↓	Delphi/Object Pascal	0.889%	-0.84%	A
16	16	=	Visual Basic .NET	0.888%	+0.10%	A
17	14	↓↓↓	Transact-SQL	0.836%	-0.09%	A-
18	17	↓	Pascal	0.697%	-0.07%	A--
19	21	↑↑	Lua	0.697%	+0.17%	B
20	26	↑↑↑↑↑↑	Assembly	0.633%	+0.21%	B

Programming Language	Position Mar 2013	Position Mar 2008	Position Mar 1998	Position Mar 1988
Java	1	1	3	-
C	2	2	1	1
Objective-C	3	45	-	-
C++	4	5	2	6
C#	5	8	-	-
PHP	6	4	-	-
(Visual) Basic	7	3	4	7
Python	8	7	16	-
Ruby	9	11	-	-
Perl	10	6	6	20
Lisp	13	20	11	2
Ada	22	19	10	3

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TIOBE Programming Languages Index - 2014

Feb 2014	Feb 2013	Change	Programming Language	Ratings	Change
1	2	↑	C	18.334%	+1.25%
2	1	↓	Java	17.316%	-1.07%
3	3		Objective-C	11.341%	+1.54%
4	4		C++	6.892%	-1.87%
5	5		C#	6.450%	-0.23%
6	6		PHP	4.219%	-0.85%
7	8	↑	(Visual) Basic	2.759%	-1.89%
8	7	↓	Python	2.157%	-2.79%
9	11	↑	JavaScript	1.929%	+0.51%
10	12	↑	Visual Basic .NET	1.798%	+0.79%
11	16	⇈	Transact-SQL	1.667%	+0.89%
12	10	↓	Ruby	0.924%	-0.83%
13	9	⇊	Perl	0.887%	-1.36%
14	18	⇈	MATLAB	0.641%	-0.01%
15	22	⇈	PL/SQL	0.604%	-0.00%
16	47	⇈	F#	0.591%	+0.42%
17	14	↓	Pascal	0.551%	-0.38%
18	36	⇈	D	0.529%	+0.23%

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TIOBE Programming Languages Index – 2016

Feb 2016	Feb 2015	Change	Programming Language	Ratings	Change
1	2	↑	Java	21.145%	+5.80%
2	1	↓	C	15.594%	-0.89%
3	3		C++	6.907%	+0.29%
4	5	↑	C#	4.400%	-1.34%
5	8	↑	Python	4.180%	+1.30%
6	7	↑	PHP	2.770%	-0.40%
7	9	↑	Visual Basic .NET	2.454%	+0.43%
8	12	⇈	Perl	2.251%	+0.86%
9	6	↓	JavaScript	2.201%	-1.31%
10	11	↑	Delphi/Object Pascal	2.163%	+0.59%
11	20	⇈	Ruby	2.053%	+1.18%
12	10	↓	Visual Basic	1.855%	+0.14%
13	26	⇈	Assembly language	1.828%	+1.08%
14	4	⇊	Objective-C	1.403%	-4.62%
15	30	⇈	D	1.391%	+0.77%
16	27	⇈	Swift	1.375%	+0.65%
17	18	↑	R	1.192%	+0.23%
18	17	↓	MATLAB	1.091%	+0.06%
19	13	⇊	PL/SQL	1.062%	-0.20%
20	33	⇈	Groovy	1.012%	+0.51%

TIOBE Programming Languages Index – 2017

Feb 2017	Feb 2016	Change	Programming Language	Ratings	Change
1	1		Java	16.676%	-4.47%
2	2		C	8.445%	-7.15%
3	3		C++	5.429%	-1.48%
4	4		C#	4.902%	+0.50%
5	5		Python	4.043%	-0.14%
6	6		PHP	3.072%	+0.30%
7	9	↑	JavaScript	2.872%	+0.67%
8	7	↓	Visual Basic .NET	2.824%	+0.37%
9	10	↑	Delphi/Object Pascal	2.479%	+0.32%
10	8	↓	Perl	2.171%	-0.08%
11	11		Ruby	2.153%	+0.10%
12	16	⇈	Swift	2.125%	+0.75%
13	13		Assembly language	2.107%	+0.28%
14	38	⇈	Go	2.105%	+1.81%
15	17	↑	R	1.922%	+0.73%
16	12	⇊	Visual Basic	1.875%	+0.02%
17	18	↑	MATLAB	1.723%	+0.63%
18	19	↑	PL/SQL	1.549%	+0.49%
19	14	⇊	Objective-C	1.536%	+0.13%
20	23	↑	Scratch	1.500%	+0.71%

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TIOBE Programming Languages Index – 2018

Jan 2018	Jan 2017	Change	Programming Language	Ratings	Change
1	1		Java	14.215%	-3.06%
2	2		C	11.037%	+1.69%
3	3		C++	5.603%	-0.70%
4	5	↑	Python	4.678%	+1.21%
5	4	↓	C#	3.754%	-0.29%
6	7	↑	JavaScript	3.465%	+0.62%
7	6	↓	Visual Basic .NET	3.261%	+0.30%
8	16	⇈	R	2.549%	+0.76%
9	10	↑	PHP	2.532%	-0.03%
10	8	↓	Perl	2.419%	-0.33%
11	12	↑	Ruby	2.406%	-0.14%
12	14	↑	Swift	2.377%	+0.45%
13	11	↓	Delphi/Object Pascal	2.377%	-0.18%
14	15	↑	Visual Basic	2.314%	+0.40%
15	9	⇊	Assembly language	2.056%	-0.65%
16	18	↑	Objective-C	1.860%	+0.24%
17	23	⇈	Scratch	1.740%	+0.58%

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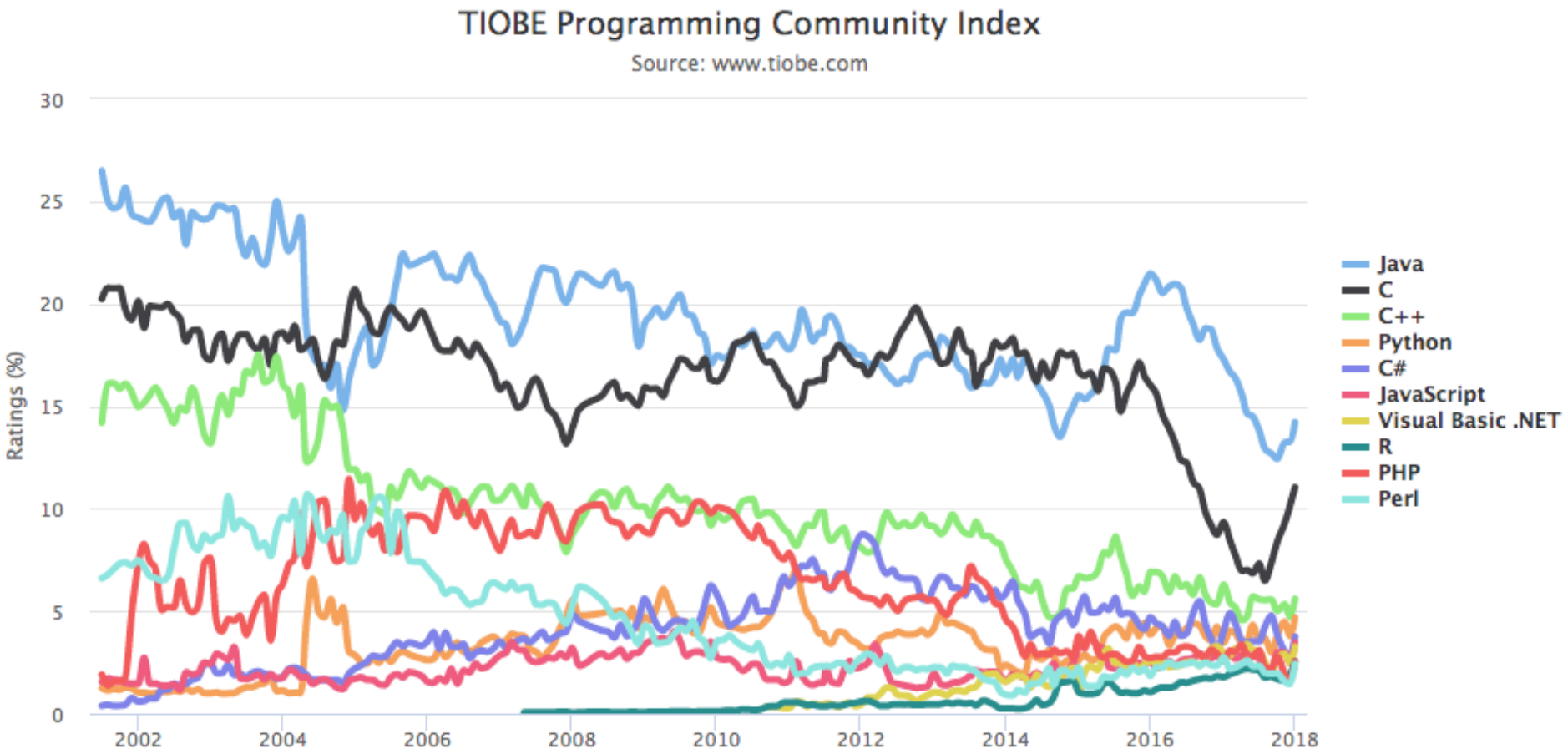
TIOBE Programming Languages Index – 2019

Feb 2019	Feb 2018	Change	Programming Language	Ratings	Change
1	1		Java	15.876%	+0.89%
2	2		C	12.424%	+0.57%
3	4	↑	Python	7.574%	+2.41%
4	3	↓	C++	7.444%	+1.72%
5	6	↑	Visual Basic .NET	7.095%	+3.02%
6	8	↑	JavaScript	2.848%	-0.32%
7	5	↓	C#	2.846%	-1.61%
8	7	↓	PHP	2.271%	-1.15%
9	11	↑	SQL	1.900%	-0.46%
10	20	⇈	Objective-C	1.447%	+0.32%
11	15	⇈	Assembly language	1.377%	-0.46%
12	19	⇈	MATLAB	1.196%	-0.03%
13	17	⇈	Perl	1.102%	-0.66%
14	9	⇊	Delphi/Object Pascal	1.066%	-1.52%
15	13	↓	R	1.043%	-1.04%
16	10	⇊	Ruby	1.037%	-1.50%
17	12	⇊	Visual Basic	0.991%	-1.19%
18	18		Go	0.960%	-0.46%
19	49	⇈	Groovy	0.936%	+0.75%
20	16	⇊	Swift	0.918%	-0.88%

TIOBE Programming Languages Index - 2018



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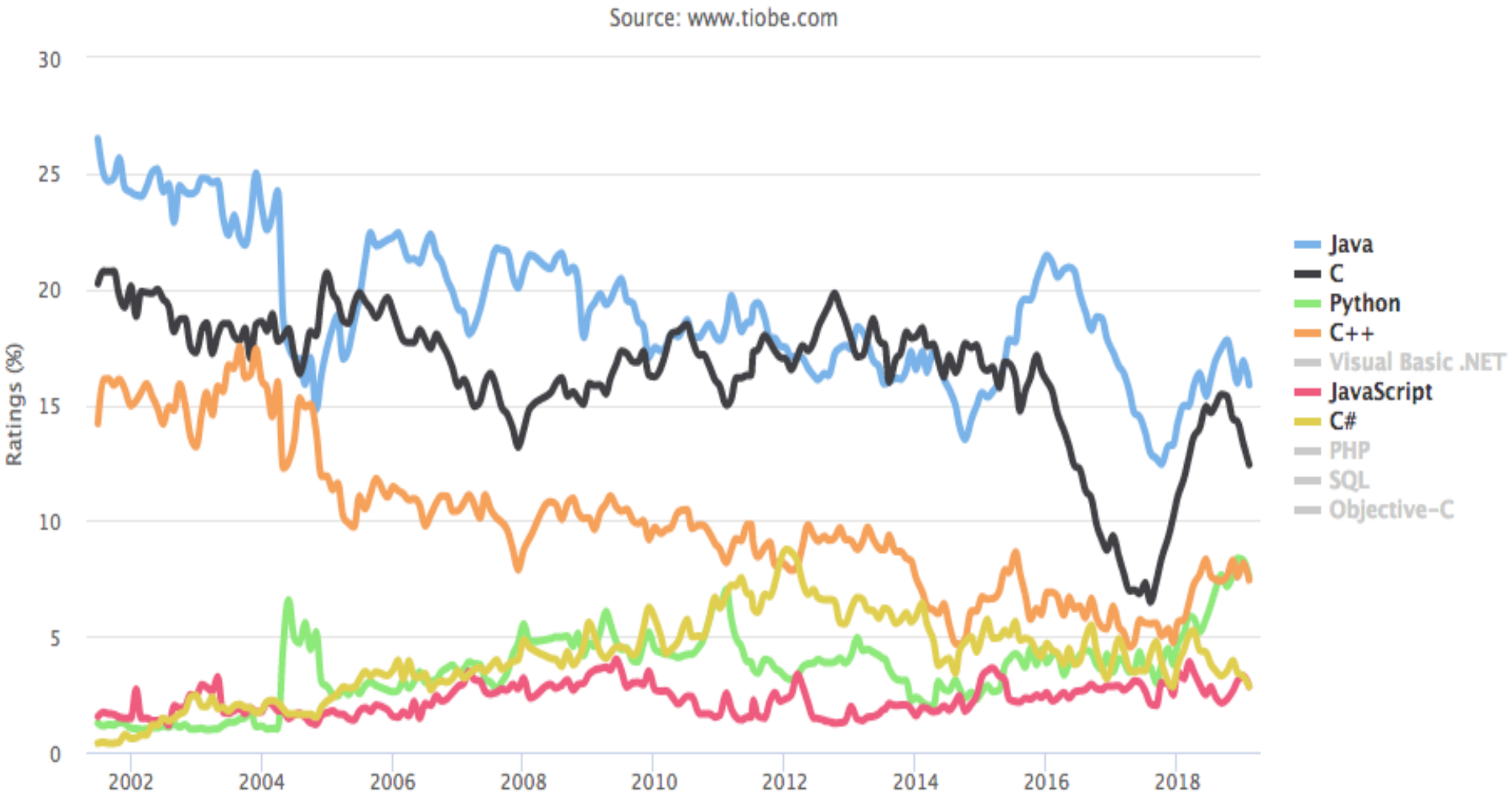
TIOBE Programming Languages Index - 2018



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TIOBE Programming Languages Index – Long Term

Very Long Term History

To see the bigger picture, please find below the positions of the top 10 programming languages of many years back. Please note that these are *average* positions for a period of 12 months.

Programming Language	2018	2013	2008	2003	1998	1993	1988
Java	1	2	1	1	16	-	-
C	2	1	2	2	1	1	1
C++	3	4	3	3	2	2	5
C#	4	5	7	11	-	-	-
Python	5	7	6	12	27	16	-
Visual Basic .NET	6	13	-	-	-	-	-
JavaScript	7	9	8	7	20	-	-
PHP	8	6	4	5	-	-	-
Perl	9	8	5	4	3	9	-
Ruby	10	10	9	19	-	-	-
Objective-C	18	3	44	46	-	-	-

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TIOBE Programming Languages Index – Long Term

Programming Language	2019	2014	2009	2004	1999	1994	1989
Java	1	2	1	1	11	-	-
C	2	1	2	2	1	1	1
C++	3	4	3	3	2	2	3
Python	4	7	5	10	25	21	-
Visual Basic .NET	5	12	-	-	-	-	-
C#	6	5	7	7	28	-	-
PHP	7	6	4	5	-	-	-
JavaScript	8	8	8	8	18	-	-
SQL	9	-	-	6	-	-	-
Objective-C	10	3	36	45	-	-	-
COBOL	25	19	15	11	3	9	18
Lisp	28	13	16	14	10	6	2
Pascal	203	14	14	96	5	3	7

http://www.tiobe.com/index.php/content/paperinfo/tpci/index.html

PYPL PopularitY of Programming Language Index - 2017

Worldwide, Feb 2017 compared to a year ago:

Rank	Change	Language	Share	Trend
1		Java	22.6 %	-1.3 %
2		Python	14.7 %	+2.8 %
3		PHP	9.4 %	-1.2 %
4		C#	8.3 %	-0.3 %
5	↑↑	Javascript	7.7 %	+0.4 %
6		C	7.0 %	-0.2 %
7	↓↓	C++	6.9 %	-0.6 %
8		Objective-C	4.2 %	-0.6 %
9	↑	R	3.4 %	+0.4 %
10	↓	Swift	2.9 %	+0.1 %
11		Matlab	2.7 %	-0.3 %

http://pypl.github.io/PYPL.html

IDE Index - 2019

Worldwide, Feb 2019 compared to a year ago:

Rank	Change	IDE	Share	Trend
1		Visual Studio	22.93 %	-3.0 %
2		Eclipse	21.5 %	-3.6 %
3		Android Studio	16.58 %	+6.1 %
4		NetBeans	6.49 %	-0.3 %
5	↑↑↑	IntelliJ	4.74 %	+0.8 %
6	↑↑↑↑	Visual Studio Code	4.5 %	+1.7 %
7	↓	Sublime Text	4.14 %	-0.1 %
8	↑	pyCharm	4.11 %	+1.1 %
9	↓↓↓↓	Atom	3.91 %	-0.5 %
10	↓↓↓	Xcode	3.46 %	-0.8 %
11		Code::Blocks	2.03 %	-0.4 %
12	↑	Vim	1.05 %	-0.1 %
13	↓	Xamarin	0.94 %	-0.3 %
14		PhpStorm	0.8 %	+0.0 %
15		Komodo	0.65 %	-0.0 %
16		Qt Creator	0.34 %	-0.3 %
17	↑↑	Emacs	0.31 %	-0.0 %
18		geany	0.29 %	-0.0 %
19	↓↓	JDeveloper	0.26 %	-0.1 %
20	↑	MonoDevelop	0.19 %	-0.0 %
21	↓	Aptana	0.16 %	-0.1 %
22		JCreator	0.14 %	-0.0 %

http://pypl.github.io/PYPL.html

Share knowledge, Empowering Minds

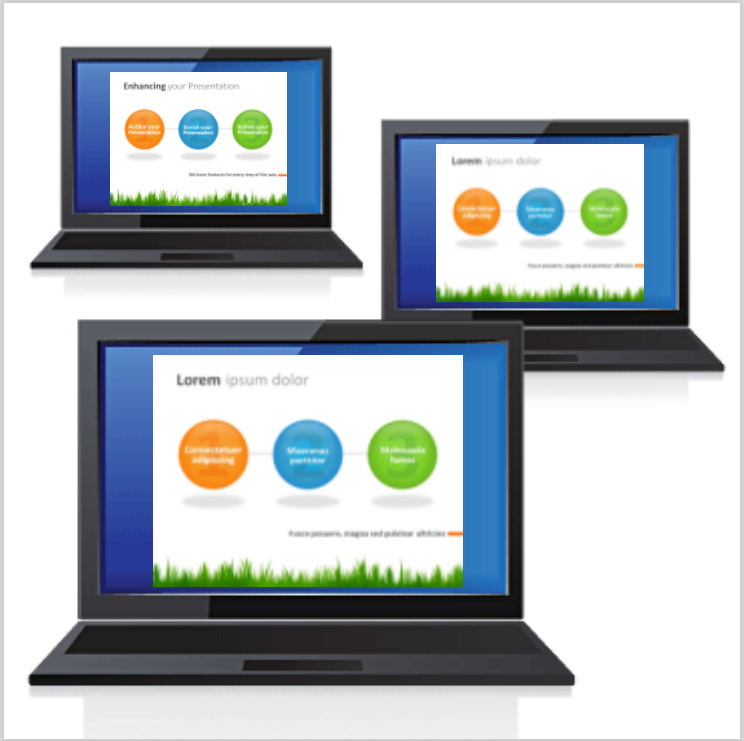
Communicate & Exchange Ideas

SHARE IT

» Show and tell our **KNOWLEDGE**

» Share and realize **ICT Technological Transfer**

» CREATE together **Java Software Application Development Entry-Level Support - AWERNESS**!



Questions & Answers!

But wait…

There's More!

1. Java SE - Is what you expected?
2. How many hours per week are you going to invest in order to achieve Java SE goals?
3. How many of you are working in IT field – SW Dev., Admin., Designers?
4. How many students get the payment scholarship from the companies vs. how many are/aren't paying the studies?
5. In what disciplines did we collaborate together?

Thanks!