

sections details



presentation

# Java Programming – Software App Development

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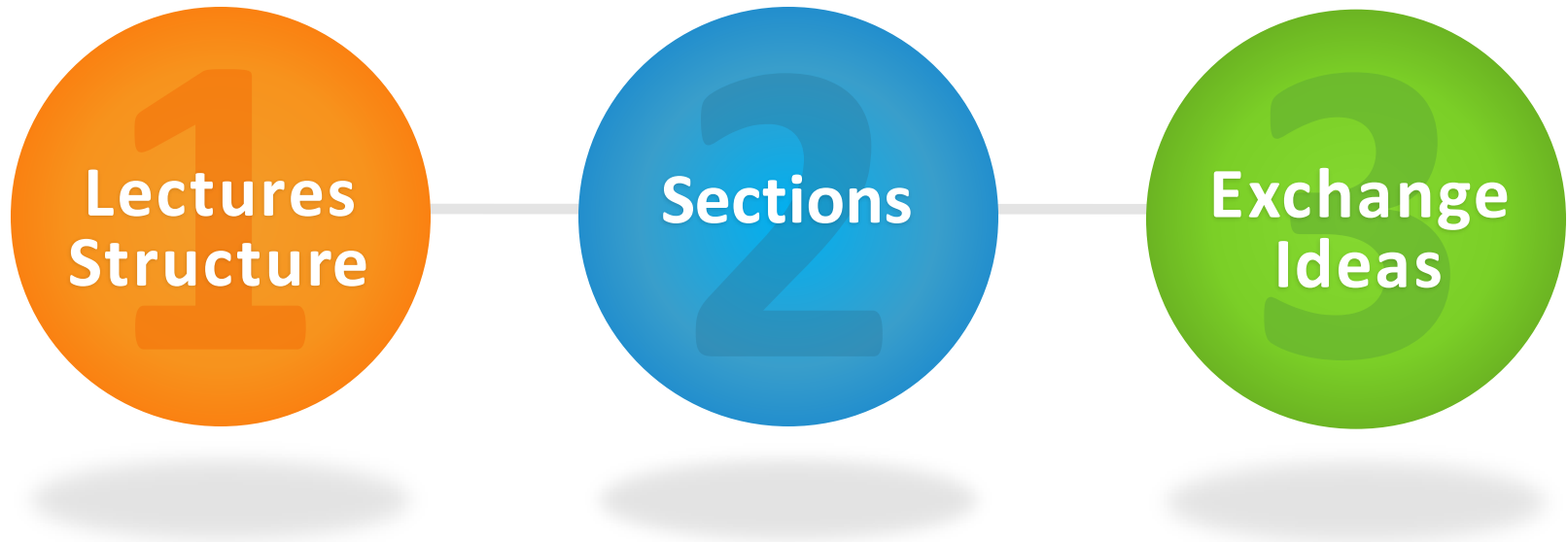
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# Agenda for Java Programming





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 – 60% / Seminars tests and/or projects – 40%

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

- Linux Ubuntu 16 LTS + JDK 8 & 9 + Eclipse Oxygen

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

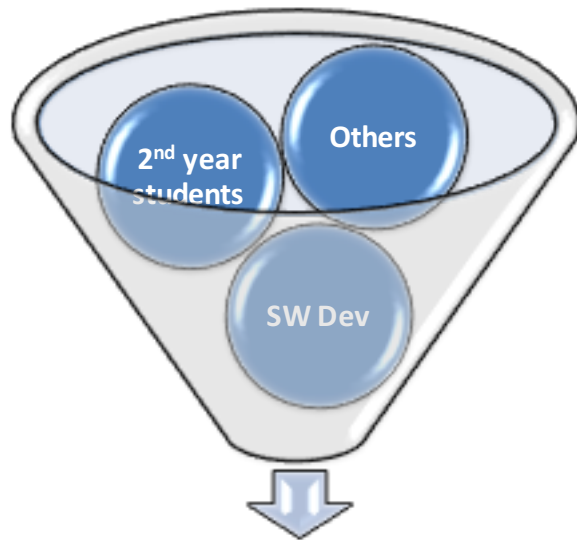
**Prerequisites:** Fundamentals of C/C++ | Linux/Windows OS |  
Optional – Compilers & Translators topic

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

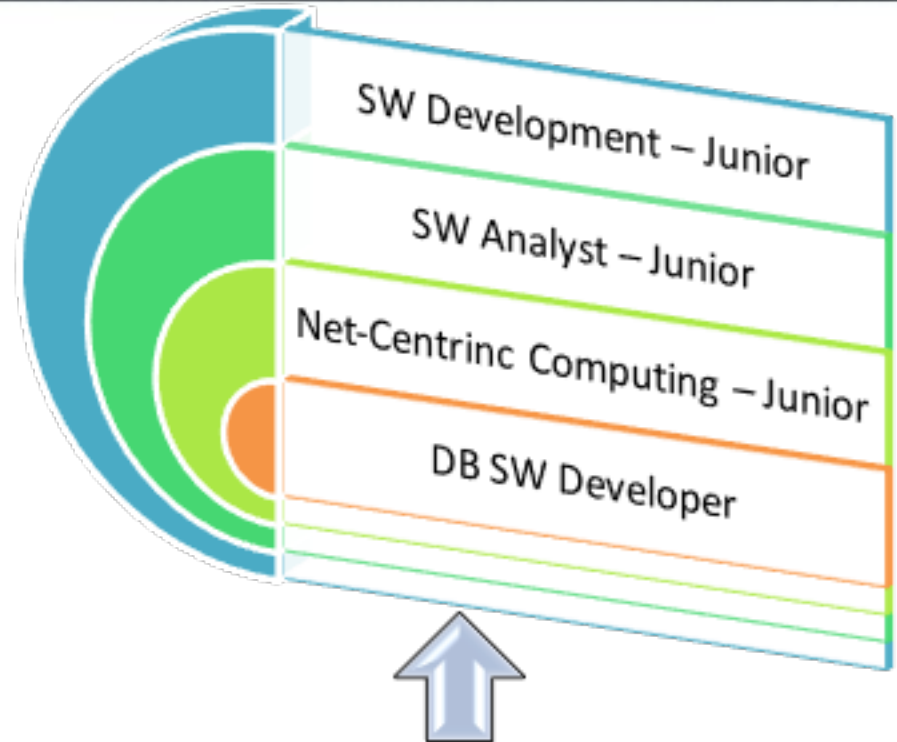
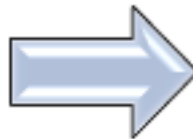
## 1.2 Target Group Profile

### Java Programming

#### Software Applications Development



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



**Software Development**



**Java Programming**



Sections – OOP, Networking, Java SE

## Java Sections & References

# 2.1 Java Programming Core Topics

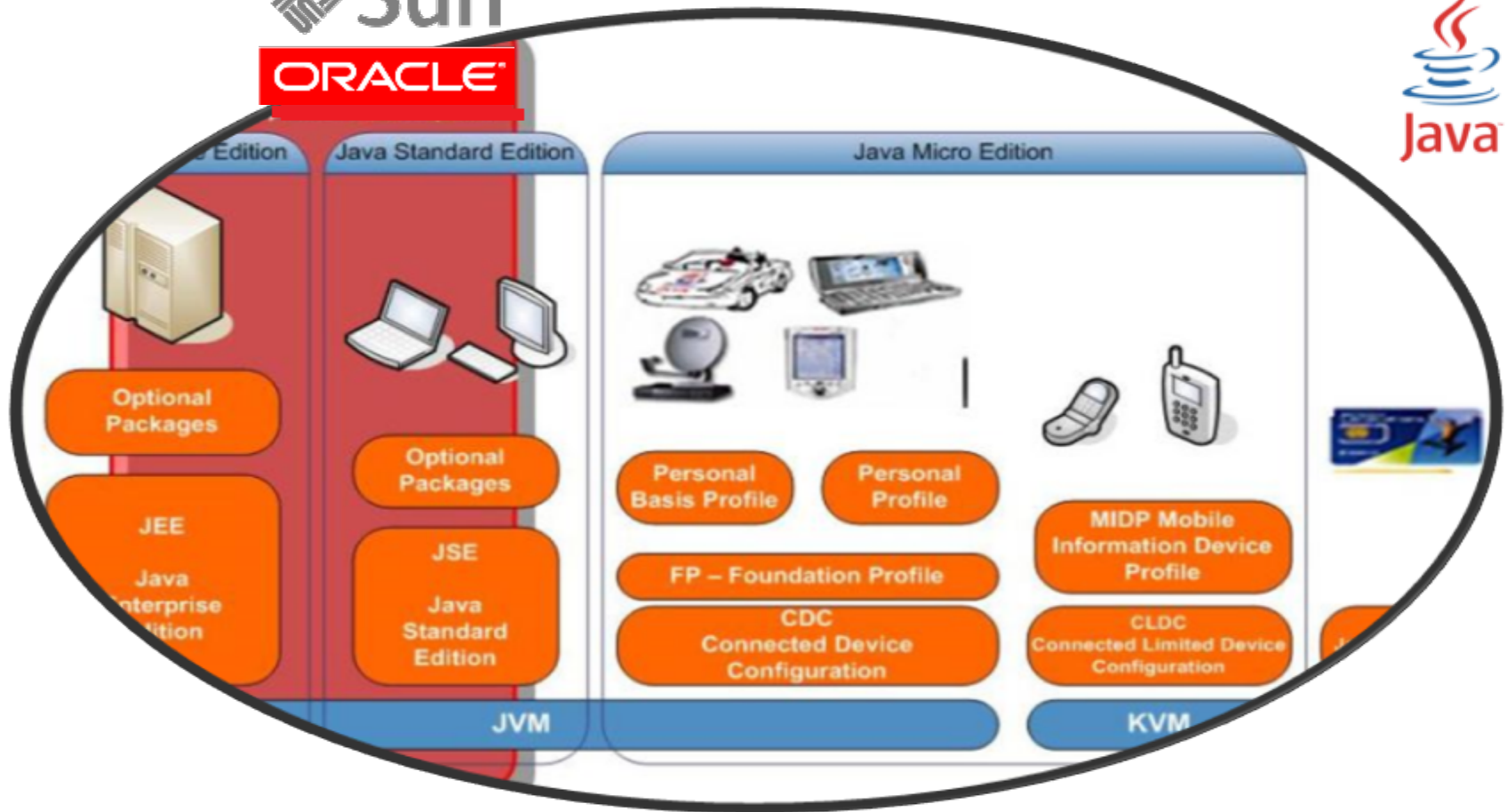
- 1 – Java Language Fundamentals, JDK-JRE, Object Oriented Programming (class, interface, inheritance, polymorphism, ...)**
- 2 – Java Generics, Annotations and Reflection (java.lang.annotation.\* & java.lang.reflect.\*)**
- 3 – JCF – Java Collection Framework (java.util.\*)**
- 4 – Intro in Java I/O Streams (java.io.\*) and JNI \*\*\***
- 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 + RegEx + JDK 9 Modules \*\*\***
- 9 – Storage Programming – JDBC – Java Data-Base Connectivity – RDBMS & NoSQL – MongoDB \*\*\***
- 10 – Structured Data Processing – XML Parsing – JAXB and JSON**
- 11 – GUI – Graphical User Interface – Java FX - FXML**



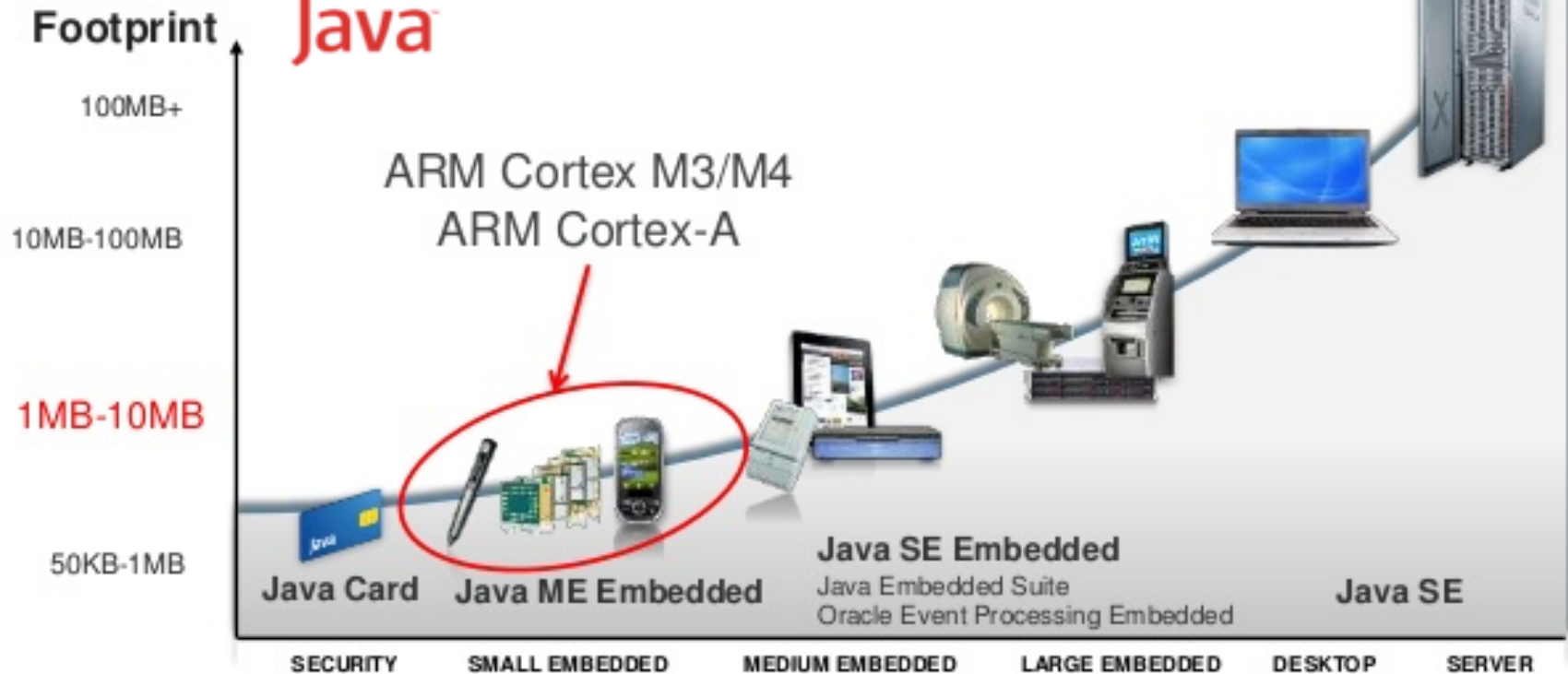
## 2.3 References

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2. Joshua Bloch, "**Effective Java: Programming Language Guide**", Publisher Addison-Wesley (June 15, 2001) , ISBN-10: 0201310058, ISBN-13: 978-0201310054
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



## Java Focus



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# 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

# 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	v	Visual Basic .NET	2.824%	+0.37%
9	10	^	Delphi/Object Pascal	2.479%	+0.32%
10	8	v	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	vv	Visual Basic	1.875%	+0.02%
17	18	^	MATLAB	1.723%	+0.63%
18	19	^	PL/SQL	1.549%	+0.49%
19	14	vv	Objective-C	1.536%	+0.13%
20	23	^	Scratch	1.500%	+0.71%

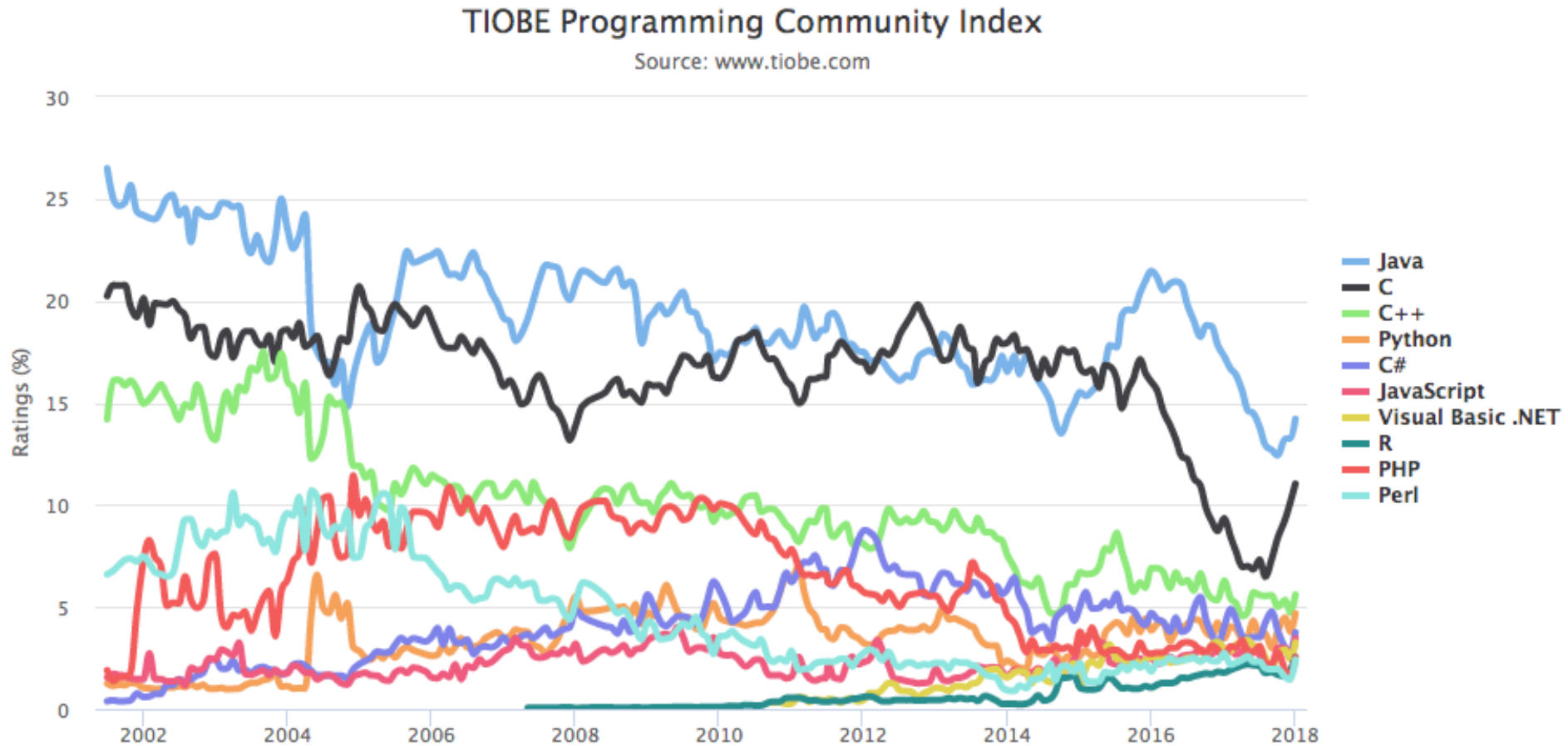
# TIOBE Programming Languages Index – 2018

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 - 2018



# 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	-	-	-

# 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 %



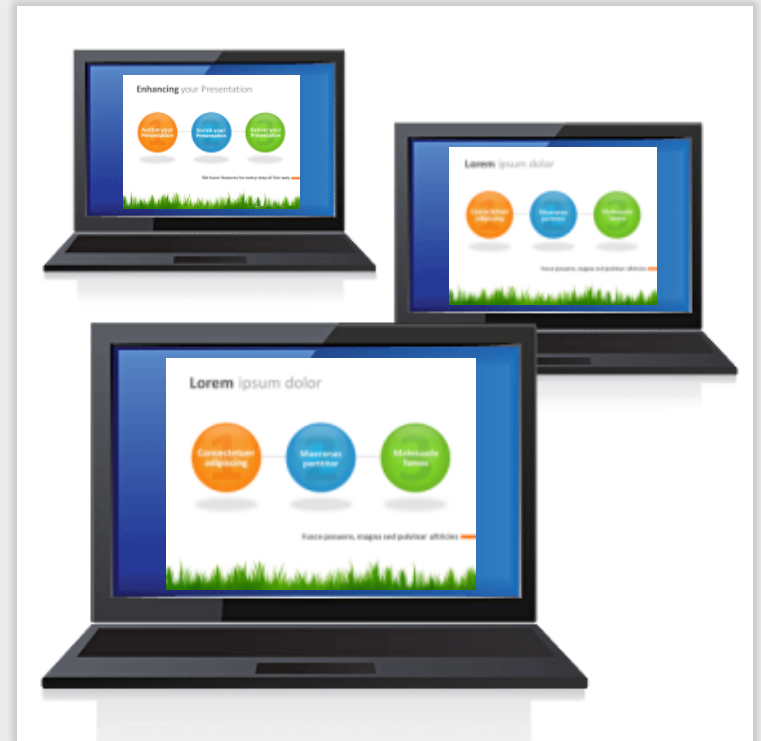
Share knowledge, Empowering Minds

# 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 - AVERNESS!**





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!**

