



JCP EC Meeting, 2/13

Brief Update on Java in Education

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Oracle and Java in Education

1. Continue to invest in Development Experience improvements
 - Via OpenJDK such as JEP 463: implicitly declared classes and instance main methods
 - REPL-style environments like Java Playground
 - Modern Tooling support for educators and students like VS Code
2. Partner with the College Board to modernize Advanced Placement Computer Science A (AP CSA)
 - Update Java version to at least the latest LTS
 - Develop Teacher Professional Development materials
 - Develop Modern Labs for use in the classroom
 - Delivering an endorsed AP CSA program via Oracle Academy for free
3. Evaluate Java Foundations course and 811 certification and modernize as needed
 - Align with current global CS 101 requirements and AP CSA
 - Expand endorsed AP CSA program to include the “gap” to Foundations and 811 certification
4. Partner with Code.Org on modern Java classroom materials and teacher professional development
5. Present at Education Industry CS Conferences
 - SIGCSE 2024 with Texas A&M – After Java 8: What has changed and why Adopt Modern Java in the Classroom?
 - CSTA 2024 with Nevada Advanced Technical Academy High School – Simulated Workplace with Java
6. Formally requested ABET Accreditation include expectation of teaching on modern technology
7. Pilot Java Launch briefings for Educators



APPENDIX– From last discussion

Learnings

Where we started: Education Segment Learnings and Hypotheses



In addition to creating a delightful & modern learning experience, we must address perception, continue to improve the end-to-end developer experience, and create a compelling community experience.

Developer Experience	• Activation Energy required is too high. Knowing what to install is hard. Install/Config is hard. “Hello World” needs to be simple. • Many high school students are using Chromebooks and cannot install Java. • The ecosystem of libraries, frameworks and tools is complex to navigate but necessary to success. • The usual complaints about <code>public static void main(String[] args)</code> and esoteric error messages.
Learning Experience	• Advanced Java concepts can be hard to grasp for young people with no coding experience. • Young people expect immediate, tangible results with a physical or visual component. • Examples of creative, relevant, fun, modern Java projects are not easily discovered. • Primary and secondary teachers face a whole host of issues such as lack of training and funding. • University professors are entrenched and can be resistant to change. • Broader Education industry trends, such as education alternatives to 4 years colleges (CTE), necessitate change.
Community	• The Python community is perceived as open, vibrant, and diverse. Java is seen as the opposite. • Java doesn’t have a strong presence within the education ecosystem and associated conferences.
Perception	• Most of the Education System is on Java 8. • Python syntax is perceived as simpler and easier to read. • Java is perceived as the language of legacy middleware, not of newer technology trends (AI/ML, VisRec, Data Analytics). • Kids from diverse backgrounds cannot envision themselves as future Java developers. • When we sponsor conferences, our booths have a staid, outdated, corporate feel.



Key Learnings from recent meetings and conferences

Recently attended: College Board Small Group Review Board meeting (April), CSTA 2023 (July), AP Annual Forum 2023 (July), CTE Director's Meeting (October)

Higher Educators are highly resistant to change, especially tenured professors

- Lecturers and Community College Educators are more open
- Some reasons for lack of change are real and some not
- Tangible Issue: impact of IT managed machines within colleges -> Java 8, Core JDK only

APCSA must reflect CS101 to ensure early college credit value prop

- When Higher Ed says 'no', the College Board has to abide by that
- Records, Patterns, etc., will not be an AP CSA requirement in 2025
- APCSA workshops from the College Board with "extra credit" learning is a way around this

We can motivate higher educators through:

- ABET accreditation and Industry input to each college's industry advisory board
- Research \$ and Conference Talks
- Student + Industry demands and feedback
- Alternative Career Technical Education (CTE) pathway compete

Ecosystem of education providers, like College Board, Code.org or Oracle Academy, is another lever

- There are about 350 these that reach thousands of teachers and tens of thousands of students
- Many are starting to embrace Alternative CTE as a new business generator
- Most believe using modern technology and learning is critical for student success

High schools are more often giving kids Chromebooks and teachers cannot justify having a computer lab

- This adds weight to a more immediate need for browser-based VS Code extension support, a REPL-style solution, and/or a VM-based solution for student scenarios