

Engaging High School Java Learners with Data Structure Visualizations and Real-World Data

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Many high school mathematics teachers have stepped up to the charge of learning computer science and offering CS courses to their students.

As CS grows in popularity, more students are completing AP CS A as sophomores or juniors, and looking for advanced opportunities while still in high school.

Our project seeks to support high school teachers in their quests to meet students' needs for advanced CS coursework. I am one such teacher who faced that need, and was relieved to find the BRIDGES libraries and projects repository website for CS college professors. I began the work of adapting their data structures related projects for use in my courses. Solving Java programming challenges using BRIDGES libraries has helped my students visualize and program with one- and two-dimensional arrays and linked lists.

In this talk, we encourage/recruit high school teachers to try our adapted-for-high-school BRIDGES materials, and share in the joy of cool visualizations that make data structures come alive. Using one sample project, I will show how an engaging problem, scaffolded learning materials, and dynamic visualizations converge to facilitate student understanding of, and programming agility with, two-dimensional arrays.

