Abstract

Reaching Computer Clubs with computing concepts using Scratch, Alice, Greenfoot and JavaFX

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Description: This session will cover project approaches and ideas for integrating programming concepts using Scratch, Alice, Greenfoot and JavaFX. Programming project concepts include sequence, iteration, conditionals, variables, threads, synchronization, boolean logic, random numbers, event handling, user interface interaction, data structures, procedures and functions, recursion, inheritance and classes, and parameters. Live demonstrations of several sample projects including "Little Crab" and "Greeps" will be shown in each of the environments as a way to transition students to different environments, starting with drag and drop 2D programming in Scratch, moving on to drag and drop 3D programming in Alice and then finally demonstrating the same projects using Greenfoot and JavaFX as examples of programming environments for students with similar project concepts but without the benefit of drag and drop programming. This session is to support reaching out to volunteers in the technical community interested in working with students to explore programming concepts using these tools in their local community. Our particular implementation of this is "Computer Club" – a series of local workshops open to the public, focusing on improving digital literacy of students by empowering them to create projects involving computer graphics, animation, video, sound, gaming, programming in a a monthly instructor led setting. The target age for Computer Club workshops are 9-16 years old. The goal of computer club outreach is to volunteer and work with students on creating interesting projects that teach them the underlying computer science concepts, and equip them with tools they can continue to use at home, work, and school, and focus on free, open source and multi-platform software tools when available.

Speaker Background: Daniel Green is a Senior System Engineer for Sun Microsystems Inc, specializing in Java ME and mobile ecosystem solutions for wireless carriers. He is also one of several volunteer teachers and coaches in his area supporting Computer Club, FIRST Lego League and other student activities that encourage math, science and programming activities to engage students in learning. Daniel Green has used Java, Alice, Greenfoot, BlueJ, Squeak, Scratch and other tools to teach K-12 students and college workshops on introduction to programming. His students regularly create projects with these tools as a way of learning basic programming concepts.