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Workshop title: Teaching with Greenfoot – From development of material to delivery in the classroom

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ABSTRACT

Greenfoot is an introductory Java programming environment that gives teachers a high level of control over the nature and context of teaching examples.

This workshop is aimed at teachers of introductory programming courses (high school/university) who have some experience with Greenfoot and want to learn how to use it more effectively in their teaching. Participants will develop their own teaching project for use in their classroom, under consideration of pedagogical and technical aspects. Other topics discussed include educational strategies for programming, advanced Greenfoot programming techniques, transition from and to other system (Scratch, Alice, BlueJ) and integration of media. Laptop recommended for hands-on exercises. Participants without laptops will be paired with laptop owners.

AUDIENCE

The target audience is teachers of introductory programming courses. This specifically includes teachers at the high school level. The workshop is aimed at teachers who have a basic understanding of Greenfoot, either having used it already in class, or having looked at it before coming to the workshop. It builds on workshops given at the previous two SIGCSE conferences (and also proposed for this one) that introduced Greenfoot to newcomers.

There is no theoretical limit to workshop size, other than practical considerations (room size, etc.). I would prefer no more than 20.

PRESENTERS - SHORT BIO

Michael Kölling has many years of experience teaching and researching in the field of object orientation and the pedagogy of programming. He has published numerous papers, at SIGCSE and elsewhere, about computer science education, and especially the teaching of object orientation. He is also the lead developer of the BlueJ and Greenfoot environments and co-author of a successful introductory Java textbook.

Michael is a regular presenter of workshops and seminars, including workshops at past SIGCSE conferences. Past workshops have received highly positive feedback.

Stephanie Hoepfner has presented multiple years at State Level Technology Conferences as well as being a part of panel presentations for her work within the CSTA organization. She is a member of the CSTA cohort leadership and is actively involved in increasing computer science education as well as teacher training. Stephanie has taught Computer Science in the K-12 arena for the past eleven years.

Frances P. Trees has conducted many workshops for computer science teachers. Her primary research interest is computer science education and pedagogical tools used in introductory computer science courses. She is actively involved with the College Board's AP[®] Computer Science program and serves as Chapter Liaison for the Computer Science Teachers Association where she works with computer science educators around the country in promoting and improving K-12 computer science education.

Daniel Green works for Oracle Corporation and runs computer clubs and workshop on weekends, where he uses systems such as Scratch, Alice, Squeak, Greenfoot, BlueJ, and Dr. Java with kids from 9 to 16.

MATERIALS PROVIDED

Each participant will receive

- a handout including a summary of the main points presented;
- a copy of the presentation slides;
- API documentation for Greenfoot programming;
- a copy of the Greenfoot tutorial;
- a copy of the Greenfoot programmers' manual.

Participants will also be informed where to download the Greenfoot software and scenarios. (Greenfoot is free.)

We will attempt to make copies of the Greenfoot textbook available free for participants. This is dependant on the publishers donating them (which they have done in the past).

ROUGH AGENDA

- 1 INTRODUCTION (15 min)
- 2 DISCUSSION: PROJECT IDEAS / BRAINSTORMING / IDENTIFYING CRITERIA (20m)
- 3 PRACTICAL WORK: Starting to develop a scenario: story line, tasks, context (30 min)
- 4 PRACTICAL WORK: initial implementation (45 min)
- 4 DISCUSSION: problems, considerations, pedagogical strategies (20 min)
- 4 PRACTICAL WORK: adding graphics and sound (20 min)
- 4 DISCUSSION: Advanced programming techniques (20 min)
- 5 PUBLISHING, RESOURCES (15 min)
- 6 QUESTIONS/DISCUSSION (15 min)

(Everything after the first 30 minutes is mostly hands-on practice.)

AV REQUIREMENTS

Data projector for presenter. Internet access (wireless or wired) for presenter.

The workshop will consist mostly of hands-on sections. Participants will be encouraged to bring laptops. Some participants without laptops can be accommodated by pair programming with others. Participants will need laptop power at each seat, and ideally have wireless internet access.

Laptop recommended. All operating systems supported.

SPACE AND ENROLLMENT RESTRICTIONS

None.

OTHER CRITICAL INFORMATION

Greenfoot has been presented at SIGCSE for the past three years, and received highly positive feedback. In the past, workshops were aimed at novices. We now have more than 800 institutions that use Greenfoot, more than half of them in the US. Feedback from users shows that there may be demand for a more in-depth workshop.