A Greenfoot-based Scenario for Teaching Java in CS1

“Going to the Moon”

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Agenda

- CS1 at the University of Guelph-Humber
- A course with inter-related labs (project)
  - Greenfoot is perfect for this
- Greenfoot scenario (Going to the Moon)
- Demo & Labs
- Visual Greenfoot (wishful thinking?)
- Q&A
CS1 at Guelph-Humber

- Established in 2002: partnership between University of Guelph and Humber College
- Computing Co-Op is one of the programs
  - Bachelor degree in Applied Computing (Guelph)
  - Diploma in Wireless Telecom (Humber)
- CS1:
  - Because of the ~ 50% FWD, wanted to make CS1 a fun experience (to retain the students)
  - HTML, JavaScript, Java (programming for fun)
Greenfoot

- Learned about it at SIGCSE 2007
- Project course with inter-related labs
- Final Year projects
  - 2-semesters
A Greenfoot Scenario

- Make the programming environment more user friendly and entertaining.

- The interactive nature of it keeps the students’ attention.

- Use graphics to show immediate visual results of a working program.
Going to the Moon

- The Scenario
Going to the Moon

- **10 Labs**
  - Used to learn the basic Java programming and Greenfoot skills.

- **Final Capstone Project**
  - Used to test the acquired programming skills of the students.
Topics of the 10 Labs

- **Lab 1** Exploring Greenfoot
- **Lab 2** Working with Existing Scenarios
- **Lab 3** Basic Space Travel
- **Lab 4** Add and Remove Objects
- **Lab 5** Grid Positioning & Fuel
- **Lab 6** Trip to the Moon
- **Lab 7** The Return Trip back to Earth
- **Lab 8** Creating Object Actors / Graphics
- **Lab 9** Sounds and Advanced Graphics
- **Lab 10** Keyboard Input
Demo
Results

- Scenario completed in December 2007
- Being evaluated by a high school co-op student
- Will be used for a CS1 at Humber College
- Would like to see it used in distance learning
- A paper will be presented at ACMSE2008
- Scenario will be available online soon…
- For now, if you are interested in using this scenario, email: qmahmoud@uoguelph.ca
Greenfoot

- **How interactive is it really?**
  - Looked at Alice and Scratch (experiments with high school students)
  - They like Scratch

- **Can it be made more visual? (not an IDE)**
  - User presented with a world
  - User creates a scene using on-screen icons
  - Save the compiled scene
  - User feels creative! 😊
Visual Greenfoot?

- Manipulate objects without writing code…
Thank You.

Q & A