Debugging in Karel the Dog

CodeHS Professional Development Online Course

Details

Course delivery method: Self-Paced Online Delivery

Contact hours: Approximately 5 hours

Prerequisite(s): Some experience with Karel the Dog programming

Introduction

Finding and fixing errors in programs is a fundamental skill for new and experienced programmers to develop. This CodeHS course introduces debugging, the art and science of fixing broken programs. You'll learn techniques for finding common code errors and effective debugging strategies for Karel the Dog exercises to share with students.

Course Outcomes

Educators will understand:

- Understand that coding bugs are a normal and an excellent learning opportunity in the CS classroom
- Understand that debugging is one of the most valuable skills students can learn in any CS course and contribute to a growth mindset
- Know and utilize general debugging strategies such as formulating hypotheses, testing hypotheses, isolating problems, reproducing errors, using small steps to iterate and fix problems
- Debug many Karel coding exercises using the step debugger, comments, error messages, documentation, and more
- Develop their own class lists of steps for their students to take during the debugging process

More Information

Browse the content of this course at https://codehs.com/course/16066/explore

Course Breakdown (approximately 5 hours)

Unit 1: Welcome to Debugging in Karel the Dog!
- What the course is about   - Planning and pacing the course   - Syllabus   - CodeHS teacher communities   - Getting help

Unit 2: Introduction to Debugging
- What is debugging   - Why teach debugging?   - The debugging Mindset   - The debugging process

Unit 3: Debugging in Karel
- Attention to detail   - Questioning assumptions

Unit 4: Stepping Through Code
Using the step debugger

Unit 5: Using Error Messages
- Syntax errors   - Runtime errors   - Logical errors   - Error messages   - Reference errors, unexpected identifiers   - Error message information

Unit 6: Breakpoints
- What is a breakpoint   - Using breakpoints

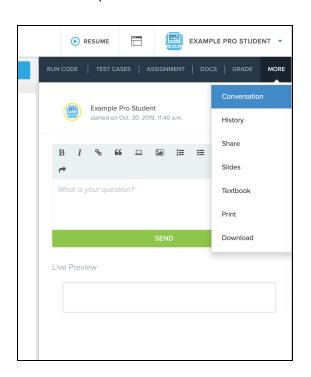| Unit 7: Diagrams	
	● How to use diagrams in the classroom ● Solving the problem happens separately from the code ● Examples
Unit 8: Pseudocode	
	● What is pseudocode ● Problem solving process ● Teaching pseudocode
Unit 9: Asking the Right Questions	
	● Moving from knowing the answers to knowing the questions ● Problem solving question toolbox

Communication & Support

The instructor(s) will communicate with students as needed for individual questions and feedback.

Getting Help with Activities

Course students can use the Conversation tab in the code editor to ask questions about any of the activities in the course. Course instructor(s) will respond to questions and provide feedback in this area as well.

You can find more information about getting help with your coursework HERE.

Course Criteria for Completion

Once students have successfully completed all activities in the course, a Certificate of Completion will be available.