On the Interactions Between High-Level Task-thinking and Low-Level Implementation-thinking in Novice Programmers

Francisco Enrique Vicente Castro and Kathi Fisler

Compute the average of the non-negative numbers in a list

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Sounds like a for loop ...

Thinking in code (low-level)

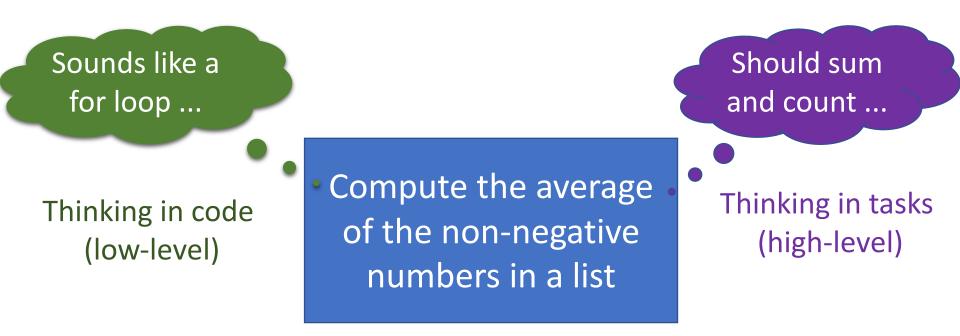
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Should sum and count ...

Thinking in tasks (high-level)

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People move between these two levels while coding

What do these transitions look like in novice programmers?

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Two programming problems: one within and one just beyond what students have seen so far

Talk alouds with students from two universities that use the same curriculum (How to Design Programs)

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Students who started in tasks make more progress than those who work entirely in code

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Differences across the universities, based on content emphasis

Come see our poster for details!