Graphical Visualization of Difficulties Predicted from Interaction Logs

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Motivation

Programmer Rob

Wonder how Rob is doing?

Rob’s Mentor

Rob is having difficulty.

Rob’s Mentor

Maybe I should call him.

Programmer Rob

Difficulty Communication

Observer also coded difficulties

Lab Experiment

Programmers corrected predictions from previous algorithm

• 16 Subjects
• UNC Students

Difficulty from Interaction Logs

Development actions

Incremental Difficulty Status

Tool allows for interactive playback, zooming, and filtering of command visualizations

Web traversed during periods of difficulty

Edit commands down during periods of difficulty

Graphical Visualization of Difficulties

• Predictions from previous algorithm were mostly reliable
• Difficulties were rare
• API, design and incorrect output difficulties occurred almost equally
• Incorrect output difficulty is predicted correctly more often than API or design
• Web links were traversed for all difficulty types, not just API

Participant 22

Debug commands peak during periods of difficulty

Participant 29

Insurmountable difficulties were less common than surmountable ones

Participant 18

Difficulty proneness varied

Programming Task