INTRODUCTION

Programming is a cognitively demanding process involving a variety tasks such as information gathering, sensemaking and decision-making. Programmers today are becoming more reliant on the growing amount of information available. To understand the types of questions and solutions that programmers seek, we analyze Stack Overflow questions by category and assess the proportion of questions that were compatible with the comparison table – our alternative model of representation, designed to reduce the costs of sensemaking and decision-making. Finally, the usability of the comparison table as a representation model is tested using a within-subjects A/B test.

MODEL OF REPRESENTATION

A comparison table uses 3 types of collected information:
- Options – rows are ways of completing a task
- Criteria – columns of requirements needed for solving the problem or completing the task
- Snippets – code or other relevant web content

Up and down thumbs rate options according to the criteria, supported by linked snippets.

Above comparison table was constructed using the UNAKITE tool, a Chrome extension that helps end-users capture and organize web content into comparison tables. [https://janeon.github.io/help/](https://janeon.github.io/help/)

PRELIMINARY USER STUDY

Goal: To test whether the model improves speed and/or accuracy of the sensemaking process.

Method: Within-subject A/B test
- A: subjects were asked to answer comprehension questions using a comparison table
- B: subjects were asked to answer comprehension questions using the original Stack Overflow page

Subjective rating results
- User’s likelihood to use the comparison table for a programming task in the future: 4.75 / 7
- Level of difficulty with using the table: 3.5 / 7

CONCLUSIONS AND FUTURE WORK

From these results we have observed initial success with the comparison table as a mental model for representing information found in question pages on Stack Overflow. Assistive tools can be developed to help facilitate and improve the user’s sensemaking and decision-making processes. Future work is needed to study to what extent decision questions like these are common in other domains besides programming, and if our proposed tools could help in those contexts as well.