



Participatory Design for MLIS Coursework in Computing



Facility with computer technology has been identified as one of the most important skills for library professionals today¹. However, research suggests that close to half of MLIS students come from a humanities background², and so prior training in computational thinking can't be assumed. Some resources exist to prepare incoming students for computing coursework, such as Library Carpentry's open educational resources³ and Chuck Severance's *Python for Everybody* course⁴, but it can be difficult for students to draw connections between these resources and the interests that led them to pursue a degree in library science.

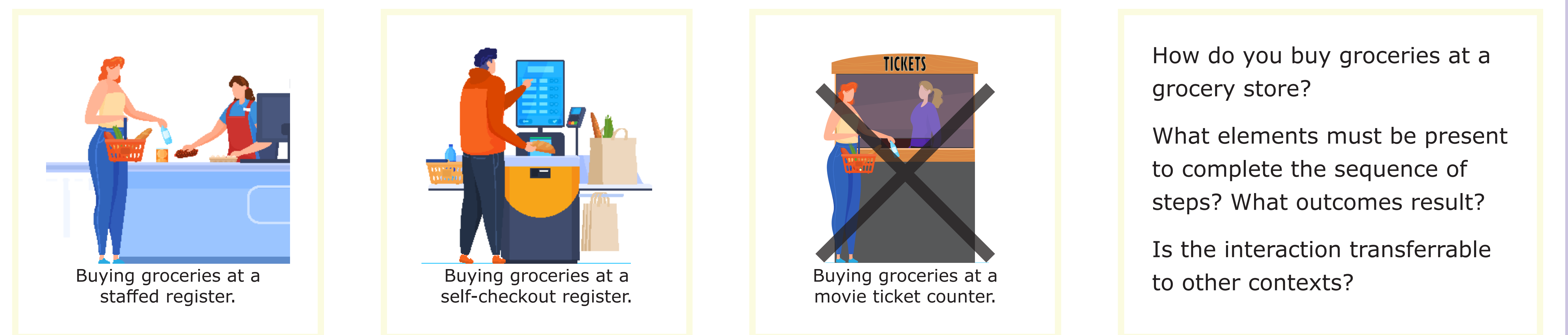
This project uses participatory design to develop course materials that provide conceptual and practical training on how computational thinking is used in libraries, drawing on the perspectives of library students and professionals. Using computing history, real-world datasets, and library-specific examples, computing and especially programming skills are grounded within the field of libraries.

Introduction

Recent students of an introductory python course in an information science master's program who had little to no prior knowledge of programming described their experiences in the course. This ranged from making connections between specific course topics and libraries as a field to pedagogical concerns to challenging conceptual foundations of the course:

- bridging theory and practice
- functional programming, encapsulation, and atomicity versus historical reasoning
- information literacy for software: locating, evaluating, and using documentation to solve specific problems
- AI literacy: unclear how to evaluate the correctness of AI-generated code when still building foundational coding skills, lack of knowledge about machine learning and probability-based approximation, direct conflict between using AI for programming coursework and learning about information ethics in other courses
- logical propositions, assertions, and scientific method
- quantity of programming-related coursework compared to expectations around how often the skills will be needed in library work
- specifications versus conventions
- one-on-one support much more effective than large lecture-based classes
- learning database management versus learning scripting versus learning CLI

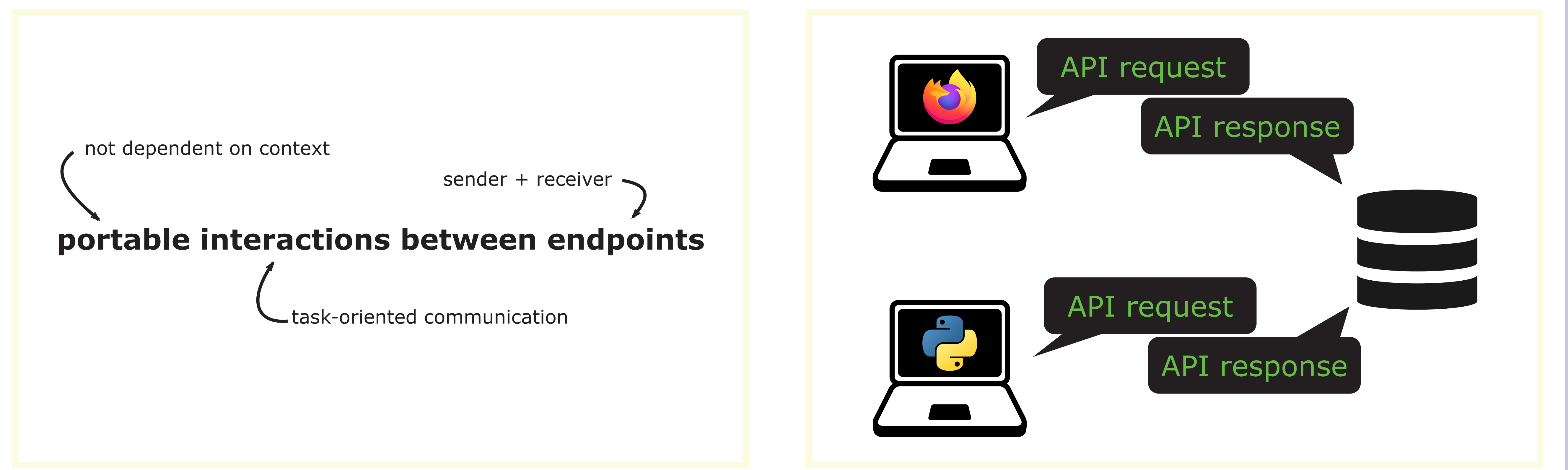
Student Feedback



How do you buy groceries at a grocery store?

What elements must be present to complete the sequence of steps? What outcomes result?

Is the interaction transferrable to other contexts?



Case Study: APIs

How do you engage in computational thinking in your work?

How much time do you spend writing scripts or using CLI tools at your job?

What do you wish new librarians knew about computing in libraries?



Help Out Now or Later!

¹ SJSU School of Information (2025). *MLIS Skills at Work: A Snapshot of Job Postings* [PowerPoint slides]. San José State University. https://ischool.sjsu.edu/sites/main/files/file-attachments/career_trends.pdf

² Clarke, R. I., & Kim, Y.-I. (2018). The More Things Change, the More They Stay the Same: Educational and Disciplinary Backgrounds of American Librarians, 1950–2015. *Journal of Education for Library and Information Science*, 59(4), 179–205. <https://doi.org/10.3138/jelis.59.4.2018-0001>

³ Library Carpentry. (n.d.). Library Carpentry Lessons. <https://librarycarpentry.org/lessons/>

⁴ Severance, C. R. (n.d.). Python for Everybody. <https://www.py4e.com/>

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References