

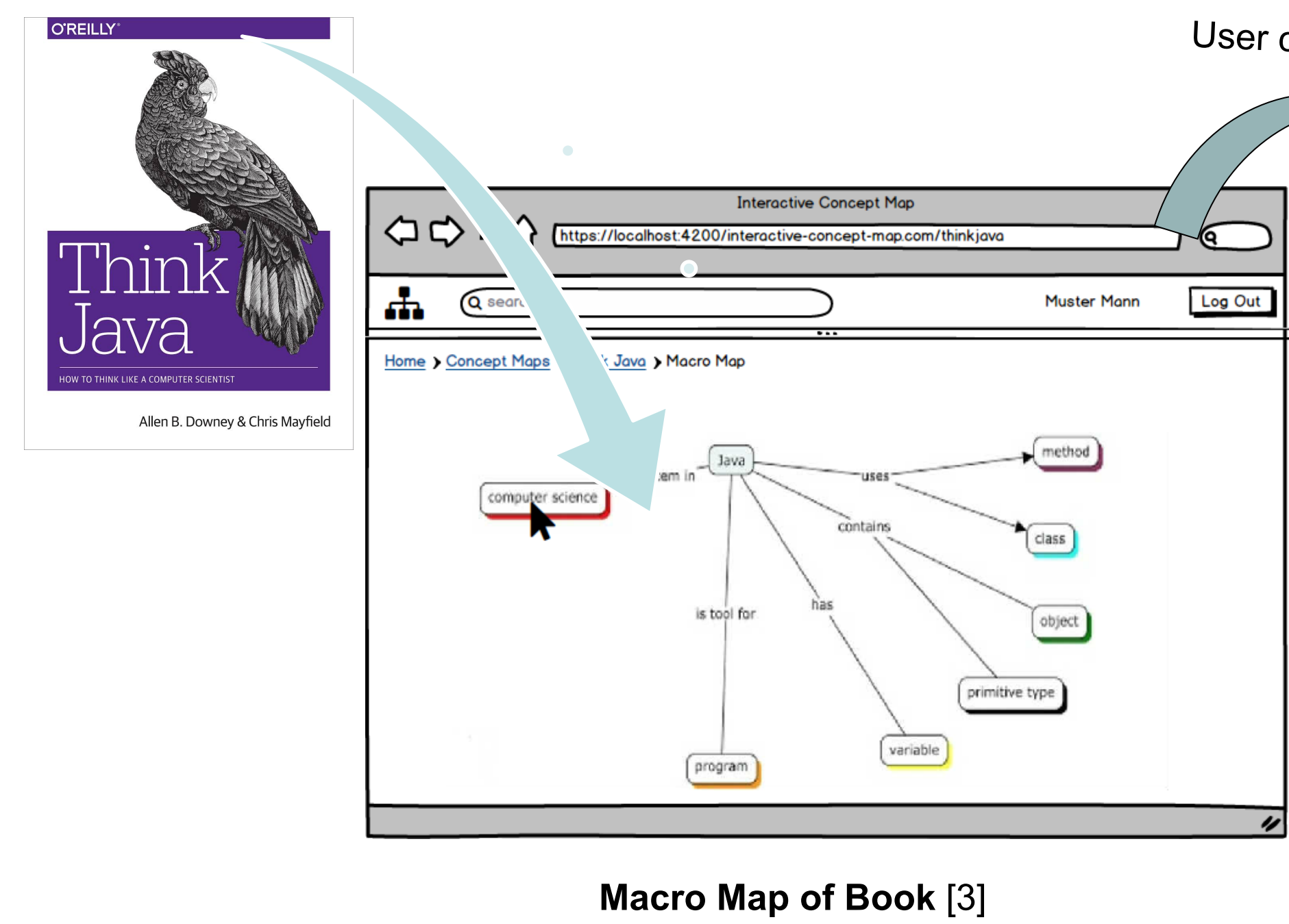
# Visualization of Knowledge Graphs of Book Contents



TECHNISCHE  
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DARMSTADT

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## Macro/ Micro Map



Macro Map of Book [3]

**Goal:** Transform the book into a concept map.

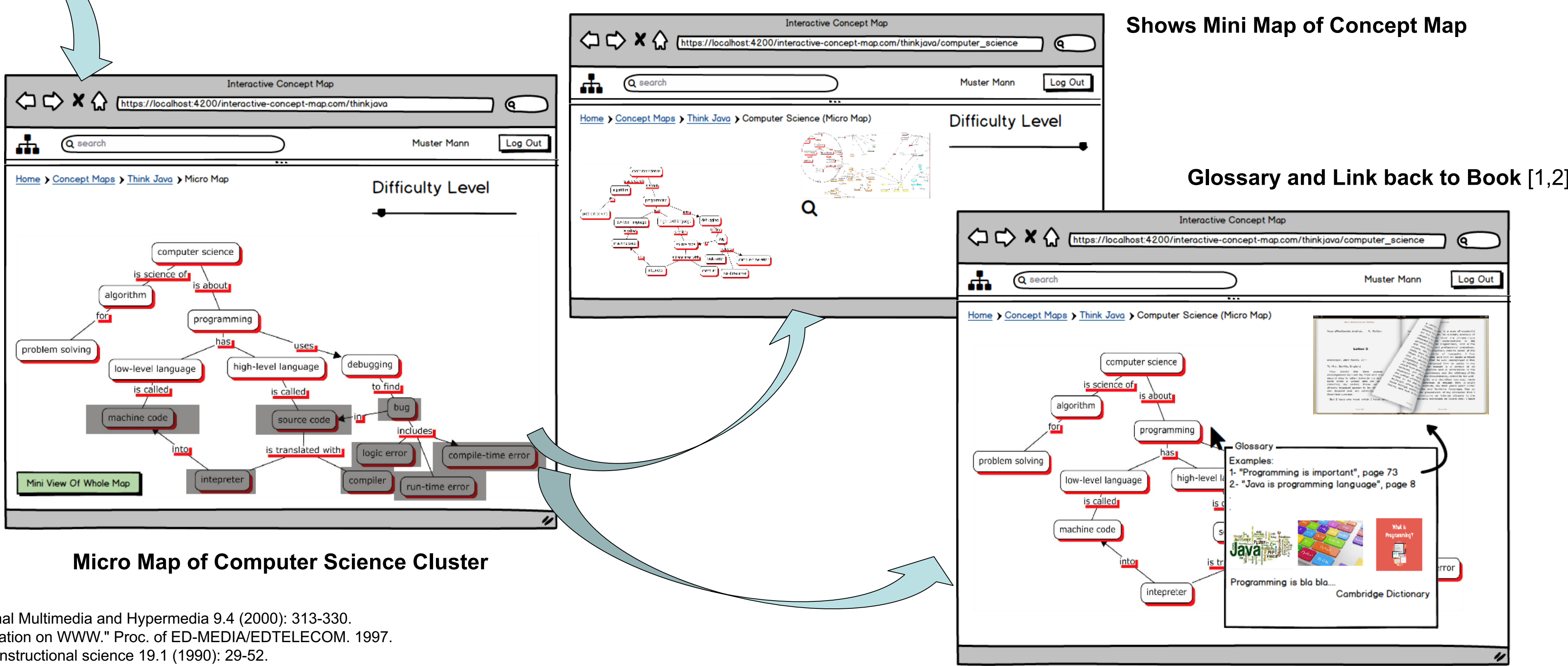
Footnotes:

- [1] Alpert, Sherman R., and Keith Gruenberg. "Concept mapping with multimedia on the web." Journal of Educational Multimedia and Hypermedia 9.4 (2000): 313-330.  
[2] Brusilovsky, Peter, and Elmar Schwarz. "Concept-based navigation in educational hypermedia and its implementation on WWW." Proc. of ED-MEDIA/EDTELECOM. 1997.  
[3] Novak, Joseph D. "Concept maps and Vee diagrams: Two metacognitive tools to facilitate meaningful learning." Instructional science 19.1 (1990): 29-52.

## Motivation

Learning book with concept map

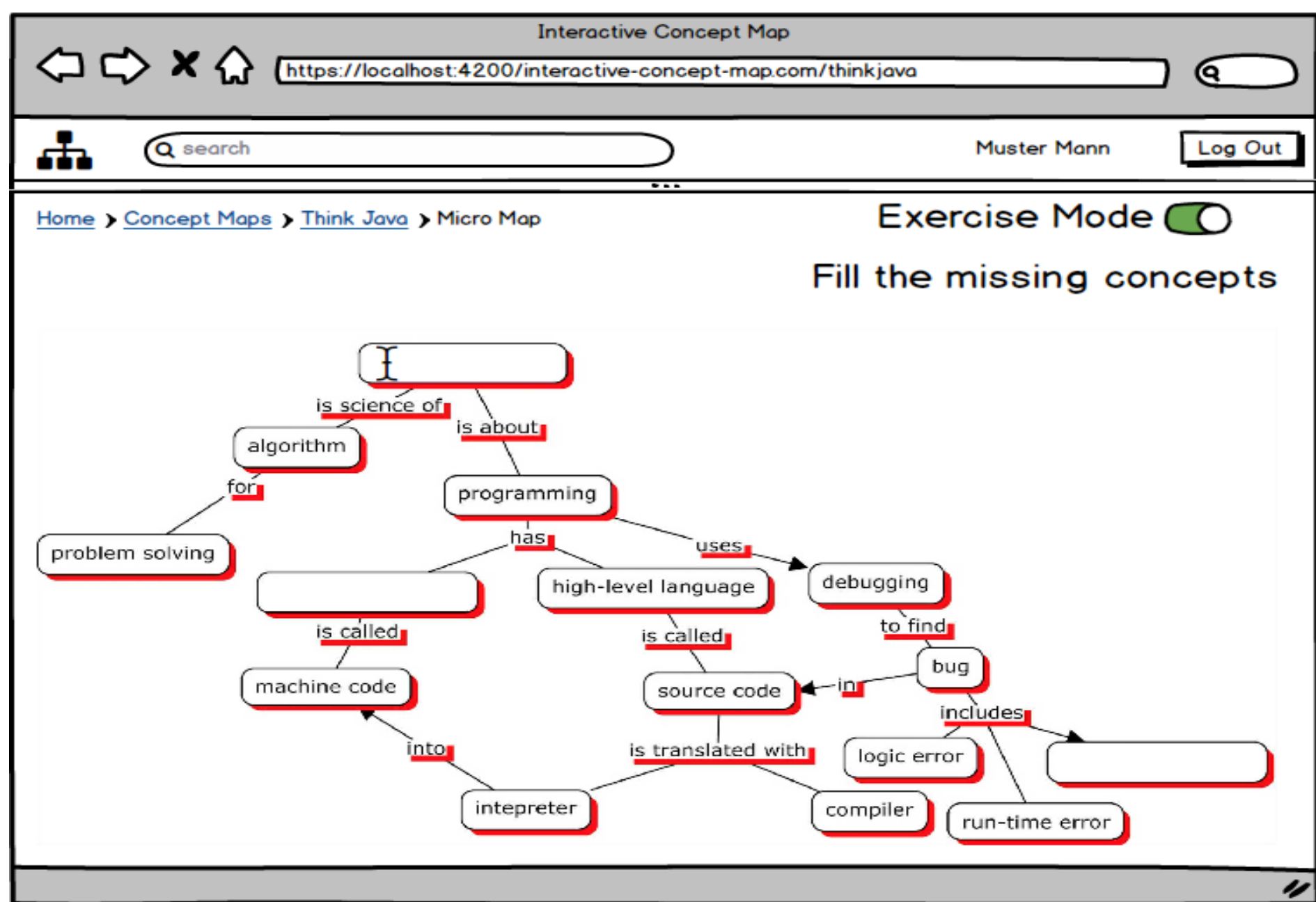
- Interactive
- Exercises
- Self Modification



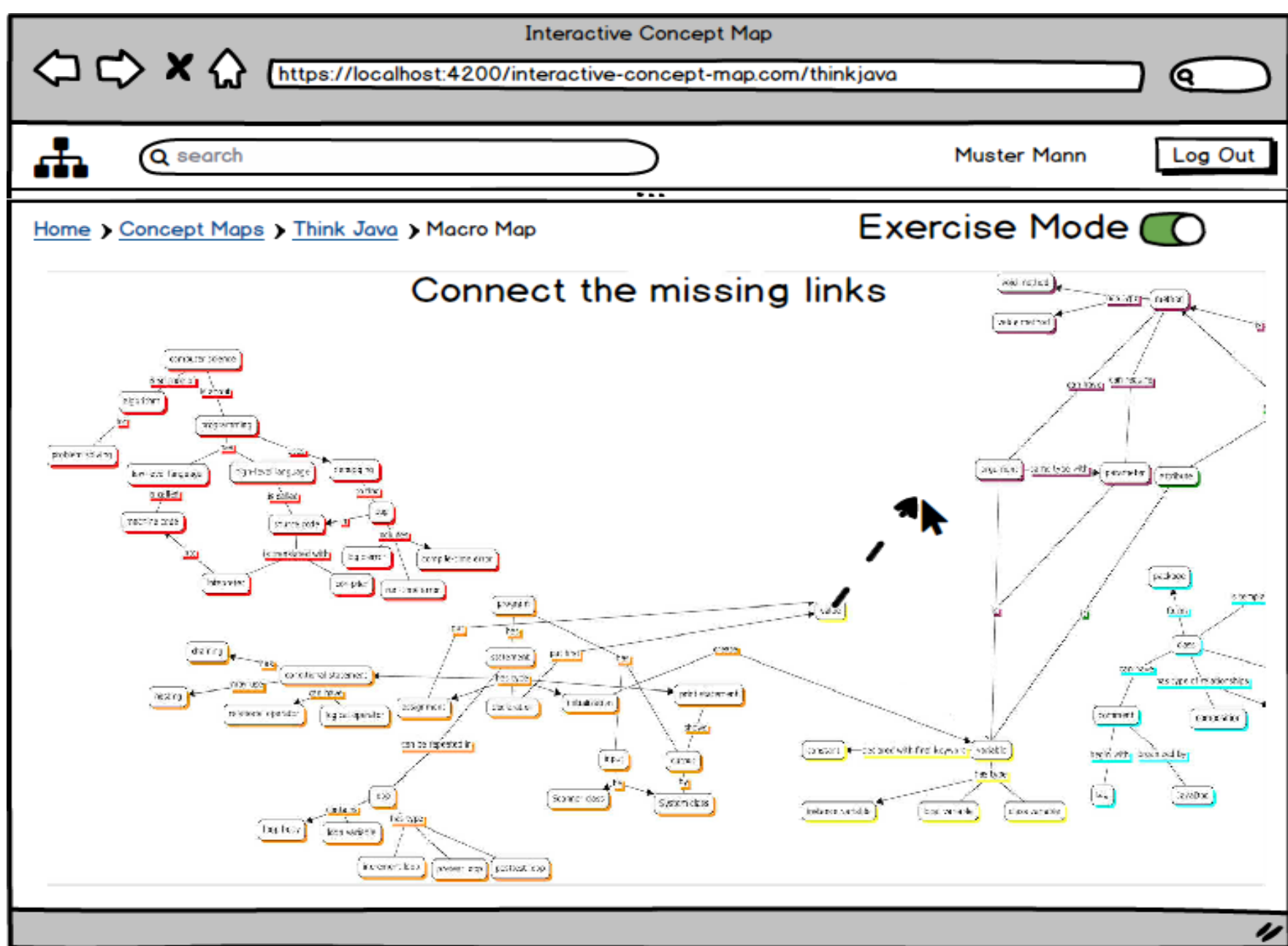
Shows Mini Map of Concept Map

Glossary and Link back to Book [1,2]

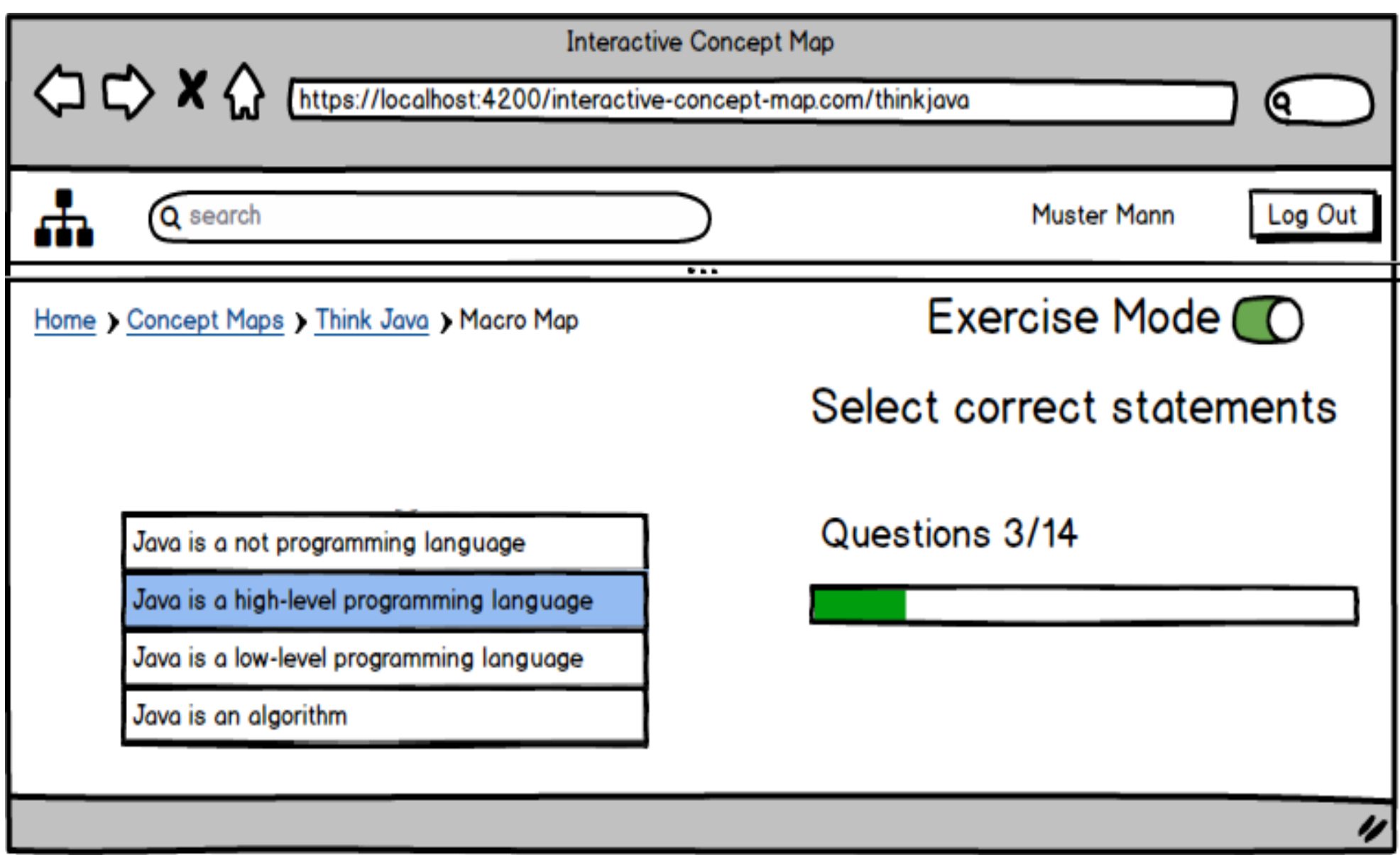
## Exercises



Fill in the blanks [5]



Connect Dispersed Map [5]



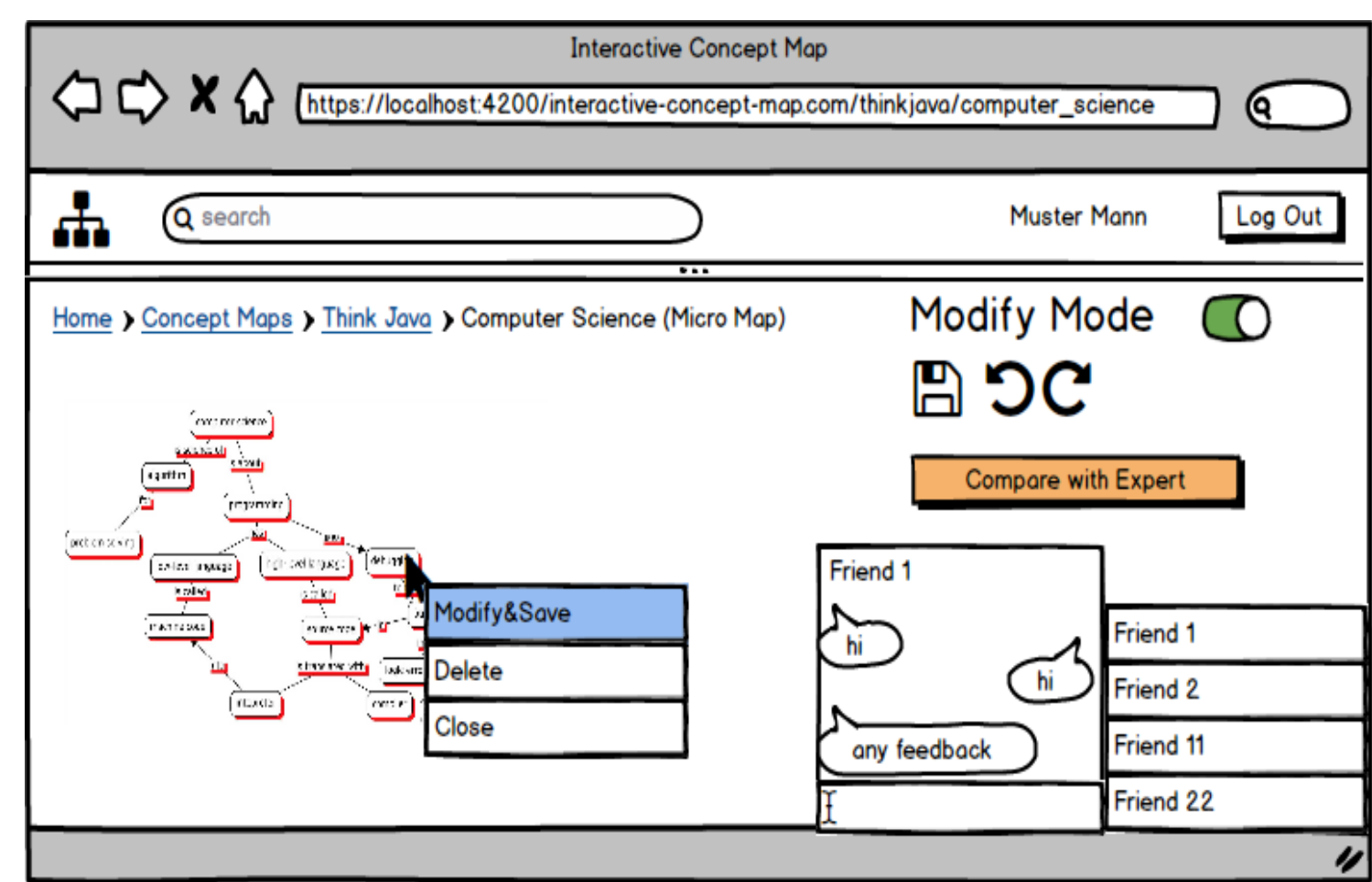
Choose Correct One [4]

**Goal:** Help user remembering concepts after learning

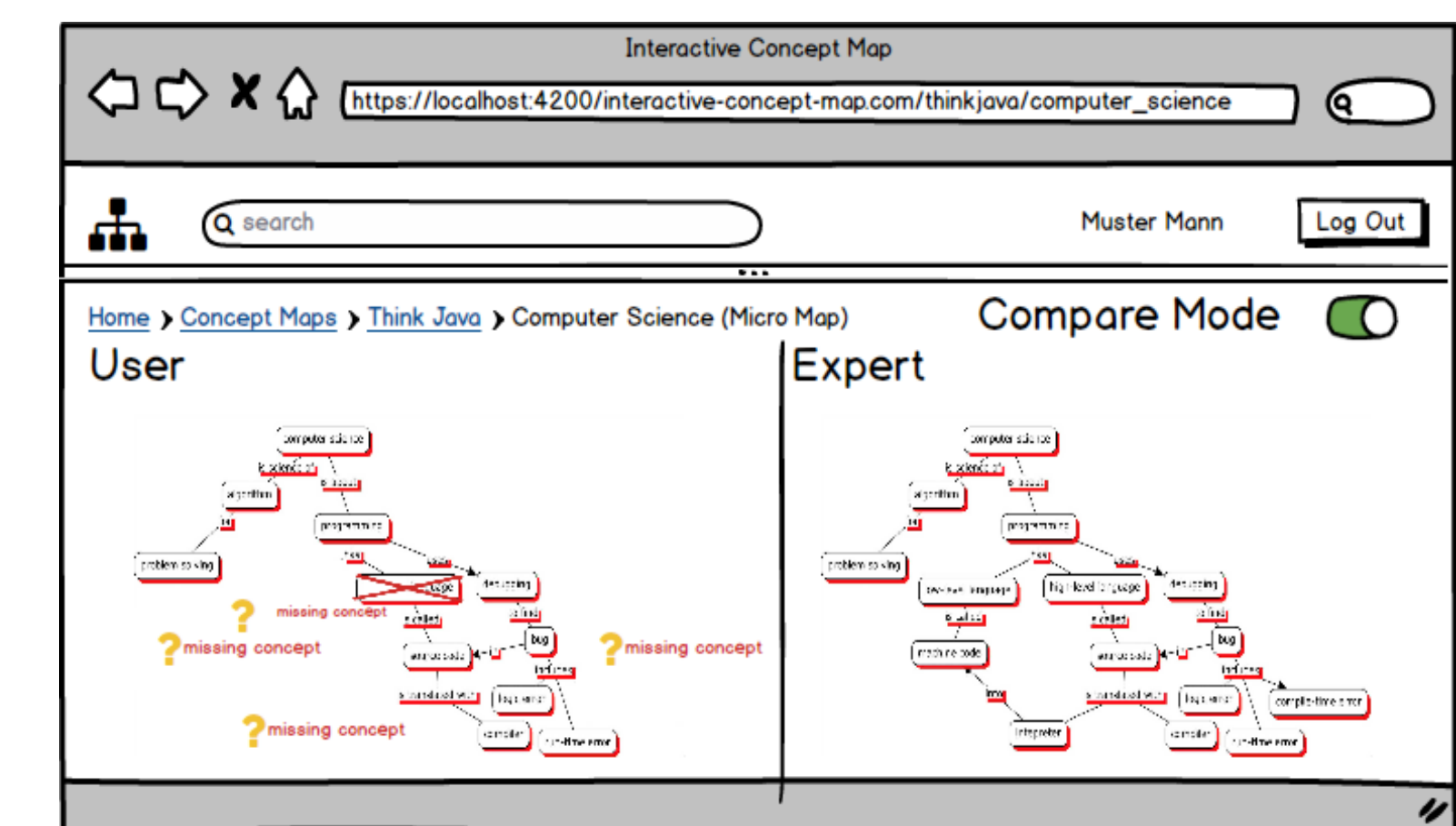
Footnotes:

- [4] Chen, Chih-Ming. "Ontology-based concept map for planning a personalised learning path." British Journal of Educational Technology 40.6 (2009): 1028-1058.  
[5] Gouli, Evangelia, et al. "COMPASS: an adaptive web-based concept map assessment tool." (2004): 295-302..

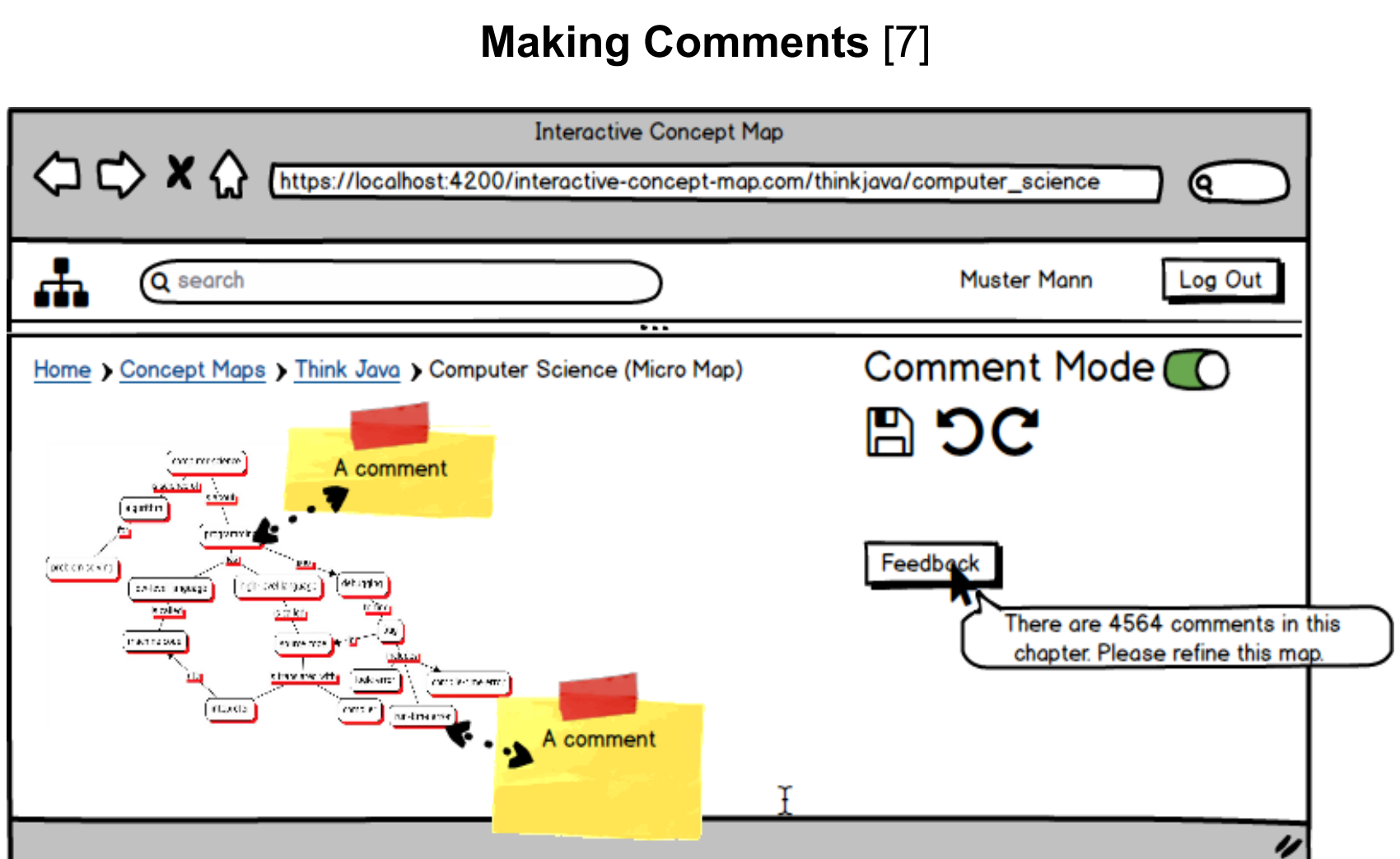
## Modify



Modification Screen [8]



Comparison Screen [6]



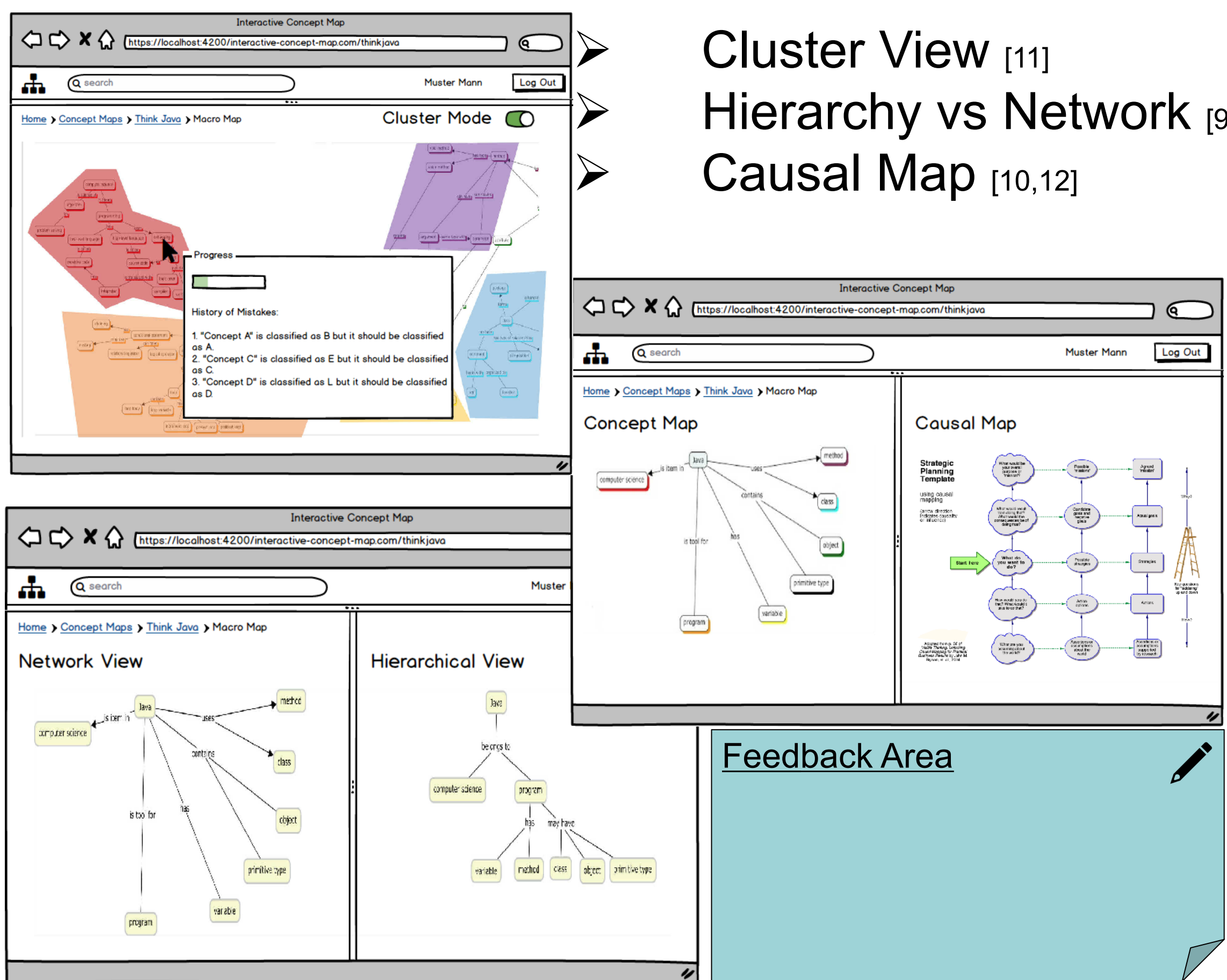
**Goal:** Let user generatively learn concepts

Footnotes:

- [6] Cañas, Alberto J., et al. "Cmapanalysis: An extensible concept map analysis tool." Journal for Educators, Teachers and Trainers(2013).  
[7] Komis, Vassilis, Nikolaos Avouris, and Christos Fidas. "Computer-supported collaborative concept mapping: Study of synchronous peer interaction." Education and Information Technologies 7.2 (2002): 169-188.  
[8] Yamasaki, Kazuya, et al. "Kit-build concept map and its preliminary evaluation." Proc. of ICCE2010 (2010): 290-294.

## Feedback and Discussion

### Optional Features



Footnotes:

- [9] Amadiou, Franck, André Tricot, and Claudette Mariné. "Interaction between prior knowledge and concept-map structure on hypertext comprehension, coherence of reading orders and disorientation." Interacting with computers 22.2 (2009): 88-97.  
[10] Hay, David, Ian Kinchin, and Simon Lygo-Baker. "Making learning visible: the role of concept mapping in higher education." Studies in higher education 33.3 (2008): 295-311.  
[11] Schopphuis, Martine, et al. "Eliciting the challenges and opportunities organizations face when delivering open online education: A group-concept mapping study." The Internet and Higher Education 36 (2018): 1-12.  
[12] Siau, Keng, and Xin Tan. "Cognitive mapping techniques for user-database interaction." IEEE transactions on professional communication 49.2 (2006): 96-108.

