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# A widget to recommend learning resources based on the learner affective state

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# Content

- Context
- Problem description
- Proposal
- Discussion

# Context

- Affective states have an effect on cognitive processes.
- Examples of TEL tools that have considered affective aspects:
  - Intelligent Tutoring Systems (ITS)
  - Narrative-centered environments
  - Reflection in professional learning
- Lack of **direct integration** of affective information in **recommender systems**

# Problem statement

- Does the inclusion of the **learner affective information improve** the performance of a **recommender system**?

# Proposed solution

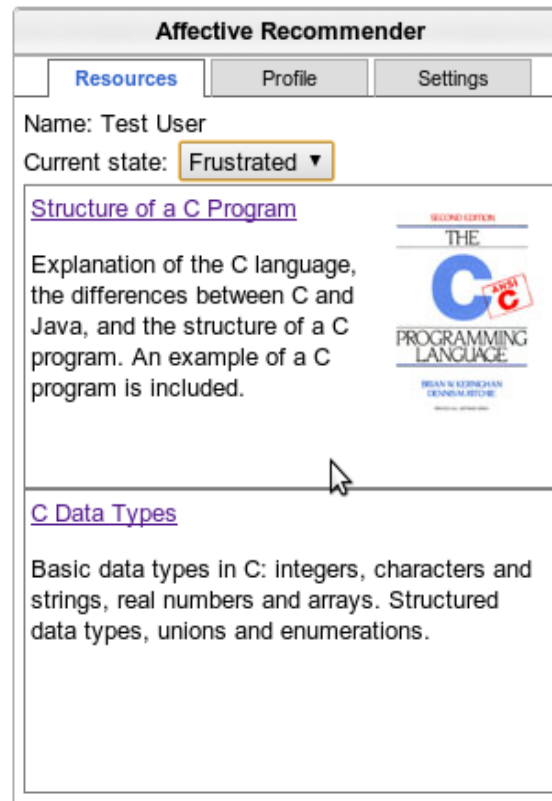
- Learning Resources Affective Recommender
- Widget-based implementation
- Deployed into a Personal Learning Environment
- Two components:
  - Recommendation service
  - Widget

# Proposed solution

- Recommendation service:
  - Handles learner profiles, resources and the learner interactions
  - Based on collaborative filtering
  - Follows user-based approach
  - Metric to calculate user similarity adds two factors:
    - Affective state during the view of the resource
    - Learning objectives
  - Implementation based on Apache Mahout

# Proposed solution

- Widget
  - Developed for ROLE PLE



The screenshot displays the 'Affective Recommender' interface. At the top, there are three tabs: 'Resources' (selected), 'Profile', and 'Settings'. Below the tabs, the user's name is 'Test User' and the 'Current state' is 'Frustrated'. The main content area is divided into two sections. The first section is titled 'Structure of a C Program' and contains the text: 'Explanation of the C language, the differences between C and Java, and the structure of a C program. An example of a C program is included.' To the right of this text is a book cover for 'THE C PROGRAMMING LANGUAGE, SECOND EDITION' by Brian W. Kernighan and Dennis Ritchie. The second section is titled 'C Data Types' and contains the text: 'Basic data types in C: integers, characters and strings, real numbers and arrays. Structured data types, unions and enumerations.'

# Discussion

- Some issues to be discussed:
  - Can we rely on the learner informing the affective state explicitly?
  - Would resources that provoked a change of affective state be of interest?
- Future work:
  - Evaluation in a real scenario
  - Complement the self-reported affective state with sensors



Thank you!

Questions?

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