SKEDGE

Smarter course scheduling for our University of Rochester

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Abstract

In this paper I present Skedge, a web application for students to comfortably and effectively engage with the University's course catalog. Skedge matches and surpasses the capabilities of the existing University tool for this purpose, "Course Description / Course Schedule" (CDCS) and presents its information in a more visually pleasing way. As a result, Skedge boasts strong user-retention rates, long session durations, and high student adoption despite having virtually no advertisement. Through collected usage data, I demonstrate that a) Skedge's differences from and additions to CDCS are usable and have real need, b) the two major use-cases associated with course browsing—direct search and exploratory search—are effectively accommodated by Skedge, and c) Skedge's search mechanism is user-friendly and self-teaches to users over time.

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Introduction

This paper will begin by discussing Markov chains and how we set out to use them for our goal of creating an assistive program editor. We will then describe in detail how we implemented a Markov chain to house program syntax trees, how we were able to generate code using it, and finally we'll discuss our results and address the limitations of our product.

1.1 Introduction

1.1.1 Markov chain

A Markov chain is a mathematical system that undergoes a stochastic process whereby

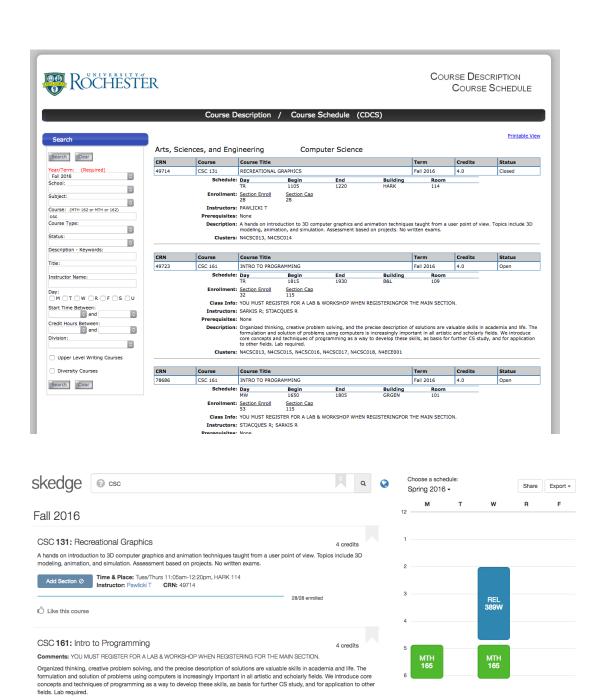


Figure 1.1: CDCS (top) and Skedge (bottom) for the search query csc.

2 sections / 8 credits

feedback

Time & Place: Tues/Thurs 6:15pm-7:30pm, B&L 109 Instructor: Sarkis R, St Jacques R CRN: 49723

Time & Place: Mon/Wed 4:50pm-6:05pm, GRGEN 101

CRN: 78686

Instructor: St Jacques R, Sarkis R

▲ Show 6 lab sections

Grievances

lol

Analytics

hi

Conclusions

Source code

The source code for Skedge is available online under an open source license: https://github.com/RocHack/skedge.

Live site

The site can be found at: http://skedgeur.com.

Bibliography

[1] Ariya Hidayat Esprima

http://esprima.org/

[2] Takis Konstantopoulos Introductory lecture notes on Markov Chains and Random Walks.

Uppsala University,

http://www2.math.uu.se/~takis/L/McRw/mcrw.pdf

[3] Frank Pfenning, Conal Elliott Higher-Order Abstract Syntax. ACM SIGPLAN Notices. Vol. 23. No. 7. ACM, 1988.

http://www.cs.cmu.edu/~fp/papers/pldi88.pdf

[4] Yusuke Suzuki Escodegen

https://github.com/Constellation/escodegen

[5] Mozilla Developer Network SpiderMonkey Parser API

https://developer.mozilla.org/en-US/docs/SpiderMonkey/Parser_API

Appendix