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CS 251 - Theory of Programming Languages

Final Project Proposal

home(cs251, X).

X = microfocus.

For our final project, we plan to explore logical programming using Prolog. Because its constraint-based format, we plan to explore the declarative design choice of having everything in the program be a statement or rule. We're also curious about the process of querying and backtracking as well as how recursion and list manipulation might differ in comparison to Racket or ML. We plan on also incorporating higher-order predicates into our programming project if applicable, or at least in our discussion of the language.

The program we are planning to write is one that houses students into dorms depending on constraints given. Some examples of this would be blocking, omitting certain housing choices, listing preferences of choices, having rooms with different amounts of people, and only allowing certain roommate choices. This will be done by establishing a number of predicate statements establishing the rules of the housing system as well as comparison operators to indicate importance.

In researching this language and its syntax, we used "The Art of Prolog: Advanced Programming Techniques". This book provided an introduction into the syntax of the language. We used this source, along with a wikibook on Prolog (https://en.wikibooks.org/wiki/Prolog) to introduce ourselves to the implementation of this language and to work through a few provided example problems to better understand this language's uses.

Timeline

May 1st-5th : complete online Prolog language tutorials and research
May 5th-11th : design and implement dorm selection program
May 12th-15th : use knowledge gained in program design to write a paper detailing the language features unique to Prolog
May 15th-presentation : polish program and practice presentation/demo