Lab Assignment 6

CS 362 – Principles of Programming Languages II

Winter 2018

Hitting Set Problem

You are given a family of sets $\{S_1, S_2, \ldots, S_n\}$. Find the smallest set H such that, for all $i \in \{1, 2, \ldots, n\}$, $H \cap S_i \neq \emptyset$.

Assignment

Implement a Prolog program that solves a given instance of the Hitting Set problem similar to the Knapsack problem or 8-Queens problem discussed in class. You program should have a predicate `minHittingSet(Sets, Solution)` where `Sets` is a given family of sets and `Solution` is a hitting set with minimum cardinality. For example,

```
minHittingSet([[1], [1, 2], [1, 3], [2, 3, 4], [4]], Solution).
```

should output

```
Solution = [1, 4]
```

A set is represented as a sorted list of distinct integers. `Sets` is a list of such sets.

Submission

Write your implementation in a single `.pl`-file and upload it to canvas.
This is an individual assignment. Therefore, a submission is required from each student.

Deadline: Sunday, March 4, 11:59 pm.