LightBulbs - Constraint Logic Programming

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Abstract. This article contains the implementation details of the application developed for the second assignment for the Logical Programming subject. The goal of this project was to develop a program capable of creating and solving every instance of the lightbulb puzzle. The goal of this puzzle is to find every lit lightbulb, considering that a lightbulb is only lit if and only if the number inside it is equal to the number of lit neighboring lamps (including itself).

Keywords: PROLOG · SICStus · Lightbulbs.

1 Introduction

This application was developed for the Logical Programming subject of the 3rd year of the MIEIC course with the goal of developing and consolidating our knowledge on Constraint Logic Programming with prolog.

2 Problem description

The lightbulb puzzle consists of a two dimensonal board consisting of n[1*] lightbulbs per line and m[1*] lightbulbs per column, where each lightbulb has a number on it. Each lightbulb is on if and only if it's number is equal to the number of lit neighboring (directly or diagonally adjacent) lightbulbs, including itself.

References

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