Animation of n-queens problem in JavaScript

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Study report

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Tutors

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Animation des N-Damen Problems in JavaScript / Koen Logmann & Jessica Roth. –
Bachelor-Thesis, Mannheim: DHBW Mannheim, 2019. 10 Seiten.

Erklärung

Hiermit erkläre ich, dass ich die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt habe.

Ich bin damit einverstanden, dass meine Arbeit veröffentlicht wird, d. h. dass die Arbeit elektronisch gespeichert, in andere Formate konvertiert, auf den Servern der Hochschule Mannheim öffentlich zugänglich gemacht und über das Internet verbreitet werden darf.

Mannheim, March 3, 2019

Koen Logmann & Jessica Roth

Abstract

Animation of n-queens problem in JavaScript

Todo

Animation des N-Damen Problems in JavaScript

TODO

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Chapter 1

Introduction

Figure 1.1: DHBW-Logo [**lin1973**]

Chapter 2

Scientific Basics

The aim of this work is to visualize the Davis Putman algorithm that solves the so-called n queens problem.
Therefore a general understanding of this algorithm and the mathematical problem has to be created.
For this reason, this chapter summarizes this fundamental knowledge in order to create a basis for further development. Among other things, the declaration of the mathematical problem plays a role here, so that it can be solved by the Davis Putman algorithm.

2.1 Davis Putnam algorithm

Davis Putnam implementation [1]

2.2 N Queens Problem

The n queen problem is the generalized mathematical problem related to a chessboard that consists of $n \times n$ squares. A special example would be the 8 queens problem, which is related to the standardized chessboard. In general, the problem is to place n queens on an $n \times n$ chessboard so that none would be obstructed in their turn. A queen in a normal game of chess can move diagonally, vertically and horizontally. This move pattern can be seen in Figure 2.1. In summary, this means that there is only one queen allowed on her vertical, horizontal and diagonal line at

a time so that they do not interfere with each other. In this problem it is assumed that any queen can attack any other queen and the field colors are ignored.

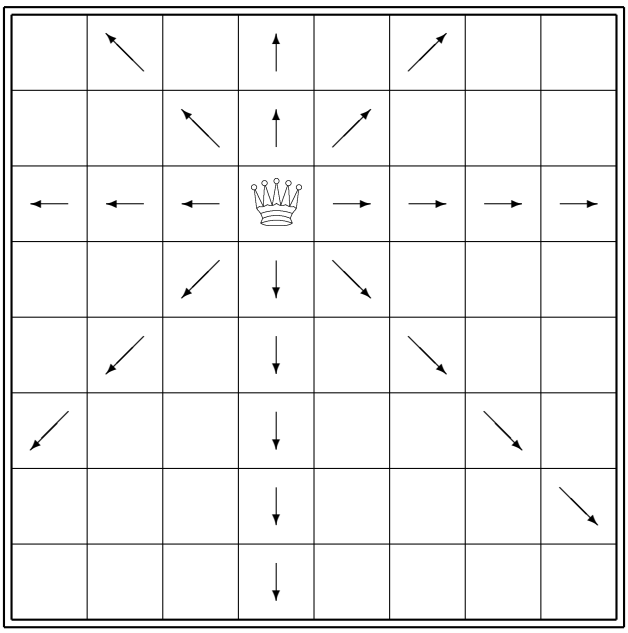

Figure 2.1: Das 8-Damen-Problem **STROETMANN**

Chapter 3

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Bibliography

[1] H. Zhang and M. E. Stickel, *Implementing the davis–putnam method*, https://www.math.ucdavis.edu/~deloera/TEACHING/MATH165/davisputnam.pdf, Accessed on 2018-10-23, Oct. 2000.