Matriculation Number: 200024536

DOER

Description

Title: Minesweeper Hint System

The project aims to develop a Minesweeper hint system using constraint programming and probability. The system will continuously update the probability as more hint numerals (The number that the game shows to the player to indicate how many mines are in the 3 by 3 blocks with the numbered block as the centre) are discovered.

Objective

Primary

1. **Calculate Probability:** Understanding how to identify the probability of there being a mine for the unselect section.
2. **Implementing Constraint:** Make a constraint programming model for the minesweeper hint system.
3. **Update Constraint:** The model's constraint should be update as more hint numerals are discovered.

Secondary

1. **Displaying Mines and Safe Zone:** Create a UI that the use different colour to display where there is definitely no mine and where there is definitely a mine
2. **Displaying Probability of Having a Mine**:Update the UI so that it display gradual difference in colour base on the probability that there is a mine around the discovered section

Future Objective

1. **Evaluation:** Do some user testing of the artefact (let some students use it and collect feedback). Then evaluate the feedback from user testing and improve the artefact.

Ethics

I've answered no to all the questions in the self evaluation form, and I might do a user evaluation of the artefact. The user evaluations problem will only include the qualitative opinion about the artefact; hence, there is no need to collect personal data,

This project is completely covered by the Artefact Ethics form.

The following is the signed Artefact Ethics form.

Matriculation Number: 200024536

UNIVERSITY OF ST ANDREWS
TEACHING AND RESEARCH ETHICS COMMITTEE (UTREC)
SCHOOL OF COMPUTER SCIENCE
ARTIFACT EVALUATION FORM

Title of project

Minesweeper Hint System

Name of researcher(s)

Auden Huang

Name of supervisor

Ruth Hoffmann

Self audit has been conducted **YES**

This project is covered by the ethical application CS15727.

Signature Student or Researcher

Print Name

Auden Huang

Date

15/09/2023

Signature Lead Researcher or Supervisor

Print Name

Ruth Hoffmann

Date

18/09/2023

Resources

No additional resource from the school is needed for this project.