A Report on GAME HACKATHON 2024

Titled

"GameGen: Conquer Algorithmic Challenges in Gaming using Java"

Report Made by

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ISE-2 (DAA and JAVA)

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Group Member Description along with Lates Photo

Group member Name	Description of the person (Tell about yourself which best describes you as a person and as professional)
Hina Bediya	I thrive in environments that foster growth and learning, always eager to take on new challenges and push the boundaries of what I can achieve.
Ishani Mathur	I am an eager learner who constantly seeks new challenges and opportunities to improve my skills and knowledge.
Ayush Tripathi	I am driven by curiosity and a thirst for knowledge, constantly seeking to expand my horizons and explore new possibilities.
Qais Warekar	I am an aspiring developer. I like to help others. A problem solver and a critical thinker.

Group Photo with Name of the group.
(kindly take group photo and upload with name of the group)

Team: UCHIHA CLAN

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Description of Game and Motivation

In "Trap a Cat", players engage in a strategic board game where one player acts as the trapper, aiming to corner the cat within the boundaries of the board, while the cat attempts to avoid being trapped. The game is played on a grid-based board, with the trapper strategically placing barriers to restrict the cat's movement

Creating the "Trap a Cat" game stemmed from a desire to offer players an enjoyable yet mentally stimulating experience. We wanted to provide a game that challenges players to think strategically and plan their moves carefully. Whether playing as the trapper or the cat, participants must devise tactics to outsmart their opponent. The game fosters an atmosphere of friendly competition and encourages players to engage in exciting battles of strategy. With its blend of fun and intellect, "Trap a Cat" promises hours of entertainment for players of all ages.

Tools used (Both frontend and Backend)

FRONTEND

- JavaFX Library
- CSS
- XML

BACKEND

- Java Core

IDE

- Eclipse

Detailed Innovation description

The "Trap a Cat" game brings a fresh perspective to the traditional strategy genre by introducing innovative features and exciting gameplay dynamics. Set in a vast 11x11 grid, players are immersed in a world filled with spatial puzzles and strategic challenges. Central to the game is the choice between assuming the role of the trapper or the cat, each offering unique objectives and gameplay mechanics. As the trapper, players strategically obstruct the cat's path, aiming to corner it within the grid. Conversely, as the cat, players navigate the grid, dodging traps and maneuvering to avoid capture. This role-driven gameplay adds layers of strategy and depth to each match, requiring players to adapt their tactics based on their role and their opponent's actions.

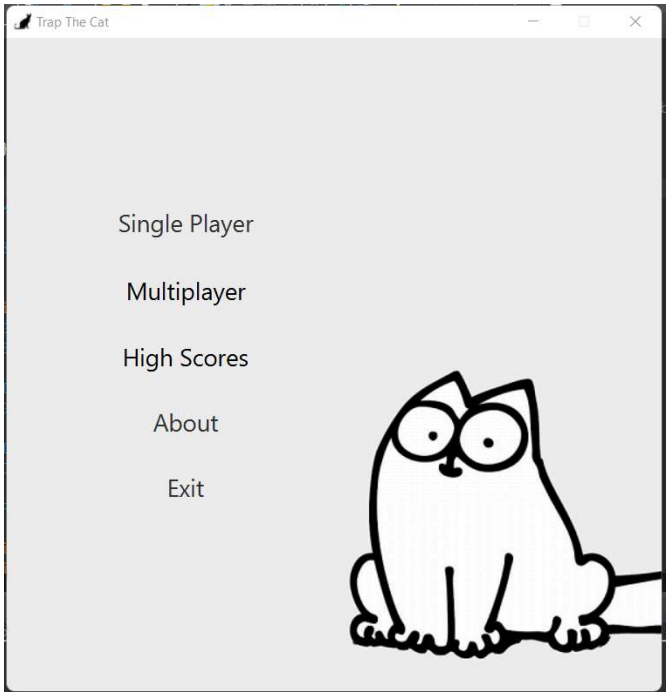
One of the game's standout features is its dynamic movement system, which allows both the trapper and the cat to move one space at a time in any direction within the grid. This system requires players to think critically and plan their moves carefully, as every step can have a significant impact on the outcome of the game. Whether it's strategically blocking certain grid spaces as the trapper or finding the optimal path to freedom as the cat, players must constantly evaluate their options and make quick decisions to stay one step ahead of their opponent.

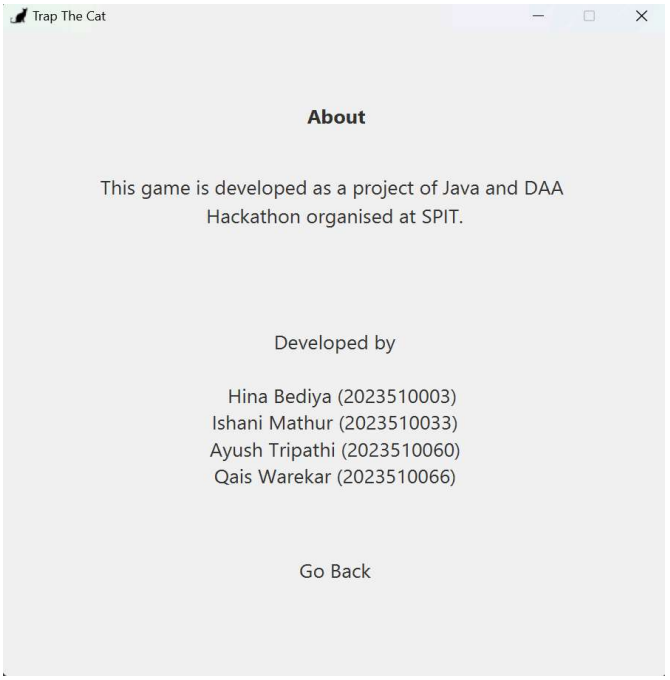
"Trap a Cat" also offers a real-time gaming experience, where players must make split-second decisions and adapt their strategies on the fly. This adds an element of excitement and unpredictability to each match, keeping players engaged and on the edge of their seats until the final move. The game's intellectual challenge is another highlight, as it encourages players to think critically, analyze the grid, and anticipate their opponent's next move. This promotes the development of problem-solving skills, spatial awareness, and strategic thinking, making it a mentally stimulating experience for players of all ages.

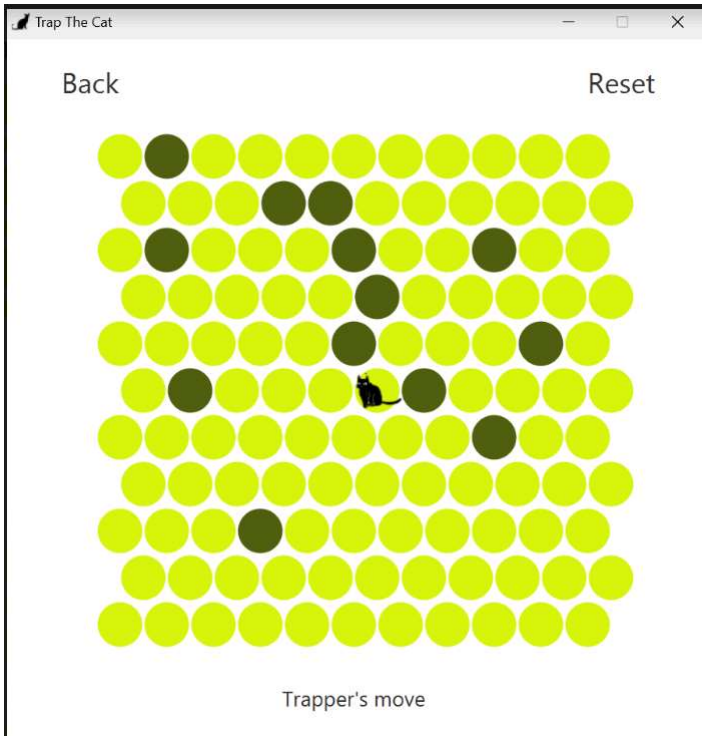
In addition to its single-player mode, "Trap a Cat" supports competitive multiplayer gameplay, allowing friends to challenge each other in intense battles of wit and strategy. This social aspect enhances the overall gaming experience, fostering friendly competition and camaraderie among players. With its innovative features, dynamic gameplay, and intellectual challenge, "Trap a Cat" offers a fresh and exciting take on the strategy genre, providing players with hours of immersive and enjoyable gaming entertainment.

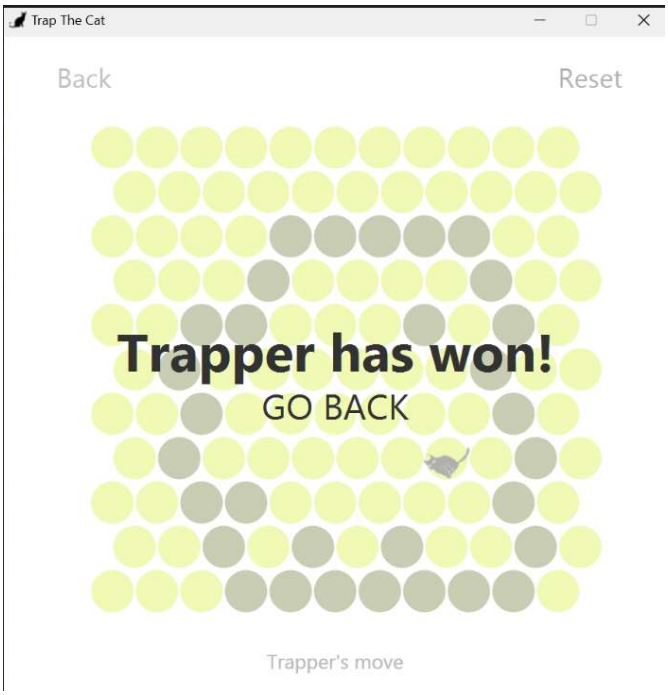
Overall, "Trap a Cat" is a testament to the power of innovation in game design, offering a compelling gameplay experience that is both engaging and intellectually rewarding. Whether you're a seasoned strategist or a casual gamer looking for a fun challenge, "Trap a Cat" is sure to captivate and entertain you with its unique blend of strategy, skill, and excitement.

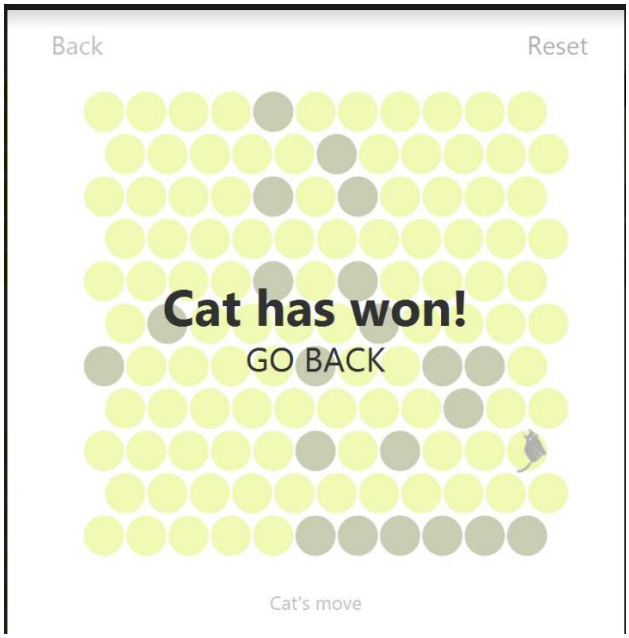
SCREENSHOTS











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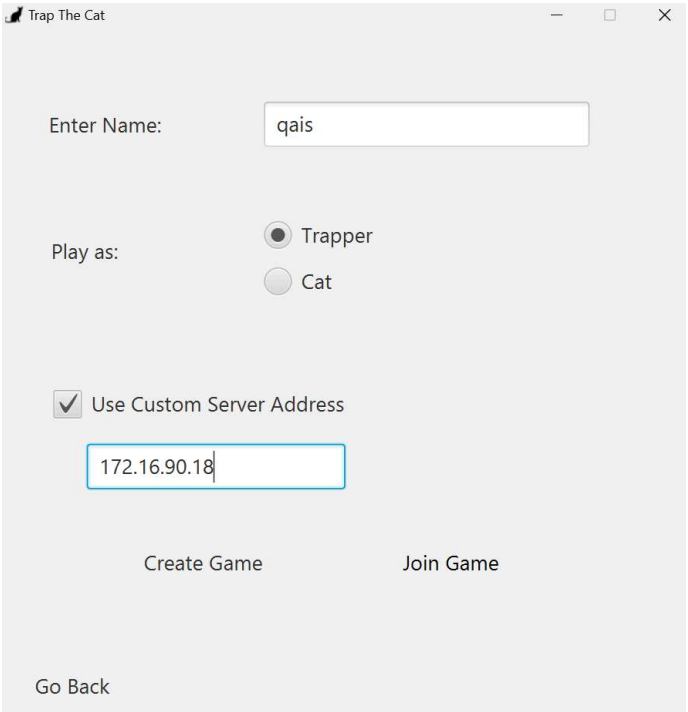
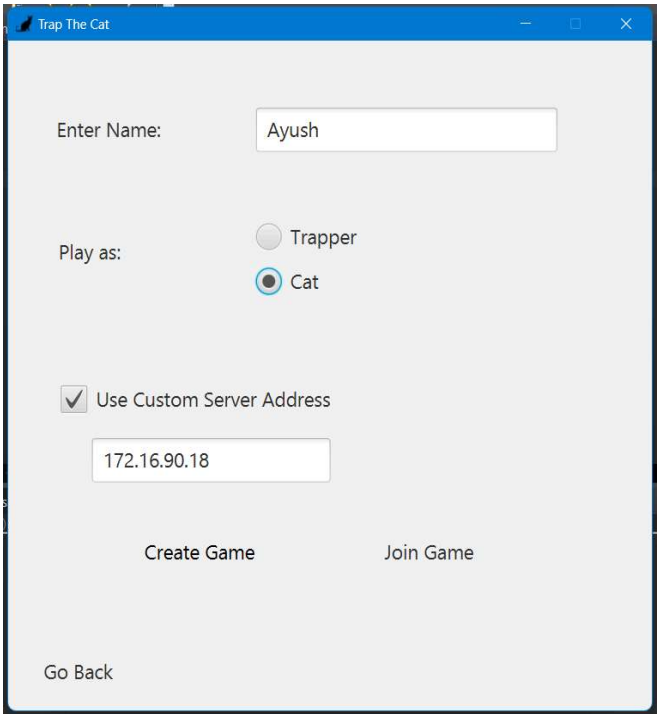
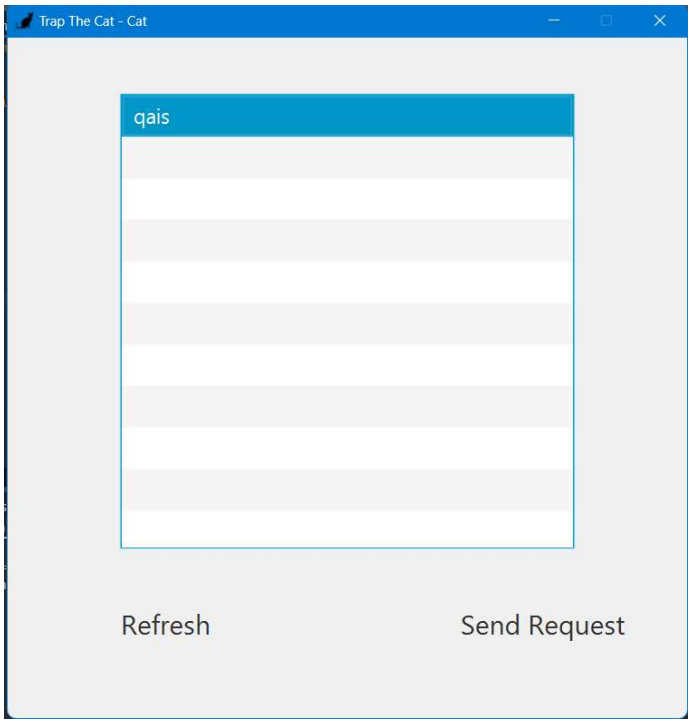
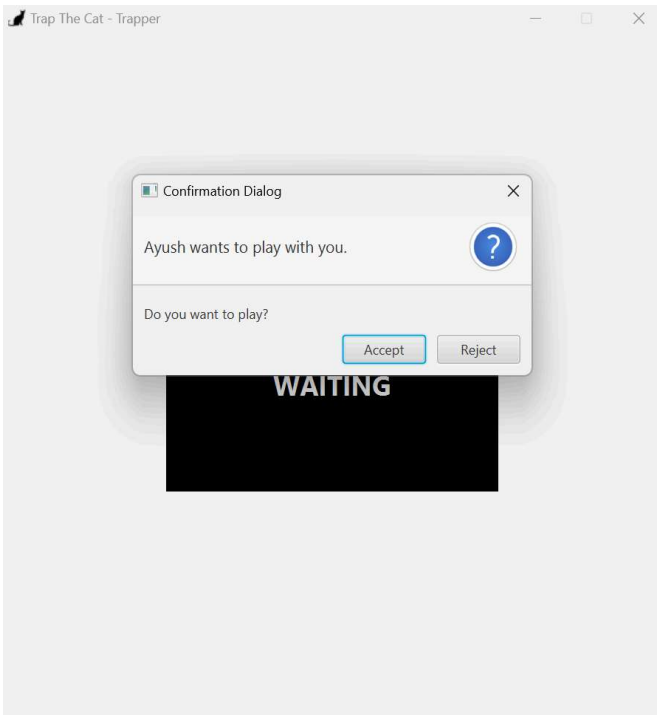
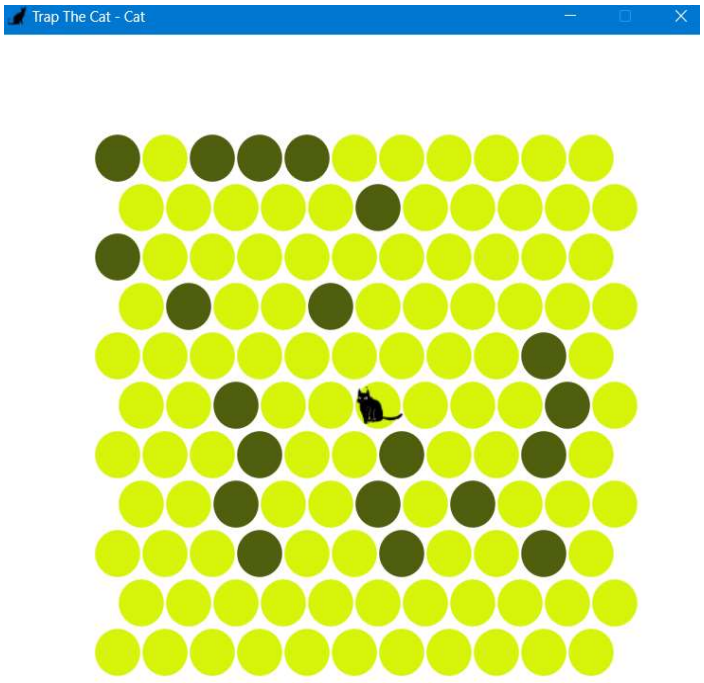


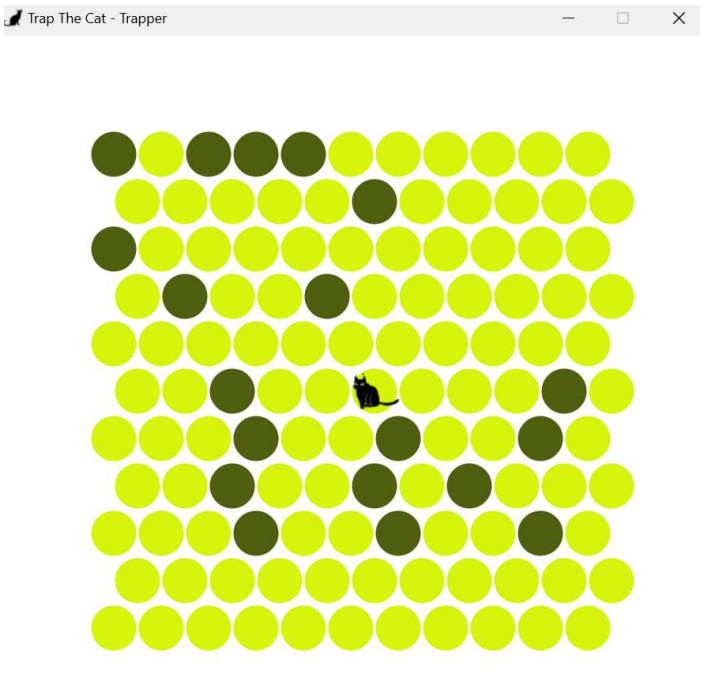








Ayush's move



qais's move

References

- https://www.youtube.com/watch?v=nz8P528uGjk&ab_channel=Lukas
- https://pragmaticways.com/how-to-add-javafx-to-eclipse-the-easy-way/
- https://gluonhq.com/products/javafx/
- https://www.geeksforgeeks.org/breadth-first-search-or-bfs-for-a-graph/
- https://www.youtube.com/watch?v=pcKY4hjDrxk
- https://www.geeksforgeeks.org/dijkstras-shortest-path-algorithm-greedy-algo-7/
- https://www.youtube.com/watch?v=XB4MIexjvY0