A Report on GAME HACKATHON 2024
Titled
"GameGen: Conquer Algorithmic Challenges in Gaming using Java"

Report Made by

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FYMCA Sem-II
Academic Year: 2023-24
ISE-2 (DAA and JAVA)

Under the Guidance of

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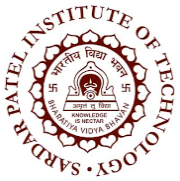

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Date: 16th April 2024

Group Member Description

Group member Name	Description of the person (Tell about yourself which best describes you as a person and as professional)
 Atharva Shah	A tech enthusiast proficient in modern stacks, automation, API integration, networking, Linux, DBMS, system design, scalability, blogging, open-source, and cloud technologies, merging innovative problem-solving with collaborative teamwork to engineer efficient and impactful software solutions.
 Mrunal Jadhav	A versatile professional with expertise in public relations, Python-based applications, and a commitment to leveraging technology for social welfare, demonstrating leadership qualities and a well-rounded skill set.
 Jagriti Malhotra	A diligent individual, currently interning as an Incident Response Analyst working towards becoming a Cyber Security Expert, with a track record of part-time roles and internships in various information security-related positions.
 Swapnil Gaikwad	A highly skilled and results-driven professional with extensive experience in project management and service desk support, known for exceeding client expectations and driving operational excellence across roles.

Name of the Group - **4x Devs**

Project Name : **Phantom Friends**

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Description of the Game

In our college hackathon project, we've infused the classic Pac-Man gameplay with a unique twist: the ghosts now feature pictures of our group members! As players guide Pac-Man through the maze, they'll encounter these personalized ghosts, adding a fun and personalized touch to the game. Additionally, instead of coins, players must devour all the dots scattered throughout the maze to progress. Once all the dots are consumed, the player emerges victorious, advancing to the next level. It's a nostalgic journey through the maze, peppered with personalized challenges and modernized mechanics, culminating in a satisfying win for those who conquer each level.

Motivation

Our motivation to develop this game stemmed from a desire to blend nostalgia with innovation. We aimed to reimagine the classic Pac-Man experience with modern graphics and personalized elements, such as featuring our group members' pictures on the ghosts. Additionally, we saw the hackathon as an opportunity to hone our technical skills in game development while fostering teamwork and camaraderie within our group. Ultimately, our goal was to create an engaging and enjoyable game that resonates with players of all ages, tapping into the timeless appeal of Pac-Man while infusing it with our own creative flair : **Phantom Friends**.

Tools used (Both frontend and Backend)

- Frontend tools:
    1. Java's AWT (Abstract Window Toolkit)
    2. Swing for GUI development, allowing for the creation of graphical user interfaces, including buttons, labels, and other UI elements.

- Backend tools:
    1. Java programming language used for game development, providing essential functionalities for game logic implementation, event handling, and file manipulation.

- Highscore maintenance:
    1. Text file storage used for maintaining highscores, with Java File I/O (Input/Output) operations for reading from and writing to the highscore file.

Detailed Innovation Techniques

"Phantom Friends: Developer Avatar Edition" is a customized iteration of the iconic Pacman game, infusing it with unique elements to create an engaging and personalized gaming experience. The game introduces developer avatars as ghosts, offers customized maze designs, and includes features such as highscore maintenance, score counting, lives tracking, and a reset button for maze customization.

Key Features:

Developer Avatars as Ghosts:

- Avatars of game developers replace traditional ghosts, each with distinct movement patterns and behaviors.
- This feature adds a personal touch to the game, enhancing player immersion and fostering a connection with the development team.

Highscore Maintenance:

- A persistent highscore tracking system records the top scores achieved by players.
- Players aim to surpass their own and others' highscores, fueling competition and encouraging replayability.

Score Counting Mechanism:

- Real-time score updates occur as players collect pellets and bonuses throughout the game.
- Achieving milestones rewards players with points, promoting strategic gameplay and skill development.

Lives Counting:

- Players start with default three lives, with each life decrementing upon collision with a developer avatar.
- Visual representation of remaining lives keeps players informed about their progress and adds to the game's suspense.

Reset Button for Maze Customization:

- A reset button enables players to change maze wall colors, providing visual variety and customization options.
- Customizable mazes enhance player immersion and allow for creative exploration of game environments.

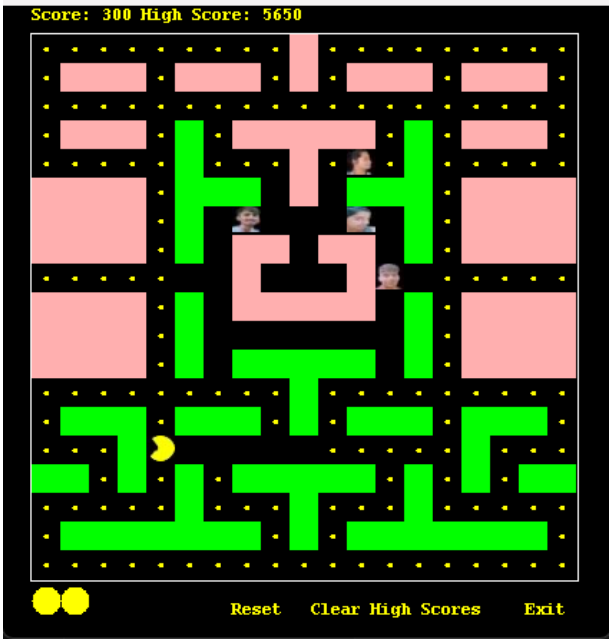
Implementation:

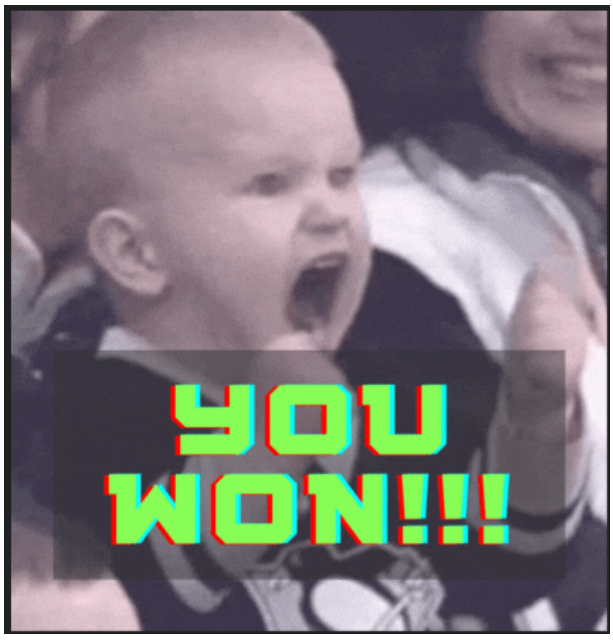
- Developer Avatars Integration: Design and implement developer avatars using graphics assets, incorporating unique movement algorithms and behaviors.
- Maze Customization: Implement reset button functionality using event handling mechanisms to toggle wall colors and reset the game.
- Score and Lives Tracking: Integrate scoring and lives systems into the game logic, ensuring accurate tracking and real-time updates.
- Highscore Management: Implement a highscore database using file or database storage, enabling retrieval and updating of highscores.
- User Interface: Design intuitive UI elements for displaying scores, lives, and highscores, enhancing user experience and accessibility.

Conclusion:

"Phantom Friends: Developer Avatar Edition" redefines the classic Pacman experience by introducing personalized developer avatars, dynamic maze designs, and innovative features. With highscore maintenance, score counting, lives tracking, and a maze reset button, the game offers a rich and immersive gameplay experience that captivates players and celebrates collaboration within the gaming community.

Screenshots





References

- Tutorialspoint. "Pacman Game in Java." Tutorialspoint, www.tutorialspoint.com/design_pattern/pacman_game.htm.
- GitHub. "Java Pacman." GitHub, github.com/chrismccord/pacman-java.
- GitHub. "Java Pacman Game." GitHub, github.com/nickbeau/pacman.
- RealTutsGML. "Developing Games in Java." YouTube, www.youtube.com/playlist?list=PLWms45O3n--6TvZmtFHaCWRZwEqnz2MHa.
- ForeignGuyMike. "Java Game Programming for Beginners." YouTube, www.youtube.com/playlist?list=PL27BCE863B6A864E3.
- Stack Overflow. "Game Development Questions." Stack Overflow, stackoverflow.com/questions/tagged/game-development.
- Unity Forum. "Game Development Forum." Unity Forum, forum.unity.com/forums/game-design.64/.
- Stemkoski, Lee. *Beginning Java Game Development with LibGDX*. Apress, 2015.
- Davison, Andrew. *Killer Game Programming in Java*. O'Reilly Media, 2005.