Brick Breaker Game

MINOR PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this minor project report for the course **21CSC203P ADVANCED PROGRAMMING PRACTICE** entitled in "**Food delivery system**" is the bonafide work of **J Dheeraj (RA2211003010332)** , **Sankar Shanan G (RA2211003010335) and Aura Bhattacharyya** who carried out the work under my supervision.

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ABSTRACT

This Java-based Brick Breaker game project aims to develop an engaging and skill-testing gaming experience. The game involves controlling a paddle to bounce a ball and break bricks, with a focus on achieving the highest score. It offers a classic arcade-style challenge that tests players' hand-eye coordination, precision, and strategic thinking as they progress through increasingly complex levels. The game fosters competition through scoring systems and leaderboards, making it appealing to both casual and dedicated gamers. Additionally, it provides stress relief, accessibility for players of all skill levels, and opportunities for creative innovation through unique powerups and level designs. This project seeks to encapsulate the essence of timeless arcade gaming while introducing modern elements to create a captivating and enjoyable gaming experience.

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1. INTRODUCTION

A Java-based Brick Breaker Game is an exciting and classic arcade game that brings back memories of retro gaming while offering a modern and immersive gaming experience. In this thrilling game, players control a paddle at the bottom of the screen to bounce a ball and break through a wall of colorful bricks. The objective is to clear the entire screen of bricks while avoiding letting the ball fall off the paddle. This game combines elements of strategy, precision, and hand-eye coordination, making it a fun and challenging pastime for players of all ages.

The Java programming language serves as the backbone of this game, providing a robust and versatile platform for game development. Java's cross-platform compatibility ensures that the game can run on various operating systems, making it accessible to a wide audience.

In this game, players can expect different types of bricks, adding depth and excitement to the gameplay. The use of Java allows for smooth graphics, responsive controls, and engaging sound effects, all contributing to an immersive gaming experience.

This introduction serves as a gateway to a captivating adventure filled with nostalgia and modern gameplay, where players can challenge their skills, break through barriers, and enjoy hours of entertainment. Java-based Brick Breaker Game is a testament to the enduring appeal of classic arcade gaming in the digital age.

1.1 Motivation

Brick Breaker games evoke a strong sense of nostalgia for many players who grew up playing similar games on early gaming consoles or computers. It brings back fond memories of simpler times and classic arcade gaming. Brick Breaker games are easy to understand and play, making them accessible to players of all ages and skill levels. The straightforward concept of bouncing a ball to break bricks appeals to both casual and serious gamers.

1.2 Objective

The objective of this project is to create a Java-based Brick Breaker game that offers an entertaining and challenging gaming experience. The game should involve controlling a paddle to bounce a ball and break bricks, aiming to achieve the highest possible score. The project aims to capture the essence of classic arcade gaming while incorporating modern features, fostering competition, and providing accessibility for players of all skill levels

1.3 Problem Statement

Games nowadays are fun to play but it lacks the touch of simplicity and nostalgia. Also not all computers can run the highly intensive graphics I the game. They are also very complicated and might not interest all people. So, we have decided to create a brick breaker game so that all people of all ages can play even on a computer with less intensive configuration.

1.4 Challenges

Implementing realistic ball and paddle physics, as well as precise collision detection between the ball, paddle, and bricks, can be complex. Ensuring that the ball reacts naturally to collisions and follows a believable trajectory is crucial for an enjoyable gameplay experience.

2. LITERATURE SURVEY

1. A game development environment to make 2D games – 2019

This article presents a 2D game development environment to propose an alternative model to reduce the technical complexity existing in these systems, presenting a data model and a game editor that allows fulfilling this goal. In order to test its capabilities, several games have been successfully implemented in the proposed environment

2. Text-based Java Programming Serious Game “Rise of the Java Emperor” - 2022

There has been an active movement towards fun learning, using games in education. This article introduces the text-based serious game “Rise of the Java Emperor” that aims to support students in learning basic object-oriented programming concepts using Java.

3. DEVELOPING A 2-D GAME IN JAVA - 2020

Java is a great platform for development of 2-D games as it provides the usage of objectoriented concepts for game development. Game technology is rapidly increasing and is one of the most sought- after research areas because it has the immense potential of scientific knowledge and commercial success.

4. Attitudes on Using Examples of Game Source Code for Learning Programming - 2018

Games for learning are currently used in several disciplines for motivating students and enhancing their learning experience. This new approach of technology-enhanced learning has attracted researchers’ and instructors’ attention in the area of programming that is one of the most cognitively demanding fields in Computer Science.

5. A project report on brick breaker game - 2022

This system enhances the process of taking consumer orders. Customers can easily place orders as they like using the online meal ordering system, which sets up a food menu online. Additionally, clients can simply follow orders if there is a food menu.

3. REQUIREMENTS

3.1 Requirement Analysis

1. X86 64-bit CPU (Intel Pentium III/AMD architecture)
2. 4 GB RAM (minimum)
3. 5 GB free disk space
4. Optical Mouse
5. 14-inch color monitor
6. Keyboard-108 keys
7. Processor- Intel® Core™ i5 8250U
8. CPU @ 1.60 GHz 1.80 GHz
9. Memory- 8.00 GB
10. Hard Disk- 28.0 KB

3.2 Hardware Requirement

1. Operating System- Windows 7 to 10/XP or
2. Linux
3. Ubuntu 16.04 to 17.10.
4. For MySQL Installer, Microsoft.NET Framework
5. 4.5.2 or later required.

4. ARCHITECTURE AND DESIGN

4.1 Architecture diagram

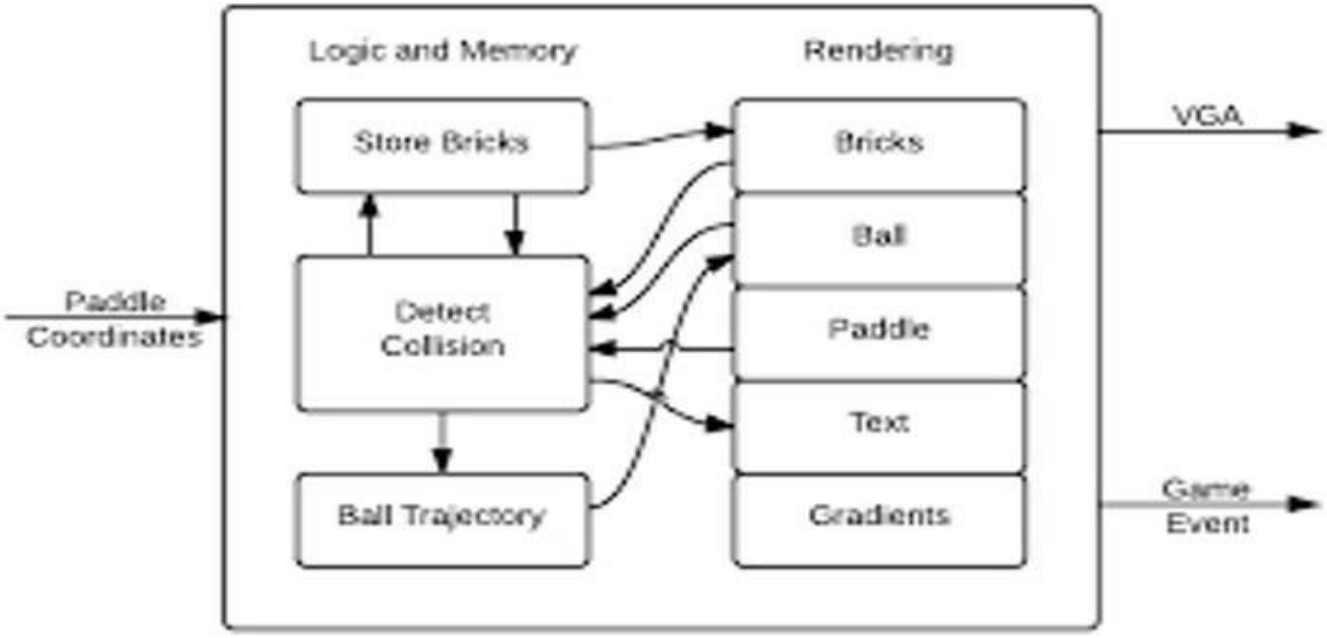


Figure 1. Architecture diagram of suggested model

5. IMPLEMENTATION

5.1. Game Structure

- The Java Brick Breaker game typically consists of a game window or canvas where gameplay takes place..
- Within this window, you have a paddle, a ball, and a grid of bricks. The goal is to use the paddle to bounce the ball and break all the bricks.

5.2. Graphics and Rendering:

- To create the game's visuals, you need to draw the paddle, ball, and bricks on the game canvas.
- This involves using Java's graphics libraries to render and update the game's elements.

5.3. User Input:

- To move the paddle left and right, you need to handle user input
- Typically, this involves listening for keyboard input to control the paddle's horizontal movement.

5.4. Sound and Effects:

- You can add audio effects for actions like ball bouncing and brick breaking to enhance the gaming experience. Java provides libraries for audio playback.

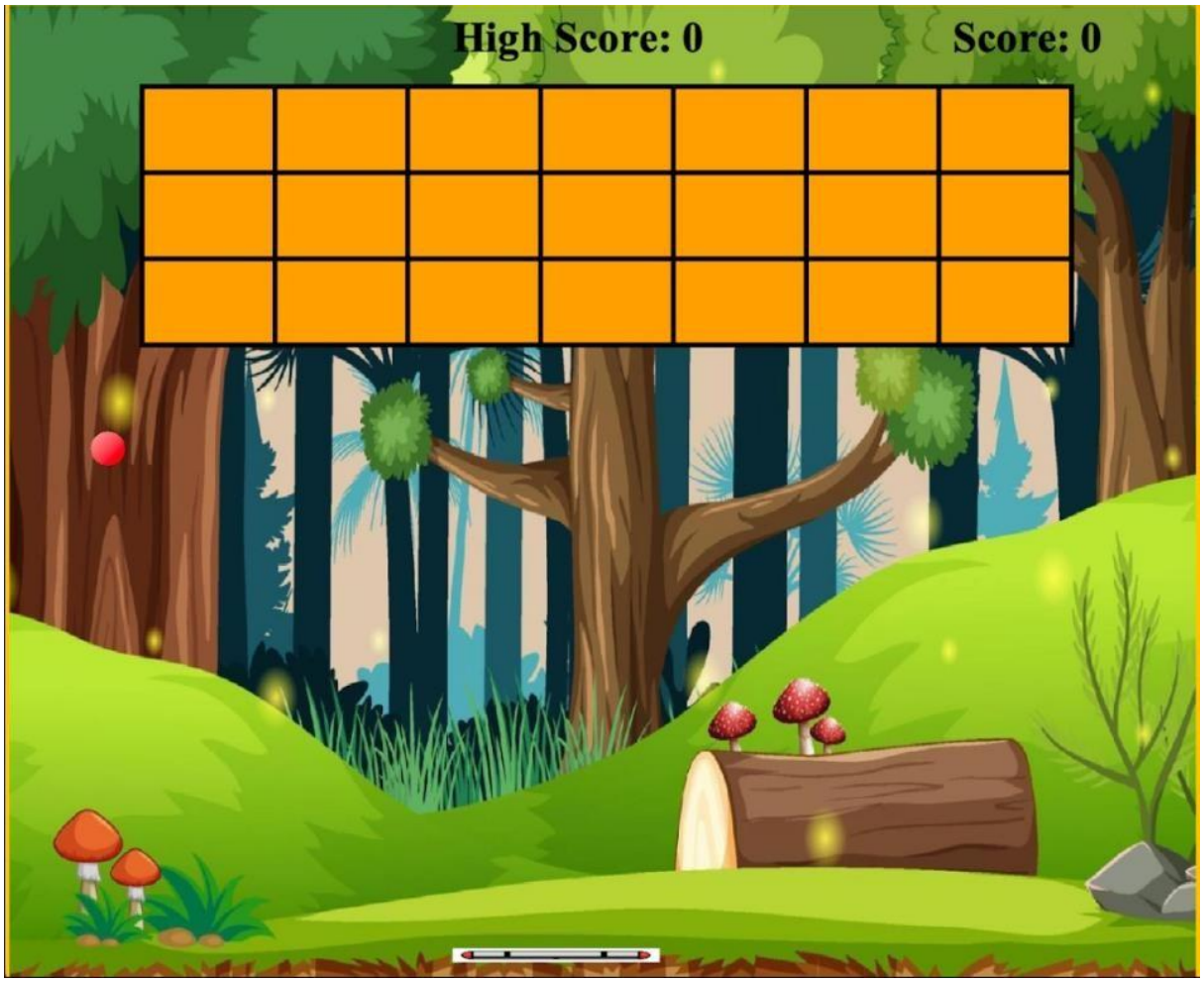
5.5. Winning and Losing Conditions:

- Determine what happens when the player loses or wins
- You need to handle game over and completion scenarios.

6. RESULTS AND DISCUSSION

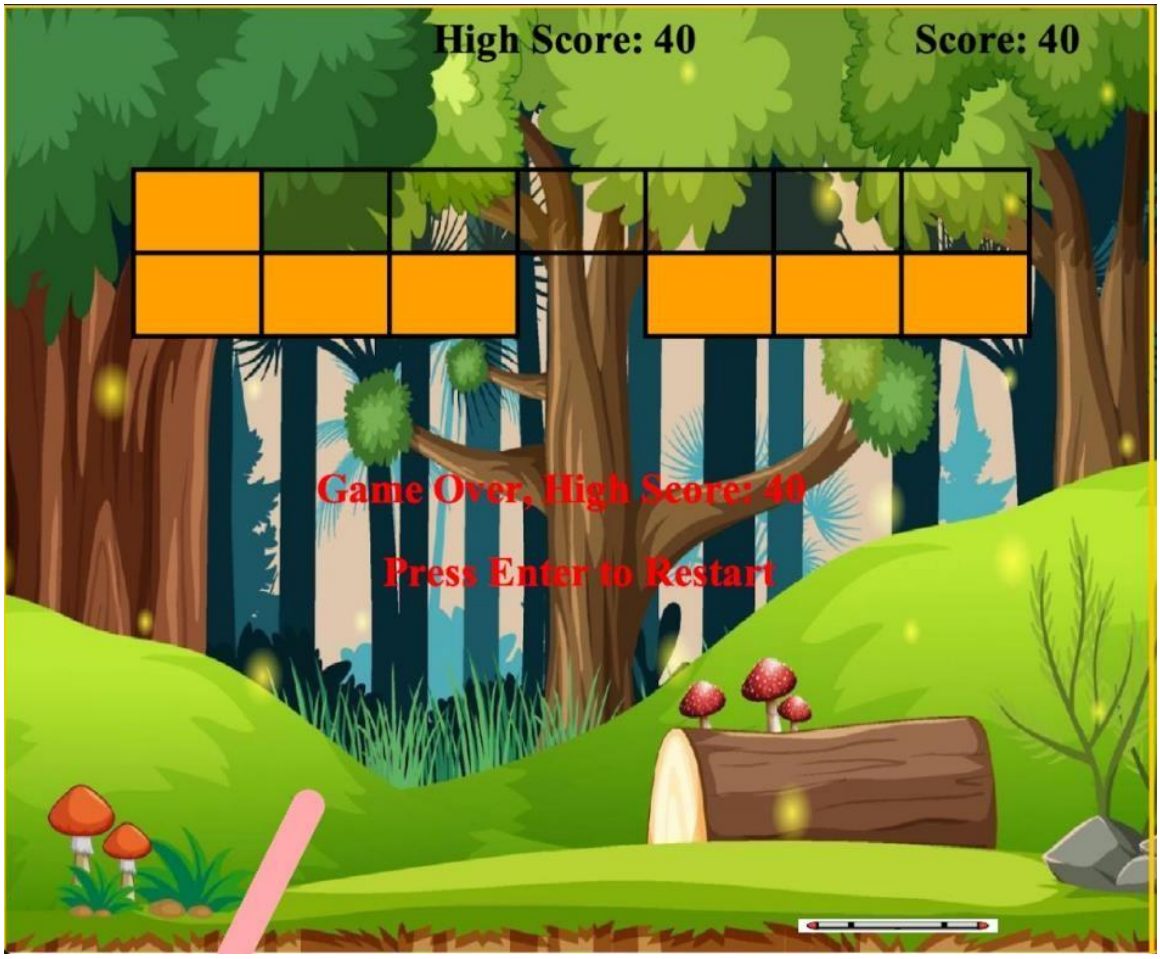
6.1 Game Initiation :

Game is initialized and user can play.



6.2 Game Ending:

When the user loses.



7. CONCLUSION

In conclusion, a Java Brick Breaker Game is a classic and enjoyable arcade game that can provide hours of entertainment and challenge for players of all ages. This retro-inspired game combines simple gameplay mechanics with engaging visuals and sound effects, making it a popular choice for both casual gamers and those seeking a nostalgic gaming experience. Ultimately, a Java Brick Breaker Game serves as a testament to the enduring appeal of classic arcade gaming in the digital age, offering a mix of nostalgia and modern gameplay that continues to captivate and entertain players. Whether developed as a personal project or for distribution, it can be a fun and educational endeavor for game developers and a source of enjoyment for gamers. A wellimplemented Java Brick Breaker Game should offer responsive controls, a balanced difficulty curve, and a satisfying sense of accomplishment when players successfully break all the bricks. It can also include elements such as power-ups, high scores, and multiple levels to keep players engaged and motivated.

REFERENCES

1. Anderson, E. F., Engel, S., McLoughlin, L., & Comninos, P. (2008). The case for research in game engine architecture.

2. Blackwell, A. F. (1996, September). Metacognitive theories of visual program-ming: what do we think we are doing?. In Proceedings 1996 IEEE Symposium on Visual Lan-guages (pp. 240-246). IEEE

3. Chao, P. Y. (2016). Exploring students' computational practice, design and perfor-mance of problem-solving through a visual programming environment. Computers & Educa-tion, 95, 202-215

4. Folmer, E. (2007, July). Component-Based Game Development–A Solution to Es-calating Costs and Expanding Deadlines?. In International Symposium on Component-Based Software Engineering (pp. 66-73). Springer, Berlin, Heidelberg.

5. Folmer, E. (2007, July). Component-Based Game Development–A Solution to Es-calating Costs and Expanding Deadlines?. In International Symposium on Component-Based Software Engineering (pp. 66-73). Springer, Berlin, Heidelberg.

6. Malliarakis, C., Satratzemi, M., Xinogalos, S. (2012). Towards the constructive incorporation of serious gameswithin object oriented programming. In: Proceedings of the 6th European Conference on Games Based Learning

7. Barnes, T., Chaffin, A., Powell, E., Lipford, H. (2008). Game2Learn: improving the motivation of CS1 students. In: Proceedings of the 3rd International conference on Game development in computer science

8. Kazimoglu, C., Kiernan, M., Bacon, L., Mackinnon, L. (2012). A serious game for developing computational thinking and learning introductory computer programming. Procedia – Social and Behavioral Sciences

9. Xinogalos, S. (2012). Programming techniques and environments in a technology management department. In: Proceedings of the 5th Balkan Conference in Informatics (BCI 2012). ACM Press

10. Phelps, A, Bierre, K., Parks, D. (2003). MUPPETS: multi-user programming pedagogy for enhancing traditional study. In: Proceeding of the 4th Conference on Information Technology Education