

**Summer 2023**  
**COURSE TITLE : Computer Graphics**  
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**Project Proposal**  
**GROUP-03**

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## **Project Title:** Dx-ball Game

### **Introduction:**

The blending of creativity and technology in the field of computer graphics and game development has brought us a variety of exciting games that delight and engage players around the globe. The dx-ball game is one of the classic examples where a player will move a paddle to bounce a ball, targeting to break blocks without letting the ball fall to achieve score. This report describes the development, mechanics, features, and design of such a simple DX-ball game using Python and OpenGL graphics rendering capabilities.

### **Project Description:**

In this project, the main goal of the game is to manipulate a paddle using simple keyboard controls in order to steer a ball toward a wall of blocks. The player's challenge is to carefully position the paddle while simultaneously smashing the blocks to get points and keep the ball from falling off the screen. The OpenGL library is used by the game to render images and produce an appealing environment. The gameplay principles incorporate contemporary improvements while evoking nostalgia for vintage arcade games. The following are some of the game's primary features:

**Paddle Control:** Keyboard inputs are used by players to control a paddle. Players can move right or left by pressing the "a" or "d" keys, pause by using the "p" key, and quit by pressing the "q" key. A direct exchange like this produces an immersive experience.

**Ball Physics:** The motion of the ball is determined by physical laws, such as angles of incidence and reflection off surfaces. To draw the circle that would be utilized to move the ball, we used `GL_TRIANGLE_FAN`. Players' anticipation of ball trajectory adds dimension to the games because of this realism.

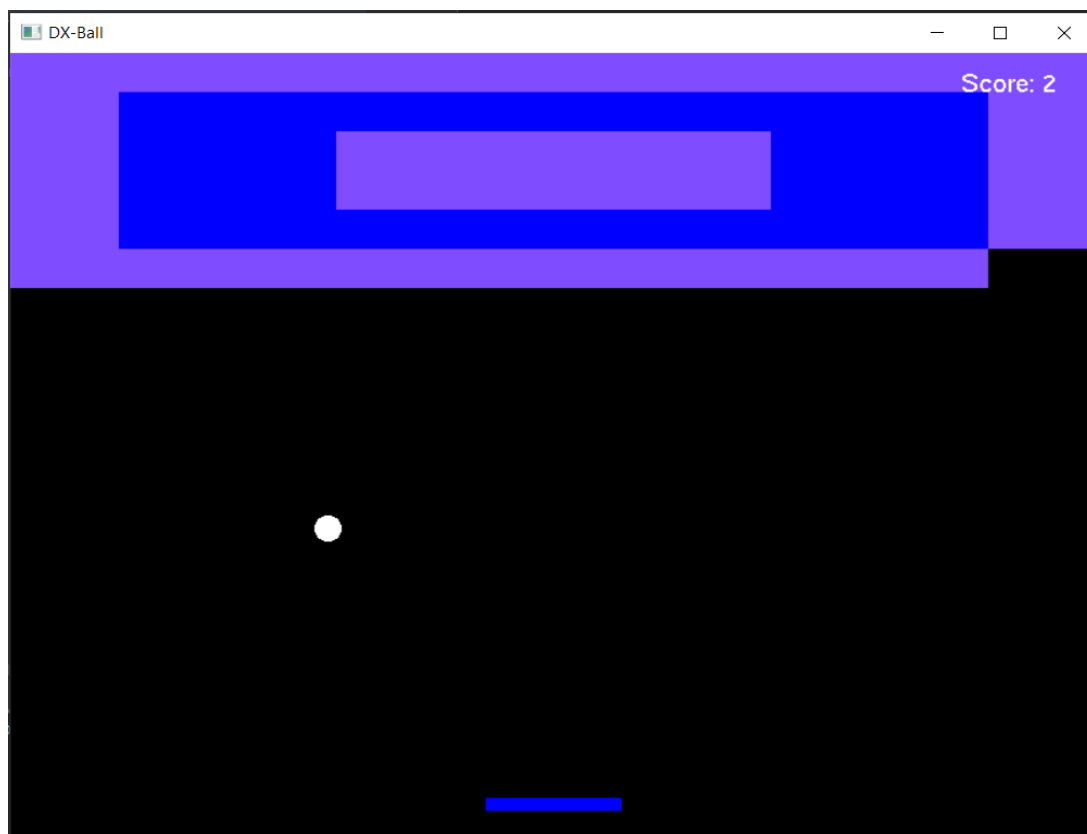
**Block Destruction:** In this game, the player must break structures of blocks by bouncing a ball on them while keeping the ball from leaving the screen.

**Power-ups:** They improve the gameplay's dynamics. In our scenario, as players go forward, the ball's speed increases. The gamer needs flexibility and skill development as complexity and difficulty rise.

Scoring System: 2 Points are given for each block that is dismantled in the scoring system, which motivates players to shoot for larger totals.

Visuals: The game's appeal is influenced by visual components including color palettes. When the ball touches the paddle, the paddle randomly changes color and the blocks are divided into two hues.

Game-over: The game will be over when all blocks are destroyed. Additionally, when the ball doesn't hit the paddle and falls off the screen, the game will be stopped and "Game Over" will be shown on the screen.



### Conclusion:

In conclusion, the creation of a DX-Ball game exemplifies how programming and gaming may work together to provide a fun and engaging experience. Python programming is used in conjunction with OpenGL's graphics rendering capabilities in the game's technical

implementation. Python is a suitable choice for game development due to its simplicity and adaptability and the development of graphical objects like backdrops, blocks, and backgrounds is made easier by OpenGL. These elements are combined by developers to create a visually appealing and interesting user interface. The DX-Ball game, which captures the essence of both traditional and contemporary gaming experiences, is an example of continual innovation in the field of game creation.