**End-Semester Project Report:**

**Game Development of XONIX**

**Project Overview**

The XONIX game is a traditional arcade game in which the player is controlling a moving character and is trying to fill a part of the screen while evading enemies. The game's goal is to capture as much space as possible without colliding with the enemies. For the programming project of this semester, Mitul and I created the game XONIX with several features such as different difficulty levels, player modes, scoring mechanisms, and gameplay mechanisms. In this report, I will detail my contributions to the project describing the individual sections developed by each of us.

**Division of Work**

**Menu, End Menu, and Player Mode Menu**

I implemented and designed the menu, end menu, and player mode choice menu. The menus were implemented in a way to enable users to navigate through game modes easily, change settings, and start or exit the game. I made sure the transitions between menus were smooth and player-friendly.

**Logic for Game Modes (Easy, Medium, Hard, and Continuous)**

The logic for varying difficulty levels—Easy, Medium, Hard—and the continuous mode was created by Mitul. He worked on making the game harder by changing the speed of moving objects, the sophistication of the enemies, and the difficulties involved for each level.

**1-Player Mode Logic**

The 1-player mode logic was also managed by Mitul. He created the fundamental gameplay mechanics for single-player mode, where the player manages the character and evades enemies while trying to take over more territory. Mitul made sure that the 1-player mode worked flawlessly with different levels of difficulty and that the game got increasingly difficult as the player progressed.

**Showing Scoring, Timing, Power-ups, Freeze, Number of Moves, and Time Within the Game**

I worked with Mitul on the scoring and timing, but the code for showing and updating these game statistics was all handled by him. Mitul worked on the real-time scoring feature, the show time remaining, power-ups, freeze effects, and number of moves remaining. These dynamic features were important for making the gameplay more engaging.

**Scoreboard, Save Scores and Time, Display High Scores**

The implementation of the scoreboard, such as saving the scores and times, and highlighting the high score list, was done by me. I implemented the feature that enabled the game to save top scores and display them in the scoreboard. I also made sure the high score persisted between game sessions, so players could view their improvement and try to surpass their own or others' records.

**Geometric Movements**

The geometric movements of the game entities, including the enemies, were created by Mitul. He was responsible for creating the movement logic, including how the entities would move within the game grid. This was crucial for the dynamic nature of the game, particularly when handling various difficulty modes and the real-time gameplay.

**2-Player Mode**

We both tried Two player mode and took it as a challenge but Mitul’s logic was good so we used Mitul’s code for 2P. Two players could play against each other in this mode to gain more territory and evade enemies. We also did the synchronization of the movements of the two players, the interaction between them, and the addition of a system that tracked both players' scores.

**Written Work and Documentation**

As part of the project,I was responsible for the written content, such as preparing this report, documentation, and the overall description of the project. I documented the process of developing the game, described the features, and explained the collaborative work that went into developing the XONIX game.

**Flow Chart**

Mitul's job was to make the game flow chart. The flow chart presented a visible display of user flow and logic of the game and described transition among various modes of the game, player operation, and triggering of events. It facilitated displaying step by step how the game would work.

**Conclusion**

Working on XONIX project of the game was a stimulating experience. Through our coordination, we were able to combine the different elements of gameplay, like the variety of game modes, levels of difficulty, and the scoring system, to ensure the game is entertaining and exciting to play. By dividing our workload between Mitul and myself, we could each work on separate aspects of the game and produce a seamless end product. I am glad about the end product, and I think it reflects the capabilities of ours in game development as well as programming.