DINO GAME

Group - 6

CONTENTS

1. Introduction
2. Project Goals
3. Setting Up Environment
4. Game Structure
5. Project Structure
6. Flow Chart
7. Summary
8. Future Enhancements

INTRODUCTION

The Dino Game project is a terminal-based game developed in C using the ncurses library. Inspired by the classic offline Chrome dinosaur game, this project involves controlling a dinosaur to avoid obstacles and achieve the highest possible score. The game features simple graphics rendered in the terminal, dynamic gameplay with increasing difficulty, and a high score tracking system. This project demonstrates the use of ncurses for creating interactive terminal applications and provides a fun and engaging way to practice C programming skills.

PROJECT GOALS

- Learning C Programming - This project explores the Chrome Dino Game implemented in C using the ncurses library, highlighting its significance as an engaging tool to enhance understanding of C programming concepts, empowering students to grasp fundamental programming skills through a practical and interactive approach.

PROJECT GOALS

- Understanding ncurses Library- The ncurses library is essential for building text-based interfaces in C, offering features such as window management and keyboard input handling. Understanding these capabilities will empower students to create engaging console applications, exemplified by the Chrome Dino game.

SETTING UP ENVIRONMENT

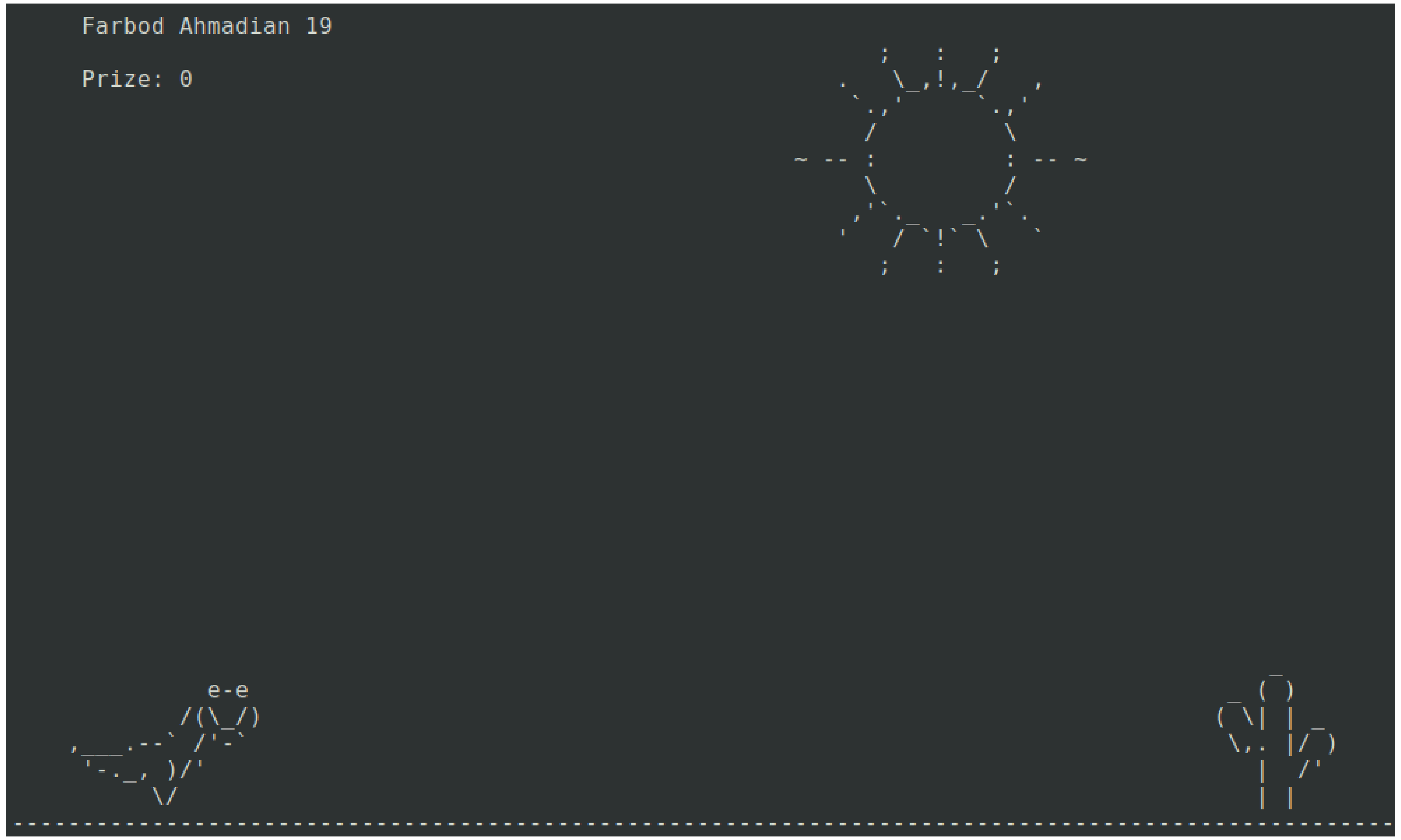
- GCC Installation - GCC Installation using MSYS2 for debugging and compiling C programs

- Ncurses Library - Ncurses library comes with MSYS2 by default.

GAME STRUCTURE

Main Components-

1. Game Loop
2. Player Inputs
3. Graphical representation
4. Collision Detection
5. Scoring System



```
Farbod Ahmadian 19

Prize: 0
```

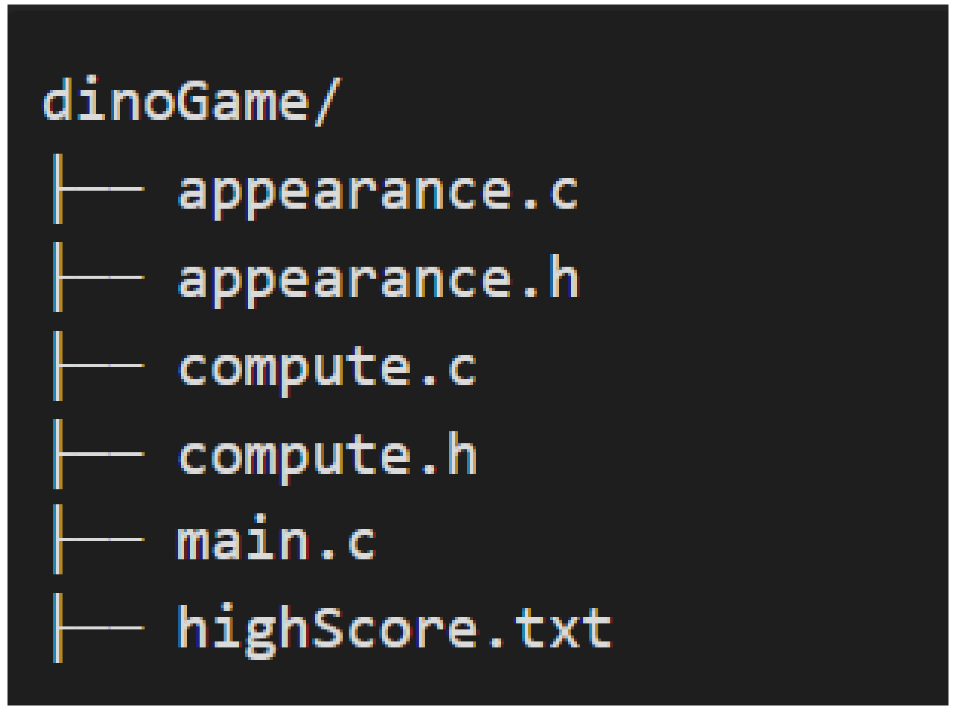
GAME STRUCTURE

Flow of the Game

The flow of the Chrome Dino Game progresses through continuous obstacle navigation while collecting points. Players control the dino's jump and timing, ensuring dynamic responses to hurdles. Increasing speed and frequency of obstacles enhance difficulty, promoting sustained engagement and challenge throughout gameplay.

CODING THE GAME

PROJECT STRUCTURE

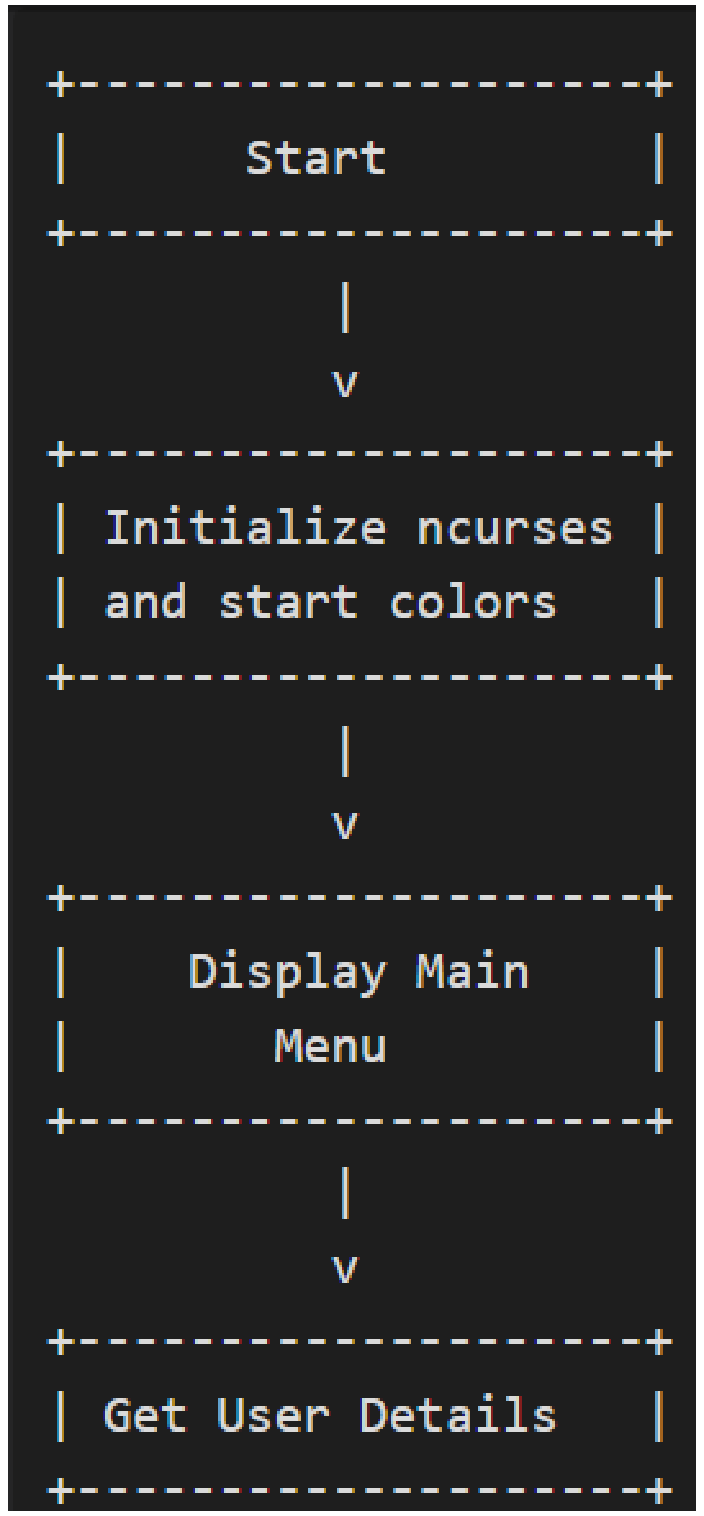


```
dinoGame/
├── appearance.c
├── appearance.h
├── compute.c
├── compute.h
├── main.c
├── highScore.txt
```

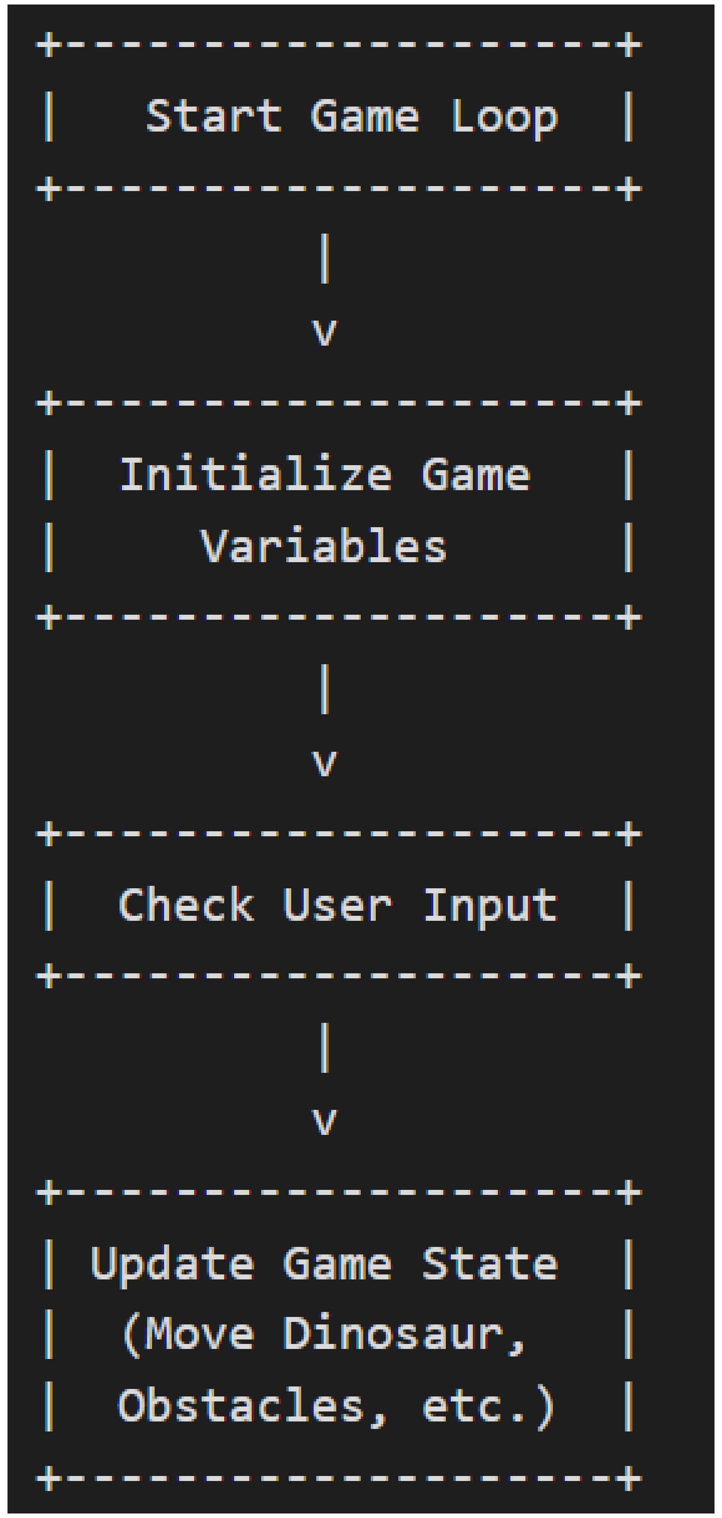
File Details

- **appearance.c**: Contains functions for rendering game elements such as the dinosaur, cactus, sun, moon, and game over screen.
- **appearance.h**: Header file declaring the functions used in appearance.c.
- **compute.c**: Contains the main game logic, including the game loop, collision detection, score computation, and game state management.
- **compute.h**: Header file declaring the functions and structures used in compute.c.
- **main.c**: The entry point of the game, initializes the ncurses environment, starts the main menu, and ends the game.
- **highScore.txt**: Stores the high score of the game.

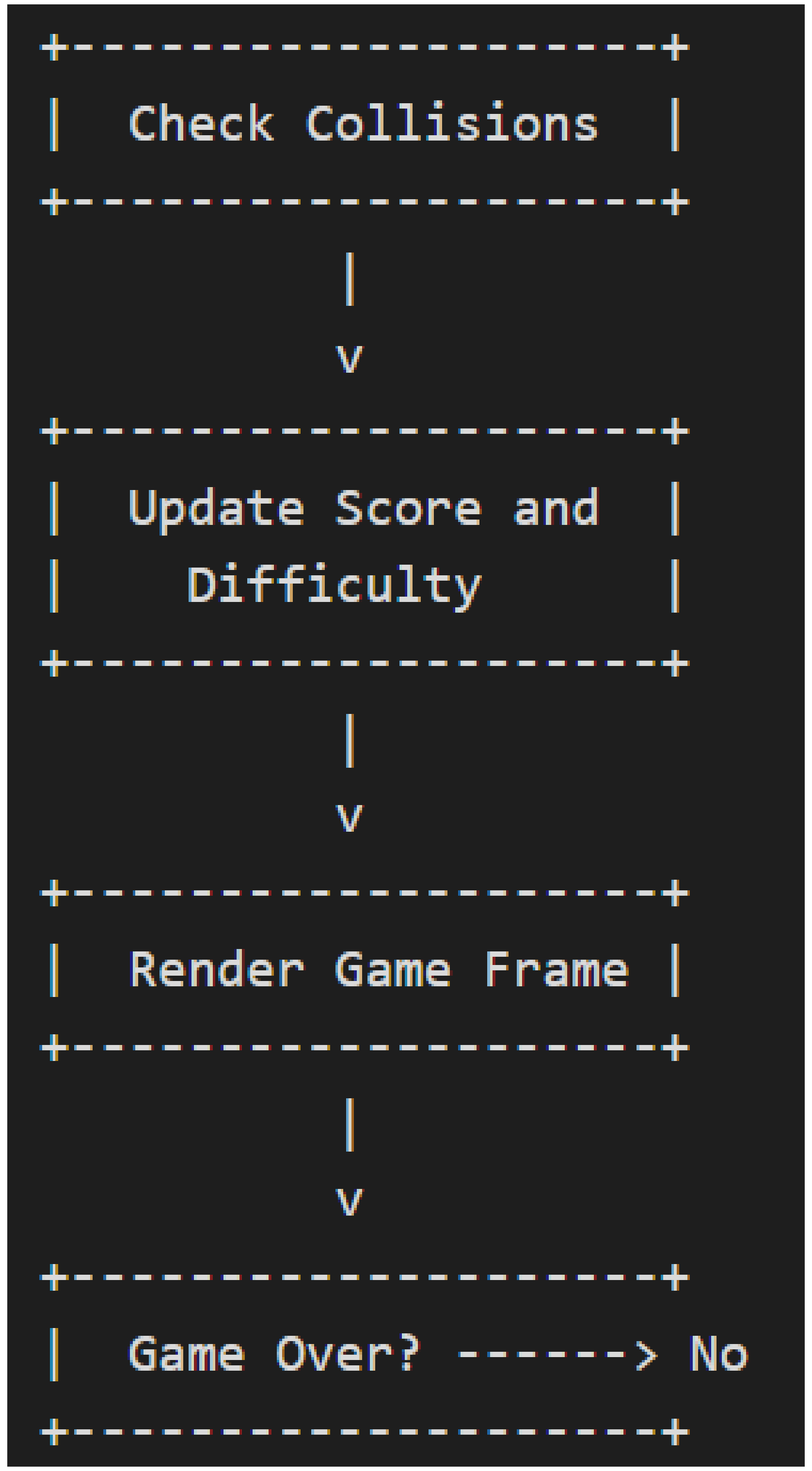
FLOW CHART



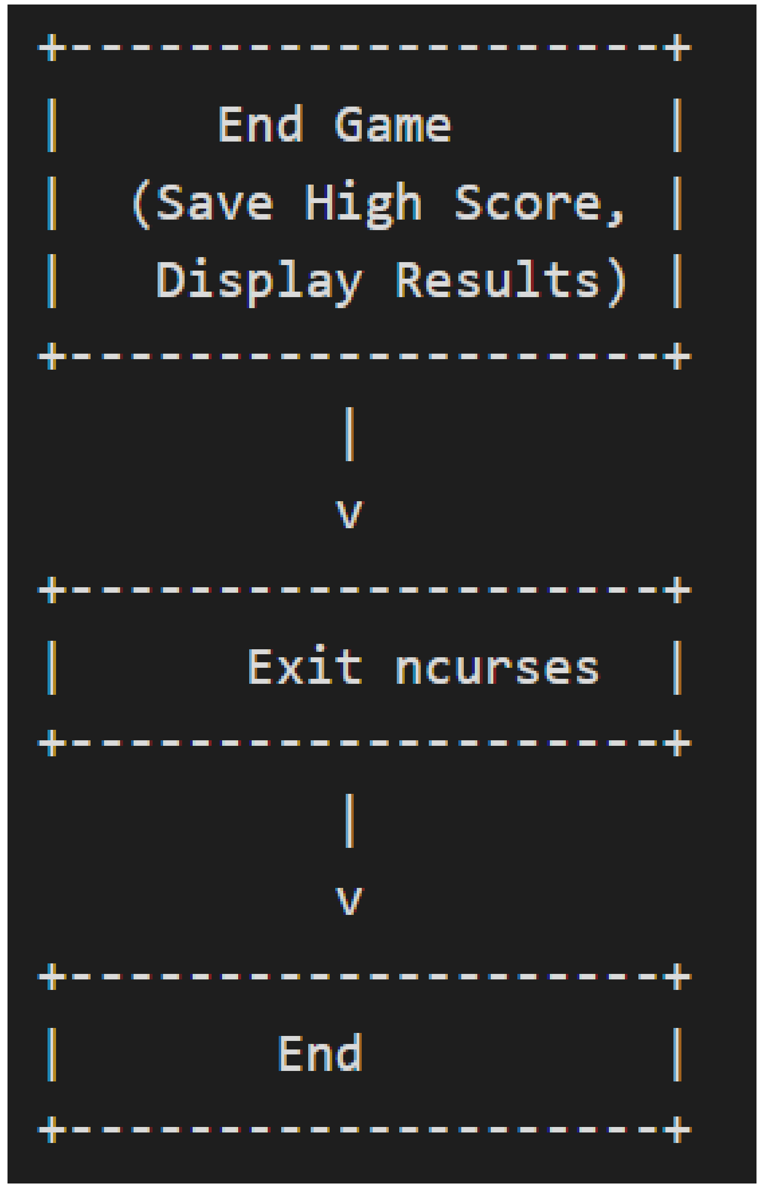
```
+-------------------+
|       Start       |
+-------------------+
         |
         v
+-------------------+
| Initialize ncurses |
| and start colors   |
+-------------------+
         |
         v
+-------------------+
|   Display Main    |
|       Menu        |
+-------------------+
         |
         v
+-------------------+
| Get User Details  |
+-------------------+
```



```
+-------------------+
|  Start Game Loop  |
+-------------------+
         |
         v
+-------------------+
|  Initialize Game  |
|     Variables     |
+-------------------+
         |
         v
+-------------------+
|  Check User Input |
+-------------------+
         |
         v
+-------------------+
| Update Game State |
|  (Move Dinosaur,  |
|  Obstacles, etc.) |
+-------------------+
```



```
+-------------------+
|  Check Collisions  |
+-------------------+
         |
         v
+-------------------+
|  Update Score and  |
|    Difficulty      |
+-------------------+
         |
         v
+-------------------+
|  Render Game Frame |
+-------------------+
         |
         v
+-------------------+
|  Game Over? ------> No
+-------------------+
```



```
+-------------------+
|      End Game     |
| (Save High Score, |
|  Display Results) |
+-------------------+
         |
         v
+-------------------+
|      Exit ncurses |
+-------------------+
         |
         v
+-------------------+
|        End        |
+-------------------+
```

SUMMARY

- **Programming Insights**

The Chrome Dino Game demonstrates effective use of C and the ncurses library, showcasing fundamental programming concepts such as game mechanics, input handling, and screen management. This project equips students with practical skills in real-time programming and enhances problem-solving abilities within a dynamic environment.

FUTURE ENHANCMENTS

New Features and Mechanics

Future enhancements for the Chrome Dino Game could include new features like multiplayer mode, customizable characters, and power-ups. Introducing dynamic environments and adaptive difficulty levels would enrich gameplay, ensuring sustained engagement for both casual and competitive players.

Porting the Game to Other Platforms

Porting the Chrome Dino game to other platforms, such as mobile and web, could significantly enhance its accessibility and user engagement. This transition would leverage diverse user interfaces, increasing the game's reach and offering richer gameplay experiences across various devices.

THANK YOU