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University of Information Technology & Sciences

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Project Report

Course Title : Artificial Intelligence Lab

Course Code : CSE 312

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Title:

Dino T-Rex a 2D Endless Runner Game using Pygame in Python

Introduction:

This project is about making a fun game using Pygame, a tool for creating games in Python. We chose to make an endless runner game, where the goal is to keep going as far as possible while dodging obstacles. Our aim is to show how easy and exciting it can be to create games with Pygame, even if you're new to game development. Through this project, we hope to inspire others to explore game making and have fun while learning.

Background Study:

Pygame is a cross-platform set of Python modules designed for writing video games. It includes computer graphics and sound libraries that simplify game development. Pygame provides functions to create games with animation, sound, and input handling, making it an ideal choice for beginners and experienced developers alike.

Methodology & Implementation:

- Dinosaur Class:
 - Responsible for managing the player character's actions and animations.
 - Implemented methods for running, jumping, and ducking based on user input.

- Obstacle Class:
 - Created to introduce challenges and obstacles into the gameplay.
 - Implemented functions for generating and moving obstacles, including small and large cactus, and flying birds.
 - Randomized obstacle generation to provide a diverse and unpredictable gameplay experience.

- Cloud Class:
 - Developed to enhance the game's visual appeal and depth.

- Implemented dynamic generation and movement of cloud objects across the sky.
- Varying cloud speeds and positions contribute to the game's immersive atmosphere.

- User Interface:

- Designed intuitive user interfaces for menus and score displays.
- Implemented event handling for user input, including keyboard controls for gameplay interaction.

By systematically implementing these components and functionalities, we were able to create a cohesive and engaging gaming experience that combines smooth gameplay mechanics with visually appealing graphics and immersive environments.

Result & Discussion:

The implemented game successfully achieves the objective of creating an entertaining and challenging gameplay experience. Players can control the dinosaur character using keyboard input to avoid obstacles and accumulate points by surviving for as long as possible. The game features smooth animations, responsive controls, and dynamic obstacles that enhance the overall gameplay experience.

Future Work:

Future enhancements to the game could include adding additional levels, power-ups, or different environments to increase replay value. Implementing sound effects and background music could further enhance the immersive experience. Additionally, incorporating online leaderboards or multiplayer functionality could introduce competitive elements and social interaction among players.

Conclusion:

In conclusion, the project demonstrates the effectiveness of Pygame for developing 2D games in Python. By leveraging Pygame's features and functionality, we were able to create a fully functional endless runner game with minimal complexity. This project serves as a foundation for further exploration and experimentation in game development using Python and Pygame.