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Subject:	Computer Graphics and Image Processing	**Subject Code:**	21CSL66
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Project Title:	FLAPPY BIRD GAME		
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SYNOPSIS

INTRODUCTION:

Flappy Bird is a simple yet highly addictive mobile game developed by Dong Nguyen and released in 2013. The game quickly gained worldwide popularity due to its straightforward mechanics and challenging gameplay. The player controls a bird attempting to fly through a series of green pipes without hitting them. Despite its simple concept, Flappy Bird's design and difficulty captivated millions of players globally, making it a phenomenon in mobile gaming. This project aims to replicate the core gameplay of Flappy Bird while exploring potential innovations in its mechanics and user experience.

The game's popularity was propelled by its minimalist design, challenging gameplay, and the competitive nature of achieving high scores. However, the phenomenon was short-lived, as Nguyen decided to remove the game from app stores in 2014, citing concerns over its addictive nature and the immense pressure of its overnight success.

Relevance and Impact: Flappy Bird's impact on the mobile gaming industry is significant for several reasons:

- **Minimalist Design**: The game's simplistic approach highlighted that success in mobile gaming doesn’t always require high-end graphics or complex mechanics. This sparked a trend towards minimalistic and casual games that are accessible to a broader audience.
- **Viral Marketing**: The game’s rapid rise to fame was largely fueled by word-of-mouth and social media, demonstrating the power of organic growth and viral marketing in the digital age.
- **Addictive Gameplay**: Flappy Bird exemplified how finely-tuned difficulty and the "just one more try" factor can drive player engagement and retention, providing valuable lessons for game designers on balancing challenge and playability.

METHODOLOGY:

Methodology

1. **Game Design and Development**:
    - **Conceptualization**: Understanding the fundamental gameplay mechanics of Flappy Bird, including user control, gravity, and collision detection.
    - **Framework Selection**: Choosing an appropriate development framework or game engine, such as Unity or Unreal Engine, to build the game.
    - **Asset Creation**: Designing or sourcing 2D graphics for the bird, pipes, background, and other visual elements.
    - **Programming**: Implementing game logic, including user input handling, physics for the bird's movement, and collision detection algorithms.
2. **Testing and Iteration**:
    - **Prototype Testing**: Creating a basic version of the game to test core functionalities and gameplay mechanics.
    - **User Feedback**: Gathering feedback from players to identify areas of improvement in gameplay, controls, and overall user experience.
    - **Refinement**: Iteratively refining the game based on user feedback and testing results to enhance playability and engagement.
3. **Innovation and Enhancement**:
    - **Advanced Features**: Exploring the addition of new game modes, power-ups, or dynamic environments to innovate beyond the original Flappy Bird gameplay.
    - **User Interface (UI) Improvements**: Designing a more intuitive and visually appealing user interface.
    - **Multiplayer Mode**: Introducing a multiplayer option for competitive or cooperative play.

Software Requirements:

- **Programming Language**: C# (for Unity) or C++ (for Unreal Engine).
- **Development Environment**: Visual Studio, Rider, or any compatible IDE for scripting and debugging.

Hardware Requirements:

1. **Development Machine**:
    - Minimum: Dual-core CPU, 4GB RAM, integrated graphics.
    - Recommended: Quad-core CPU, 8GB RAM, discrete graphics card (NVIDIA/AMD).
2. **Testing Devices**:
    - Android smartphones/tablets (minimum Android version 4.1).
    - iOS devices (iPhone/iPad with minimum iOS version 9.0).

INNOVATION / CONTRIBUTION TO THE FIELD:

1. **Enhanced Gameplay Mechanics**:

- Incorporating advanced physics to create more realistic bird movements.
- Introducing varying levels of difficulty and environmental challenges to keep the gameplay engaging.

2. **Interactive and Customizable Elements**:

- Allowing players to customize their bird's appearance and unlock new themes and backgrounds.
- Developing a dynamic obstacle generation system to ensure a unique experience with each playthrough.

3. **Educational and Developmental Insights**:

- Providing a case study on how simple game mechanics can lead to massive engagement.
- Demonstrating the potential for innovation in seemingly straightforward game designs through enhanced features and player customization.

4. **Community and Social Integration**:

- Implementing social sharing features and leaderboards to foster a competitive community.
- Exploring potential for cross-platform multiplayer capabilities, encouraging interaction and competition among a broader audience.