# Flappy Bird Win32 C++ Game - Project Proposal

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## 1. Project Description

We will develop a Flappy Bird clone using C++ and the Win32 API. The objective is to create a simple yet engaging game where the player clicks or taps to make the bird flap and navigate through moving pillars. Scores will be tracked based on the number of pillars successfully crossed, with the highest score persisted across sessions.

## 2. Object-Oriented Concepts

The program will leverage key OOP principles:  
-Encapsulation: Logical grouping of bird and pillar behaviors into separate classes.  
-Abstraction Clear interfaces for game objects (e.g., Bird::update, Pillar::draw).  
-Inheritance & Polymorphism: (Future extension) Possible base class for game entities.  
-Data Persistence: Managing high score storage through I/O operations encapsulated in the Game class.

## 3. GUI & Win32 API Integration

We will use the Win32 API for all GUI-related functionality:  
- Window Creation: RegisterClass and CreateWindowEx to initialize the game window.  
- Message Loop: Implement WndProc to handle WM\_CREATE, WM\_TIMER, WM\_LBUTTONDOWN, WM\_PAINT, and WM\_DESTROY.  
- Rendering: Use GDI functions (Ellipse, Rectangle, TextOut) for drawing shapes and text.  
- Animation Loop: SetTimer with a ~12ms interval drives the game update and redraw.  
- Resource Management: CreateSolidBrush and DeleteObject for color management.

## 4. Query Summary

Q: What will we build?  
A: A Flappy Bird-style game in C++ using Win32 API.  
  
Q: Which OOP concepts will be used?  
A: Encapsulation, abstraction, and data persistence within class structures.  
  
Q: How will GUI be handled?  
A: Through Win32 message handling, GDI drawing functions, and a timer-based animation loop.