Course: CS1004 Object Oriented Programming.

Instructor: Lecturer Sara Rehmat.
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Class: BSE-2A

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Project Proposal

Department of Computer Science

Project Title:

Flappy Bird: An OOP Approach to Game Development 🐤

Introduction:

The game's goal is to guide a bird through the pipes while scoring points for each set of pipes. This project aims to create a C++ Flappy Bird game utilizing object-oriented programming principles and concepts while incorporating advanced C++ ideas and concepts.

Team:

Our Team consists of two members:

- Muhammad Rehan 22P-9106
- Hassan Sardar 22P-9108

Goals:

- Learning C++ and Game Development.
- To improve programming capabilities and knowledge of object-oriented programming and use its principles.
- Learn to design the classes and their attributes and methods.
- Learn Testing and debugging the game (Code).
- Evaluate the final product and document the results.

Features:

- The player can control a bird in the game by tapping the screen to make it fly and avoid pipes as obstacles.
- Along with a straightforward menu system for starting and stopping the game, the game will have a scoring system to keep tabs on the player's progress.
- The game will feature different Levels to complete with difficulty set by the user.

Methodology:

- Our Team will use C++ and OOP ideas in the project's development and all the concepts we learnt in the fundamental programming course and all those we will be learning in this course.
- C++ classes and objects will implement the game's logic and physics and many more like **functions**, **objects** and **structs.**
- The C++ library **SFML**, or Simple and Fast Multimedia Library, will be used to build the user-friendly interface.
- The project will employ OOP principles like **inheritance**, **polymorphism**, and **encapsulation**.

Classes:

Our Team is currently sure about these classes, but we will integrate more during the development phase.

- **Bird**: This class will include the bird's position, movement, and collision detection with pipes, as well as other related characteristics and methods.
- **Pipe**: This class will provide information on the pipes' position, movement, and ability to detect collisions with birds.
- **Game**: this will contain mechanics, such as scoring, game over, and restarting the game, which this class will manage.

Tech:

- Clion IDE
- Git & GitHub
- C++
- SFML
- Linux

Conclusion:

Our Team will gain practical experience in C++ and object-oriented programming through this project. The project's successful completion will show that our Team can use their programming knowledge and skills to solve issues and work on projects in the real world.