Assignment 2

Course:

Advanced Programming Techniques

Course code:

CS-303

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Section:

B

Snake Game in C# (Windows Forms)

A classic **Snake game** implemented in C# using Windows Forms. This project demonstrates a fully functional game with dynamic grid scaling, keyboard input handling, score tracking, and basic UI overlays.

Features

- **Classic Snake Gameplay:** Control the snake using arrow keys.

- **Dynamic Grid:** The game grid automatically adjusts to the canvas size.

- **Food Generation:** Randomly spawns food not overlapping with the snake.

- **Score System:** Tracks current score and high score.

- **Pause & Resume:** Press P to pause or resume the game.

- **Game Over Screen:** Displays score and allows restart by pressing Space or the Start button.

- **Smooth UI:** Simple, clean graphics with colored snake head, body, and food.

Controls

Key	Action
Arrow Keys	Move the snake in a direction
P	Pause/Resume the game
Space	Restart game after Game Over

Installation & Usage

1. Clone the repository or copy the source code.

2. Open the solution in **Visual Studio**.

3. Build and run the project.

4. Click on the game canvas to ensure keyboard focus before playing.

5. Use arrow keys to control the snake and enjoy the game!

Code Overview

- **Form1.cs**: Main form handling the game logic, UI rendering, and user input.

- **SnakePart**: Represents each segment of the snake.

- **Direction**: Enum for movement directions (Up, Down, Left, Right).

- **GameState**: Enum for game states (StartScreen, Playing, Paused, GameOver).

- **Game Loop**: Handles snake movement, collision detection, food generation, and score updates.