**Assignment – 1**

**Summary**

**1. Bouncing Ball Animation:**

- Objective: Create a bouncing ball animation.

- Implementation: Initialize canvas, set up ball's properties, draw the ball, update position in a loop, handle collisions, control animation speed.

- Conclusion: Successfully creates a basic bouncing ball animation, showcasing animation and collision detection principles.

**2. Dynamic Square Spiral:**

- Objective: Generate an animated square spiral.

- Implementation: Initialize canvas, draw squares forming a spiral, varying colours and sizes, introduce pauses for visualization, and include user interaction for termination.

- Conclusion: Generates visually appealing spiral pattern, demonstrating loops, random colour generation, and user interaction.

**3. Moving Across Grid:**

- Objective: Create an animated circle moving within a grid-based canvas.

- Implementation: Initialize grid canvas, draw grid lines and a circle, continuously update the circle's position, and ensure alignment with grid lines.

- Conclusion: Successfully implements grid-based movement for a circle, showcasing structured animation with random movement.

**4. Pattern of Circles:**

- Objective: Draw a pattern of circles.

- Implementation: Initialize graphics window, calculate circle positions, draw circles efficiently, optimize drawing process, include user interaction for termination.

- Conclusion: Efficiently generates visually appealing circle pattern with optimized drawing process, showcasing effective utilization of graphics rendering.

**5. Interactive Rectangle Resizing:**

- Objective: Create an interactive application to resize a rectangle using keyboard inputs.

- Implementation: Initialize canvas and rectangle, listen for key presses, dynamically adjust rectangle's dimensions, and handle error cases.

- Conclusion: Provides a user-friendly experience for dynamically resizing a rectangle based on keyboard inputs, showcasing interactive programming.