**A COURSE WORK REPORT**

**ON**

**SWD327 (MANDATORY SKILL ACQUISITION)**

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**COMPUTER SCIENCE**

**SUBMITTED TO:**

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**VISUAL GRAPHICS**

**BOUNCING BALL ANIMATION PROGRAM**

**Includes:**

- graphics.h: Provides graphics functions for creating windows, drawing shapes, and handling events.

- stdio.h: Provides input/output functions for printing messages and reading input.

- conio.h: Provides console input/output functions for detecting key presses and reading input.

**Main Function:**

- int main(): The entry point of the program.

**Variables:**

- int gd = DETECT, gm;: Detects the graphics driver and mode.

- int x = 100, y = 100;: Initial position of the ball.

- int dx = 2, dy = 2;: Initial velocity of the ball.

- int radius = 20;: Radius of the ball.

**Graphics Initialization:**

- initgraph(&gd, &gm, "C:\\Turboc3\\BGI");: Initializes the graphics mode with the detected driver and mode.

**Main Loop:**

- while (!kbhit()): Runs the loop until a key is pressed.

- cleardevice();: Clears the screen.

- setcolor(WHITE);: Sets the drawing color to white.

- setfillstyle(SOLID\_FILL, WHITE);: Sets the fill style to solid white.

- fillellipse(x, y, radius, radius);: Draws a filled ellipse (the ball) at position (x, y) with a width and height of radius pixels.

- delay(33);: Adds a delay to control the frame rate.

- x += dx;: Updates the x-position of the ball based on its velocity.

- y += dy;: Updates the y-position of the ball based on its velocity.

- if (x < radius || x > getmaxx() - radius) dx = -dx;: Reverses the x-velocity if the ball hits the left or right edge.

- if (y < radius || y > getmaxy() - radius) dy = -dy;: Reverses the y-velocity if the ball hits the top or bottom edge.

**Program Termination:**

- getch();: Waits for a key press.

- closegraph();: Closes the graphics mode.

- return 0;: Returns an exit code of 0 to indicate successful program execution.

**Functions Used:**

- initgraph(): Initializes the graphics mode.

- cleardevice(): Clears the screen.

- setcolor(): Sets the drawing color.

- setfillstyle(): Sets the fill style.

- fillellipse(): Draws a filled ellipse.

- delay(): Adds a delay.

- kbhit(): Detects a key press.

- getch(): Waits for a key press.

- closegraph(): Closes the graphics mode.

**Constants Used:**

- DETECT: Detects the graphics driver and mode.

- WHITE: White color code.

- SOLID\_FILL: Solid fill style code.

**Return Value:**

- 0: Successful program execution.