HUMAN COMPUTER INTERACTION LAB

PROJECT

SUBMITTED TO:
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"SPACE SHOOTER GAMES"

INTRODUCTION:

Space shooter games are a popular genre in the video gaming world, characterized by fast-paced action, immersive gameplay, and the thrill of interstellar combat. These games typically place players in control of a spacecraft, tasked with navigating through space while battling waves of enemy ships, asteroids, and other celestial threats.

KEY FEATURES:

1. **Gameplay Mechanics:**
   - Controls: Players usually control a spaceship using a joystick, keyboard, or gamepad, with movement in multiple directions and the ability to shoot weapons.
   - Objectives: The primary goal is to survive as long as possible while achieving high scores by destroying enemies and avoiding collisions.
   - Power-ups: Collectible items that provide temporary enhancements such as increased firepower, shields, or speed boosts.
2. **Enemy Waves:**
   - Enemies often come in waves, each becoming progressively more difficult, with unique attack patterns and behaviors.

3. **Boss Battles:**
   - At the end of levels or stages, players often face powerful boss enemies that require strategy and skill to defeat.

4. **Graphics and Sound:**
   - Modern space shooter games boast advanced graphics, detailed environments, and dynamic soundtracks that enhance the immersive experience.

5. **Popular Titles and Variations:**
   - Classic Examples: "Space Invaders," "Galaga," and "Asteroids."
   - Modern Variations: "Gradius," "R-Type," "Ikaruga," and "Geometry Wars.
   - Subgenres: Bullet hell shooters (Danmaku) where the screen is filled with complex patterns of projectiles.

PROGRAM CODE:

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace Space_Shooter
{
    public partial class Form1 : Form
    {
        bool right, left, space;
        int score;
        public Form1()
        {
            InitializeComponent();
            lbl_over.Hide();
        }

        void Game_Result()
        {
            foreach (Control j in this.Controls)
            {
                foreach (Control i in this.Controls)
                {
                    if (j is PictureBox && j.Tag == "bullet")
                    {
                        if (i is PictureBox && i.Tag == "enemy")
                        {
                            if (j.Bounds.IntersectsWith(i.Bounds))
                            {
                                i.Top = -100;
                                ((PictureBox)j).Image = Properties.Resources.explosion;
                                score++;
                                lbl_score.Text = "Score : " + score;
                            }
                        }
                    }
                }
            }
            if (player.Bounds.IntersectsWith(ship.Bounds) || player.Bounds.IntersectsWith(alien.Bounds))
            {
                timer1.Stop();
                lbl_over.Show();
                lbl_over.BringToFront();
            }
        }

        void Star()
        {
            foreach (Control j in this.Controls)
            {
                if (j is PictureBox && j.Tag == "stars")
                {
                    j.Top += 10;
```

```csharp
            if (j.Top > 500)
            {
                j.Top = 0;
            }
        }
    }
}

void Add_Bullet()
{
    PictureBox bullet = new PictureBox();
    bullet.SizeMode = PictureBoxSizeMode.AutoSize;
    bullet.Image = Properties.Resources.bullet_img;
    bullet.BackColor = System.Drawing.Color.Transparent;
    bullet.Tag = "bullet";
    bullet.Left = player.Left + 15;
    bullet.Top = player.Top - 30;
    this.Controls.Add(bullet);
    bullet.BringToFront();
}

void Bullet_Movement()
{
    foreach (Control x in this.Controls)
    {
        if (x is PictureBox && x.Tag == "bullet")
        {
            x.Top -= 10;
            if (x.Top <100)
            {
                this.Controls.Remove(x);
            }
        }
    }
}

void Enemy_Movement()
{
    Random rnd = new Random();
    int x, y;
    if (alien.Top >= 500)
    {
        x = rnd.Next(0, 300);
        alien.Location = new Point(x, 0);
    }
    if (ship.Top >= 500)
    {
        y = rnd.Next(0, 300);
        ship.Location = new Point(y, 0);
    }
    else
    {
        alien.Top += 15;
        ship.Top += 10;
    }
}

void Arrow_key_Movement()
{
```

```csharp
            if (right == true)
            {
                if (player.Left < 425)
                {
                    player.Left += 20;
                }
            }
            if (left == true)
            {
                if (player.Left > 10)
                {
                    player.Left -= 20;
                }
            }
        }

        private void Form1_KeyDown(object sender, KeyEventArgs e)
        {
            if (e.KeyCode == Keys.Right)
            {
                right = true;
            }
            if (e.KeyCode == Keys.Left)
            {
                left = true;
            }
            if (e.KeyCode == Keys.Space)
            {
                space = true;
                Add_Bullet();
            }
        }

        private void Form1_KeyUp(object sender, KeyEventArgs e)
        {
            if (e.KeyCode == Keys.Right)
            {
                right = false;
            }
            if (e.KeyCode == Keys.Left)
            {
                left = false;
            }
            if (e.KeyCode == Keys.Space)
            {
                space = false;
            }
        }

        private void timer1_Tick(object sender, EventArgs e)
        {
            Arrow_key_Movement();
            Enemy_Movement();
            Bullet_Movement();
            Star();
            Game_Result();
        }
    }
}
```