

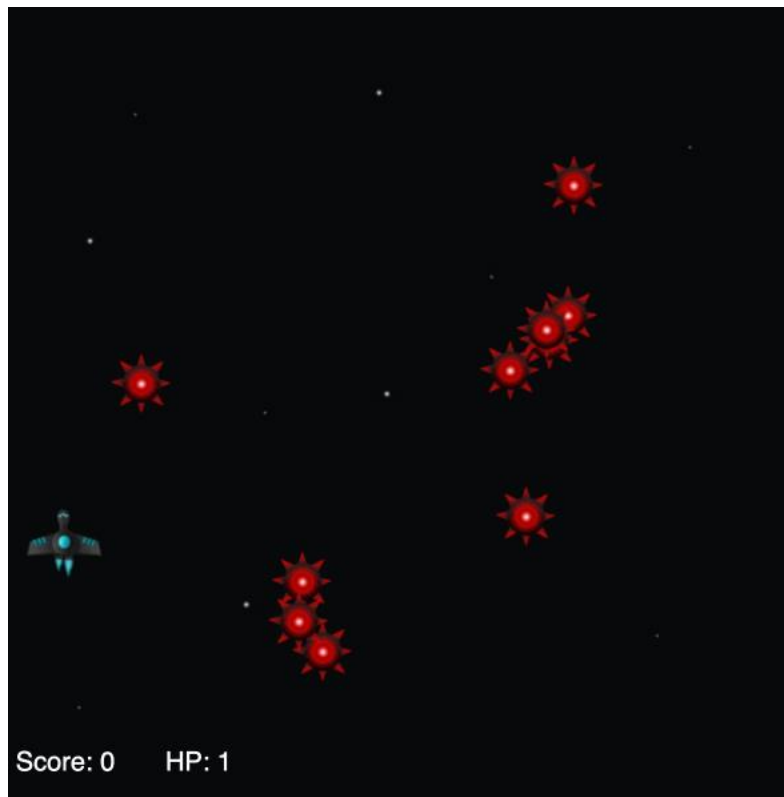
## Report

In this assignment, we decided to create a simple mini game in space theme via p5js. The mechanics are as follow:

1. The player is a blue spaceship, starting at the lower left corner of the game. The player controls the spaceship with WASD and dash with Spacebar.
2. If the player hit the meteors, game is over. The player needs to avoid all meteors falling from the top of the screen at all costs. (dash is recommended since it help you escape faster, but it may be somewhat difficult to use)
3. Each space gems earns the player 1 score. The player needs to collect them as much as they can.
4. The game starts with 10 space gems. If the player manages to collect more than 8, the game will keep generate new space gems until the game is over.
5. Once the game is over, the player is announced dead and the final score is displayed.

We use p5.play library which allows us to do sprite sheet animations easily. The graphics in this project is created by Unlucky Studio who allows anyone to use this art for free.

## Gameplay example



## Source Code

```

1 // Thank you Unlucky Studio for free sprites!
2 // https://opengameart.org/content/complete-spaceship-game-art-pack
3
4 let coins, pills;
5 let player;
6 let score = 0;
7 let HP = 1;
8 let isDash = false;
9 let bg;
10 let gameover = 0;
11
12 let timer = 0;
13 let startCoin = 10;
14
15 function preload() {
16   coin_anim = loadAnimation("graphics/items/1.png", "graphics/items/2.png");
17   player_anim = loadAnimation("graphics/ship/1.png",
18     "graphics/ship/2.png",
19     "graphics/ship/3.png",
20     "graphics/ship/4.png",
21     "graphics/ship/5.png",
22     "graphics/ship/6.png",
23     "graphics/ship/7.png",
24     "graphics/ship/8.png");
25   enemy_anim = loadAnimation("graphics/aestroid_dark.png");
26   pill_anim = loadAnimation("graphics/pills/1.png", "graphics/pills/2.png", "graphics/pills/3.png");
27
28 }
29
30
31 function setup() {
32   bg = loadImage('background.jpg');
33   createCanvas(600, 600);
34   coins = new Group();
35   enemies = new Group();
36   for (let i = 0; i < startCoin; i++) {
37     let c = createSprite(
38       random(100, width-100),
39       random(100, height-100), 10, 10);
40     c.addAnimation("default", coin_anim);
41     coins.add(c);
42   }
43
44   //Player Config
45   player = createSprite(50, 550, 20, 20);
46   player.addAnimation("default", player_anim);
47   player.rotateToDirection=true;
48   // player.shapeColor = color(72,221,255);
49
50   enemy = createSprite(600, 600, 50, 50);
51   // enemy.shapeColor = color(72,221,255);
52
53   speed = createVector(5,5);
54
55 }
56
57 function draw() {
58   background(bg);
59
60   //Control by Mouse
61   // player.velocity.x = (mouseX-player.position.x)*0.1;
62   // player.velocity.y = (mouseY-player.position.y)*0.1;
63
64   if (!gameover) {
65     keyWASD();
66     enemyBehavior();
67   }
68
69   // second phase
70   if (startCoin - score <= 1) { //
71     let c = createSprite(

```

```

71     random(100, width-100),
72     random(100, height-100),10, 10);
73
74     c.addAnimation("default", coin_anim);
75     coins.add(c);
76
77     // let a = random(0, 100);
78     // if (a < 10) {
79     //     c.addAnimation("default", pill_anim);
80     //     pills.add(c);
81
82     // }
83     // else {
84     //     c.addAnimation("default", coin_anim);
85     //     coins.add(c);
86     // }
87
88     startCoin += 1;
89 }
90
91
92 //Wall on mapsize
93 if( player.position.x > width - 10)
94 {
95     player.position.x = width-10;
96 }
97 if( player.position.x <= 10 )
98 {
99     player.position.x = 10;
100 }
101 if( player.position.y > height-10)
102 {
103     player.position.y = height-10;
104 }
105 if( player.position.y <= 10)
106 {
107     player.position.y = 10;
108 }
109
110 player.overlap(coins, getCoin);
111 // player.overlap(pills, getPill);
112 player.overlap(enemy, hurt);
113 drawSprites();
114 fill(255);
115 noStroke();
116 textSize(20);
117 textAlign(CENTER, CENTER);
118
119 if (HP >= 0) {
120     text("Score: " + score, 50, 570);
121     text("HP: " + HP, 150, 570);
122 }
123 if (HP <= 0){
124     textSize(75);
125     text("Game over", width/2, height/2);
126     textSize(25);
127     text("Score: " + score, width/2, height/2 + 50);
128     gameover = 1;
129 }
130
131 }
132 function getCoin(player, coin) {
133     coin.remove();
134     score += 1;
135 }
136
137 // function getPill(player, pill) {
138 //     pill.remove();
139 //     HP += 1;

```

```

140 // score +=1;
141 // }
142
143 function hurt(player, enemy) {
144   HP -= 1;
145 }
146
147 function enemyBehavior() {
148   if (millis() >= 1500+timer || enemy.position.y >= 700) {
149     size = random(50, 100);
150     enemy = createSprite(random(0, 600), 0, 20, 20);
151     enemy.addAnimation("default", enemy_anim);
152     // enemy.shapeColor = color(0,0,0);
153     timer = millis();
154     enemies.add(enemy);
155   }
156   enemy.position.y += 8;
157   enemy.rotation += 2;
158 }
159
160 function keyWASD(){
161   //Control by Keyboard
162   if (keyIsDown(87)) //w
163   {
164     player.position.y -= speed.y;
165     player.rotation = 0;
166   }
167   else if (keyIsDown(65))//a
168   {
169     player.position.x -= speed.x;
170     player.rotation = 270;
171   }
172   else if (keyIsDown(83))//s
173   {
174     player.position.y += speed.y;
175     player.rotation = 180;
176   }
177   else if (keyIsDown(68))//d
178   {
179     player.position.x += speed.x;
180     player.rotation = 90;
181   }
182
183   if(keyIsDown(32) && isDash == false)//Spacebar
184   {
185     speed.set(15,15);
186     isDash = true;
187   }
188   if(!keyIsDown(32))
189   {
190     speed.set(5,5);
191     isDash = false;
192   }
193 }

```