


<b>[Assignment / Project] – External Document</b>	
<COMP-6583> <Computer Graphic>	
[Odd / Even / Compact] Semester Year 2021/2022	

- **Project Title**

3D Space Shooter

- **Introduction**

Dalam rangka menyelesaikan Project Computer Graphic, kami membuat sebuah game bertemakan Space Shooter. Game ini merupakan sebuah game browser yang di buat menggunakan three.js. Tujuan dari game ini adalah meraih score tertinggi dengan menghancurkan musuh atau dengan mengambil point selama permainan berlangsung.

- **Report / Documentation**

```
17 <script src= three.min.js ></script>
18 <script>
19 let scene, camera, renderer, stars, starGeo;
20
21 function init() {
22
23     scene = new THREE.Scene();
24
25     camera = new THREE.PerspectiveCamera(60,window.innerWidth / window.innerHeight, 1, 1000);
26     camera.position.z = 1;
27     camera.rotation.x = Math.PI/2;
28
29     renderer = new THREE.WebGLRenderer();
30     renderer.setSize(window.innerWidth, window.innerHeight);
31     document.body.appendChild(renderer.domElement);
32
33     starGeo = new THREE.Geometry();
34     for(let i=0;i<6000;i++) {
35         star = new THREE.Vector3(
36             Math.random() * 500 - 300,
37             Math.random() * 500 - 300,
38             Math.random() * 500 - 300
39         );
40         star.velocity = 0;
41         star.acceleration = 0.01;
42         starGeo.vertices.push(star);
43     }
44
45     let sprite = new THREE.TextureLoader().load( 'star.png' );
46     let starMaterial = new THREE.PointsMaterial({
47         color: 0xaaaaaa,
48         size: 0.5,
49         map: sprite
50     });
51
52     stars = new THREE.Points(starGeo,starMaterial);
53     scene.add(stars);
```

1. Code untuk menu HTML

```

1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset=utf-8>
5     <meta name="viewport" content="width=device-width, user-scalable=no, minimum-scale=1.0, maximum-scale=1.0">
6     <title>Space Shooter</title>
7     <link rel="stylesheet" href="css/style.css">
8     <link rel="stylesheet" href="https://fonts.google.com/specimen/Raleway">
9
10  </head>
11
12  <body>
13    <div id="scoreboard">HP: 3 &nbsp; SCORE: 0</div>
14    <div id="gameover"></div>
15    <canvas id="canvas"></canvas>
16
17    <!-- CDN Link Three.js -->
18    <script src="https://cdnjs.cloudflare.com/ajax/libs/three.js/87/three.js"></script>
19    <script src="https://unpkg.com/three@0.87.0/examples/js/loaders/OBJLoader.js"> </script>
20    <script src="https://unpkg.com/three@0.87.0/examples/js/loaders/GLTFLoader.js"> </script>
21
22    <!-- Link ke file js game-->
23    <script src="js/components/Coin.js"></script>
24    <script src="js/placeCoins.js"></script>
25    <script src="js/components/Missile.js"></script>
26    <script src="js/components/Enemy.js"></script>
27    <script src="js/placeEnemies.js"></script>
28    <script src="js/components/Skybox.js"></script>
29    <script src="js/components/Plane.js"></script>
30    <script src="js/checkCollision.js"></script>
31    <script src="js/deleteMissiles.js"></script>
32    <script src="js/SceneManager.js"></script>
33    <script src="js/main.js"></script>
34
35  </body>
36 </html>
37

```

## 2. Code untuk Index HTML

```

1  function SceneManager(canvas) {
2
3
4      const screenDimensions = {
5          width: canvas.width,
6          height: canvas.height
7      }
8
9      // INITIALISATION
10     const scene = buildScene();
11     const renderer = buildRender(screenDimensions);
12     const camera = buildCamera(screenDimensions);
13
14     var keyMap = [];
15
16     var thePlane, theSkybox, theCoins, theEnemies;
17     const dynamicSubjects = createSceneSubjects(scene);
18     var theMissiles = [];
19
20
21     // AMBIENT LIGHTING
22     var ambientLight = new THREE.AmbientLight('#ffffff', 1.5)
23     scene.add(ambientLight)
24
25
26     var score = 0;
27     var health = 3;
28     var gameEnded = false;
29
30
31     function buildScene() {
32         const scene = new THREE.Scene();
33         return scene;
34     }
35
36
37     function buildRender({ width, height }) {

```

### 3. Code untuk SceneManager.js

- **Reference**

- <https://free3d.com/3d-model/justice-league-flying-vehicle-14220.html>
- <https://unsplash.com/photos/9o-VrJSwGuw>
- [Raleway - Google Fonts](#)
- [Sketchfab](#)
- <https://www.youtube.com/watch?v=WriO4Erm66Y>

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