게임프로그래밍 발표

2019775031 성재원

시작 메뉴

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게임 소개

빨간 네모를 클릭으로 조종해서
장애물과 충돌하지 않고
오래 버티는 게임

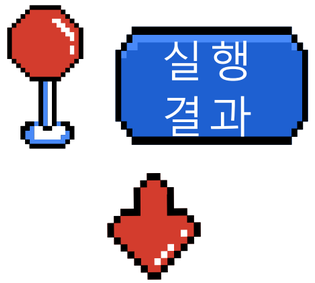
점수 표시

점수는 게임 오버되기 전까지
일정하게 증가

클릭으로 방향 조절

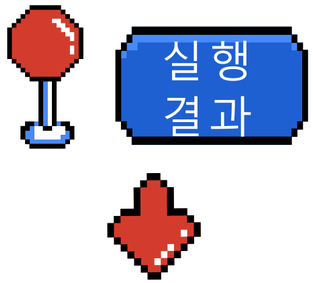
상하좌우 버튼 클릭으로
네모를 움직임.

코드 소개




```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0"/>
<style>
canvas {
    border: 1px solid #d3d3d3;
    background-color: #f1f1f1;
}
</style>
</head>
<body onload="startGame()">
<script>

function startGame() {
    myGameArea.start();
}

var myGameArea = {
    canvas : document.createElement("canvas"),
    start : function() {
        this.canvas.width = 480;
        this.canvas.height = 270;
        this.context = this.canvas.getContext("2d");
        document.body.insertBefore(this.canvas, document.body.childNodes[0]);
    }
}

</script>

<p>We have created a game area! (or at least an empty canvas)</p>

</body>
</html>
```

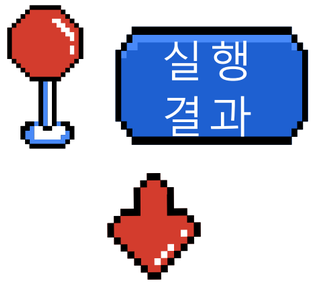
코드 소개



```
    var myGamePiece;

    function startGame() {
      myGameArea.start();
      myGamePiece = new component(30, 30, "red", 10, 120);
    }
```

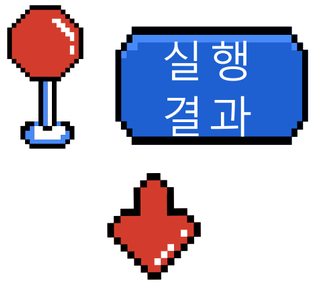
```
var myGameArea = {
  canvas : document.createElement("canvas"),
  start : function() {
    this.canvas.width = 480;
    this.canvas.height = 270;
    this.context = this.canvas.getContext("2d");
    document.body.insertBefore(this.canvas, document.body.childNodes[0]);
    this.interval = setInterval(updateGameArea, 20);
  },
  clear : function() {
    this.context.clearRect(0, 0, this.canvas.width, this.canvas.height);
  }
}

function component(width, height, color, x, y) {
  this.width = width;
  this.height = height;
  this.x = x;
  this.y = y;
  this.update = function(){
    ctx = myGameArea.context;
    ctx.fillStyle = color;
    ctx.fillRect(this.x, this.y, this.width, this.height);
  }
}

function updateGameArea() {
  myGameArea.clear();
  myGamePiece.update();
}
```

코드 소개




```
function updateGameArea() {
  myGameArea.clear();
  myGamePiece.x += 1;
  myGamePiece.update();
}
```

코드 소개



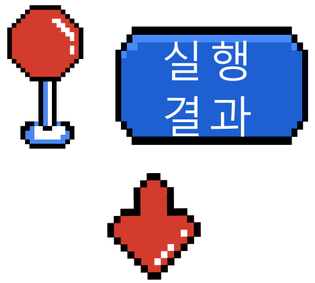
위로

왼쪽 오른쪽

아래에

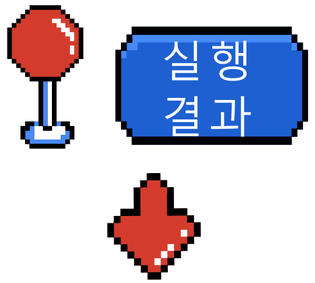
```
<script>
function component(width, height, color, x, y) {
  this.width = width;
  this.height = height;
  this.speedX = 0;
  this.speedY = 0;
  this.x = x;
  this.y = y;
  this.update = function() {
    ctx = myGameArea.context;
    ctx.fillStyle = color;
    ctx.fillRect(this.x, this.y, this.width, this.height);
  }
  this.newPos = function() {
    this.x += this.speedX;
    this.y += this.speedY;
  }
}

function updateGameArea() {
  myGameArea.clear();
  myGamePiece.newPos();
  myGamePiece.update();
}

function moveup() {
  myGamePiece.speedY -= 1;
}

function movedown() {
  myGamePiece.speedY += 1;
}

function moveleft() {
  myGamePiece.speedX -= 1;
}

function moveright() {
  myGamePiece.speedX += 1;
}
</script>

<button onclick="moveup()">UP</button>
<button onclick="movedown()">DOWN</button>
<button onclick="moveleft()">LEFT</button>
<button onclick="moveright()">RIGHT</button>
```

코드 소개



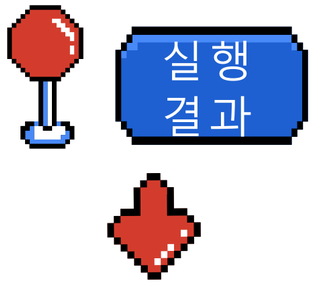

```
function stopMove() {
  myGamePiece.speedX = 0;
  myGamePiece.speedY = 0;
}
</script>

<button onmousedown="moveup()" onmouseup="stopMove()" ontouchstart="moveup()">UP</button>
<button onmousedown="movedown()" onmouseup="stopMove()" ontouchstart="movedown()">DOWN</button>
<button onmousedown="moveleft()" onmouseup="stopMove()" ontouchstart="moveleft()">LEFT</button>
<button onmousedown="moveright()" onmouseup="stopMove()" ontouchstart="moveright()">RIGHT</button>
```

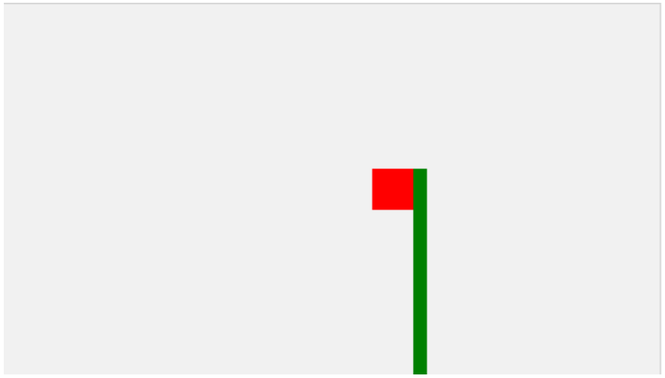
코드 소개



```
var myGamePiece;
var myObstacle;

function startGame() {
  myGamePiece = new component(30, 30, "red", 10, 120);
  myObstacle = new component(10, 200, "green", 300, 120);
  myGameArea.start();
}

function updateGameArea() {
  myGameArea.clear();
  myObstacle.update();
  myGamePiece.newPos();
  myGamePiece.update();
}
```

코드 소개



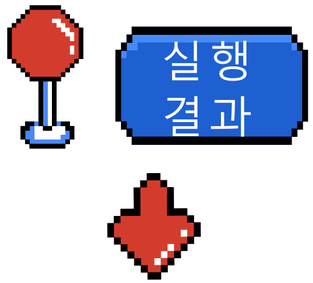


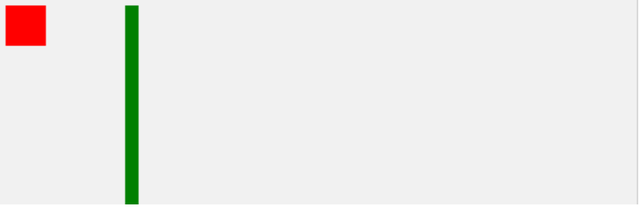
```
  stop : function() {
    clearInterval(this.interval);
  }
}
```

```
function updateGameArea() {
  if (myGamePiece.crashWith(myObstacle)) {
    myGameArea.stop();
  } else {
    myGameArea.clear();
    myObstacle.update();
    myGamePiece.newPos();
    myGamePiece.update();
  }
}
```

```
this.crashWith = function(otherobj) {
  var myleft = this.x;
  var myright = this.x + (this.width);
  var mytop = this.y;
  var mybottom = this.y + (this.height);
  var otherleft = otherobj.x;
  var otherright = otherobj.x + (otherobj.width);
  var othertop = otherobj.y;
  var otherbottom = otherobj.y + (otherobj.height);
  var crash = true;
  if ((mybottom < othertop) ||
  (mytop > otherbottom) ||
  (myright < otherleft) ||
  (myleft > otherright)) {
    crash = false;
  }
  return crash;
}
```

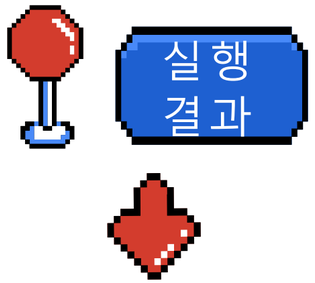
코드 소개





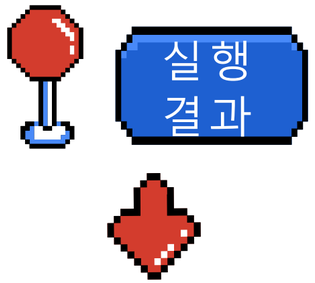
```
function updateGameArea() {
  if (myGamePiece.crashWith(myObstacle)) {
    myGameArea.stop();
  } else {
    myGameArea.clear();
    myObstacle.x += -1;
    myObstacle.update();
    myGamePiece.newPos();
    myGamePiece.update();
  }
}
```

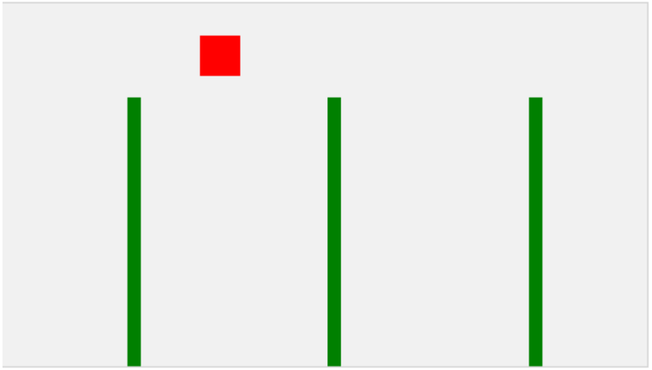
코드 소개




```
var myGameArea = {
  canvas : document.createElement("canvas"),
  start : function() {
    this.canvas.width = 480;
    this.canvas.height = 270;
    this.context = this.canvas.getContext("2d");
    document.body.insertBefore(this.canvas, document.body.childNodes[0]);
    this.frameNo = 0;


function everyinterval(n) {
  if ((myGameArea.frameNo / n) % 1 == 0) {return true;}
  return false;
}
```

코드 소개

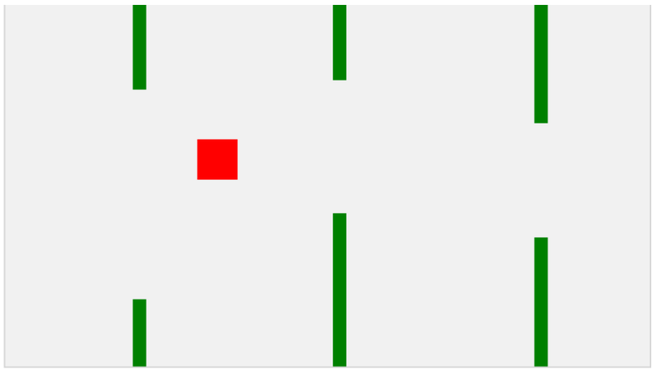




```
var myGamePiece;
var myObstacles = [];

function updateGameArea() {
  var x, y;
  for (i = 0; i < myObstacles.length; i += 1) {
    if (myGamePiece.crashWith(myObstacles[i])) {
      myGameArea.stop();
      return;
    }
  }
  myGameArea.clear();
  myGameArea.frameNo += 1;
  if (myGameArea.frameNo == 1 || everyinterval(150)) {
    x = myGameArea.canvas.width;
    y = myGameArea.canvas.height - 200
    myObstacles.push(new component(10, 200, "green", x, y));
  }
  for (i = 0; i < myObstacles.length; i += 1) {
    myObstacles[i].x += -1;
    myObstacles[i].update();
  }
  myGamePiece.newPos();
  myGamePiece.update();
}
```

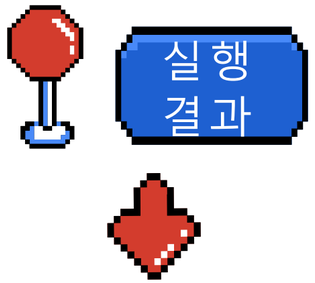
코드 소개

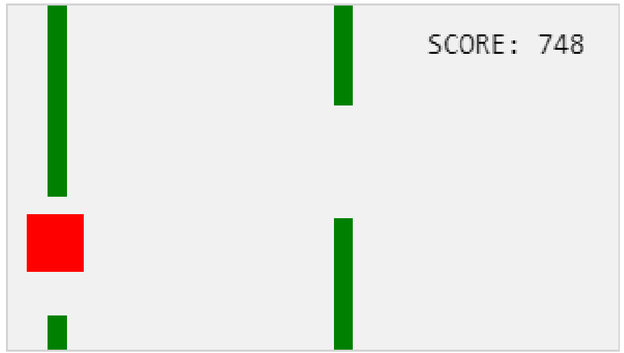
실행 결과



```
if (myGameArea.frameNo == 1 || everyinterval(150)) {
  x = myGameArea.canvas.width;
  minHeight = 20;
  maxHeight = 200;
  height = Math.floor(Math.random()*(maxHeight-minHeight+1)+minHeight);
  minGap = 50;
  maxGap = 200;
  gap = Math.floor(Math.random()*(maxGap-minGap+1)+minGap);
  myObstacles.push(new component(10, height, "green", x, 0));
  myObstacles.push(new component(10, x - height - gap, "green", x, height + gap));
}
```

코드 소개

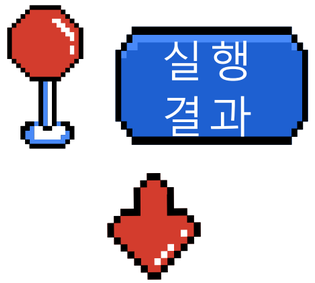


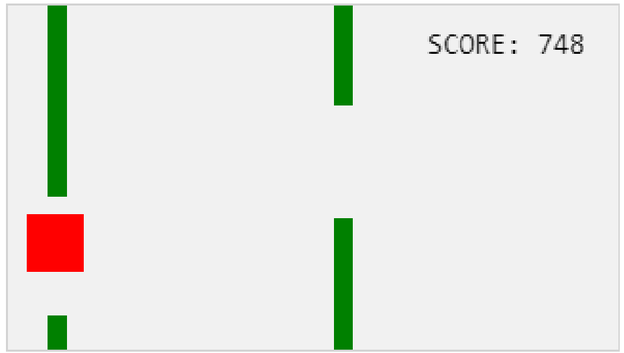



```
var myGamePiece;
var myObstacles = [];
var myScore;

function startGame() {
  myGamePiece = new component(30, 30, "red", 10, 160);
  myScore = new component("30px", "Consolas", "black", 280, 40, "text");
  myGameArea.start();
}
```

```
function component(width, height, color, x, y, type) {
  this.type = type;
  this.width = width;
  this.height = height;
  this.speedX = 0;
  this.speedY = 0;
  this.x = x;
  this.y = y;
  this.update = function() {
    ctx = myGameArea.context;
    if (this.type == "text") {
      ctx.font = this.width + " " + this.height;
      ctx.fillStyle = color;
      ctx.fillText(this.text, this.x, this.y);
    } else {
      ctx.fillStyle = color;
      ctx.fillRect(this.x, this.y, this.width, this.height);
    }
  }
...
}
```

코드 소개






```
function updateGameArea() {
  var x, height, gap, minHeight, maxHeight, minGap, maxGap;
  for (i = 0; i < myObstacles.length; i += 1) {
    if (myGamePiece.crashWith(myObstacles[i])) {
      myGameArea.stop();
      return;
    }
  }
  myGameArea.clear();
  myGameArea.frameNo += 1;
  if (myGameArea.frameNo == 1 || everyinterval(150)) {
    x = myGameArea.canvas.width;
    minHeight = 20;
    maxHeight = 200;
    height = Math.floor(Math.random()*(maxHeight-minHeight+1)+minHeight);
    minGap = 50;
    maxGap = 200;
    gap = Math.floor(Math.random()*(maxGap-minGap+1)+minGap);
    myObstacles.push(new component(10, height, "green", x, 0));
    myObstacles.push(new component(10, x - height - gap, "green", x, height + gap));
  }
  for (i = 0; i < myObstacles.length; i += 1) {
    myObstacles[i].speedX = -1;
    myObstacles[i].newPos();
    myObstacles[i].update();
  }
  myScore.text = "SCORE: " + myGameArea.frameNo;
  myScore.update();
  myGamePiece.newPos();
  myGamePiece.update();
}
```

감사합니다!

발표를 종료하시겠습니까?