

Contemporary Data Processing Technology (CCOD)

Lab 1 (September 08, 2016)

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Controll two metro cars using Speed, Distance, and Brake

In this work we are design a virtual loop with 1000 pixels on which two metro cars.

Metro cars at the start have a speed of 10 points and move in a clockwise direction. At each iteration the speed changes by -1, 0, +1 randomly. Animation stops when trains collide. If the speed of the metro cars falls less than zero then it is equal to zero. To document attached .gif animation showing the operation of the program and some results: distance between cars and speed.

The source code:

code.js

```
function CornerToCoord(x, y, r, corner) {
    return {
        x: Math.round(x + r * Math.cos(corner)),
        y: Math.round(y + r * Math.sin(corner))
    }
}

var corner_1 = Math.PI/2;
var corner_2 = (3/2) * Math.PI;
var tr_1 = {
    speed: 10,
    stop: 0,
    dist: 500
};
var tr_2 = {
    speed: 10,
    stop: 0,
    dist: 500
};

function Render(corner_1, corner_2) {
    var coord_1 = CornerToCoord(250, 250, 200, corner_1);
    var coord_2 = CornerToCoord(250, 250, 200, corner_2);
    console.log('x', coord_1.x);
    console.log('y', coord_1.y);
    var canvas = document.getElementById("myExersize");
```

```

var prd = canvas.getContext("2d");
prd.clearRect(0, 0, 500, 500);
prd.beginPath();
prd.fillStyle = "black";
prd.arc(250, 250, 200, 0, 2 * Math.PI);
prd.stroke();
prd.beginPath();
prd.fillStyle = "red";
prd.fillRect(coord_1.x - 9, coord_1.y - 9, 18, 18);
prd.beginPath();
prd.fillStyle = "#f1c40f";
prd.fillRect(coord_2.x - 9, coord_2.y - 9, 18, 18);
console.log('Draw');
}

```

```

var isStop = false;

```

```

setInterval(() => {
    if (isStop) {
        return;
    }
    IzmenenieZhach();
}, 50);

```

```

function IzmenenieZhach()
{
    console.log('corner_1', corner_1);
    console.log('corner_2', corner_2);
    Render(corner_1, corner_2);
    var divTrainOne = document.getElementById("TrainOne");
    var divTrainTwo = document.getElementById("TrainTwo");
    if (tr_1.dist <= 0 || tr_2.dist <= 0)
    {
        Render(corner_1, corner_1);
        tr_1.dist = tr_1.dist <= 0 ? 0 : 1000;
        tr_2.dist = tr_2.dist <= 0 ? 0 : 1000;
        isStop = true;
    }
}

```

```

    }

    divTrainOne.innerText = 'Train One:\nSpeed: ' + tr_1.speed + '\nDistance: ' +
tr_1.dist;

    divTrainTwo.innerText = 'Train Two:\nSpeed: ' + tr_2.speed + '\nDistance: ' +
tr_2.dist;

    tr_1.speed += Math.floor(3 * Math.random()) - 1;
    if (tr_1.speed < 0)
    {
        tr_1.speed = 0;
    }
    tr_1.dist -= tr_1.speed;
    tr_2.dist += tr_1.speed;
    tr_2.speed += Math.floor(3 * Math.random()) - 1;
    if (tr_2.speed < 0)
    {
        tr_2.speed = 0;
    }
    tr_2.dist -= tr_2.speed;
    tr_1.dist += tr_2.speed;
    console.log('tr_1.speed', tr_1.speed);
    console.log('tr_1.dist', tr_1.dist);
    console.log('tr_2.speed', tr_2.speed);
    console.log('tr_2.dist', tr_2.dist);
    corner_1 += tr_1.speed * Math.PI / 500;
    corner_2 += tr_2.speed * Math.PI / 500;
}

```

page.html

```

<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <title>Lab</title>
</head>
<body>
    <div style="width:500px; margin:2px;">
        <div style="display:block; text-align:center">Data:</div>
        <div style="text-align:center">

```

```
<div id="TrainOne" style="display:inline-block; border:3px solid red"></div>
<div id="TrainTwo" style="display:inline-block; border:3px solid blue"></div>
</div>
</div>
<canvas id="myExersize" width="500" height="500" style="border:3px solid #2ecc71;
background:#9b59b6">
</canvas>
<script src="./code.js"></script>
</body>
</html>
```