

Lab #2 Muzyka Alexandr 18.09.2016

script.js:

```
"use strict";
let cnv = document.getElementById("cnv");
let img=document.getElementById("train");
let ctx = cnv.getContext("2d");
let xMedium = (new Map()).set(6, 0).set(7, 0.25).set(8, 0.5).set(9, 0.75).set(10, 1).set(11, 0.75).set(12, 0.5).set(13, 0.25).set(14, 0);
let zStrong = (new Map()).set(4.5, 0).set(4.875, 0.25).set(5.25, 0.5).set(5.625, 0.75).set(6, 1).set(6.375, 0.75).set(6.75, 0.5).set(7.125, 0.25).set(7.5, 0);
let zMedium = (new Map()).set(3, 0).set(3.375, 0.25).set(3.75, 0.5).set(4.125, 0.75).set(4.5, 1).set(4.875, 0.75).set(5.25, 0.5).set(5.625, 0.25).set(6, 0);
let zWeak = (new Map()).set(1.5, 0).set(1.875, 0.25).set(2.25, 0.5).set(2.625, 0.75).set(3, 1).set(3.375, 0.75).set(3.75, 0.5).set(4.125, 0.25).set(4.5, 0);

const cnvWidth = cnv.getAttribute("width");
const cnvHeight = cnv.getAttribute("height");
const radius = 1000/(2*3.14);

let train1Angle = 0;
let train2Angle = 180;
let train1Speed = 10;
let train2Speed = 10;

function changeSpeed() {
  if(Math.random()<0.5){
    if(train1Speed<=18){
      if(Math.random()<0.5){
        train1Speed++;
      }else{
        train1Speed+=2;
      }
    }
  } else if(train1Speed>=2){
    if(Math.random()<0.5){
      train1Speed--;
    }else{
      train1Speed-=2;
    }
  }
}

if(Math.random()<0.5){
  if(train2Speed<=18){
    if(Math.random()<0.5){
      train2Speed++;
    }else{
      train2Speed+=2;
    }
  }
} else if(train2Speed>=2){
  if(Math.random()<0.5){
    train2Speed--;
  }else{
    train2Speed-=2;
  }
}
}

function updateView() {

  ctx.clearRect(0,0,cnvWidth,cnvHeight);

  ctx.beginPath();
  ctx.lineWidth = 5;
  ctx.setLineDash([10]);
  ctx.arc(cnvWidth/2, cnvHeight/2, radius, 0, 2*Math.PI);
  ctx.arc(cnvWidth/2, cnvHeight/2, radius-10, 0, 2*Math.PI);
  ctx.stroke();

  let point1 = getXY(train1Angle);
```

```

ctx.drawImage(img,point1.x-30,point1.y-22.5);
let point2 = getXY(train2Angle);
ctx.drawImage(img,point2.x-30,point2.y-22.5);

train1Angle += train1Speed;
train2Angle += train2Speed;

if(Math.abs(point1.x-point2.x)<15 && Math.abs(point1.y-point2.y)<15 ){
  clearInterval(interval1);
  clearInterval(interval2);
}

let distanceX = Math.abs(train1Angle-train2Angle) * Math.PI / 180 * radius;
let brake1 = 0;
let brake2 = 0;

if(distanceX<=50){
  //train1Speed = train1Speed>=9 ? train1Speed-9 : 0;
  brake1 = 9;
}else if(train1Speed>=14) {
  //train1Speed-=1;
  brake1 = 1;
}

if(1000-distanceX<=50){
  //train2Speed = train2Speed>=9 ? train2Speed-9 : 0;
  brake2 = 9;
}else if(train2Speed>=14) {
  //train2Speed-=1;
  brake2 = 1;
}

document.getElementById("speedTrain1").innerHTML = train1Speed;
document.getElementById("brake1").innerHTML = brake1;
document.getElementById("distanceX").innerHTML = distanceX;
document.getElementById("speedTrain2").innerHTML = train2Speed;
document.getElementById("distanceY").innerHTML = 1000-distanceX;
document.getElementById("brake2").innerHTML = brake2;
debugger;
document.getElementById("u1").innerHTML = Math.max((xMedium.get(train1Speed) || 0)*(zStrong.get(brake1) || 0),
(xMedium.get(train1Speed) || 0)*(zMedium.get(brake1) || 0), (xMedium.get(train1Speed) || 0)*(zWeak.get(brake1)) || 0);
document.getElementById("u2").innerHTML = Math.max((xMedium.get(train2Speed) || 0)*(zStrong.get(brake2) || 0),
(xMedium.get(train2Speed) || 0)*(zMedium.get(brake2) || 0), (xMedium.get(train2Speed) || 0)*(zWeak.get(brake2)) || 0);

train1Speed-=brake1;
train2Speed-=brake2;
if(train1Speed<0)train1Speed=0;
if(train2Speed<0)train2Speed=0;

}

function getXY(angle) {
  let x = Math.cos( angle * Math.PI / 180) * radius + cnvWidth/2;
  let y = Math.sin( angle * Math.PI / 180) * radius + cnvHeight/2;
  return {x,y};
}

let interval1 = setInterval(changeSpeed, 500);
let interval2 = setInterval(updateView,100);

```

index.html :

```

<!DOCTYPE html>
<html>
  <head>
    <title>lab #1</title>
  </head>
  <body>

```

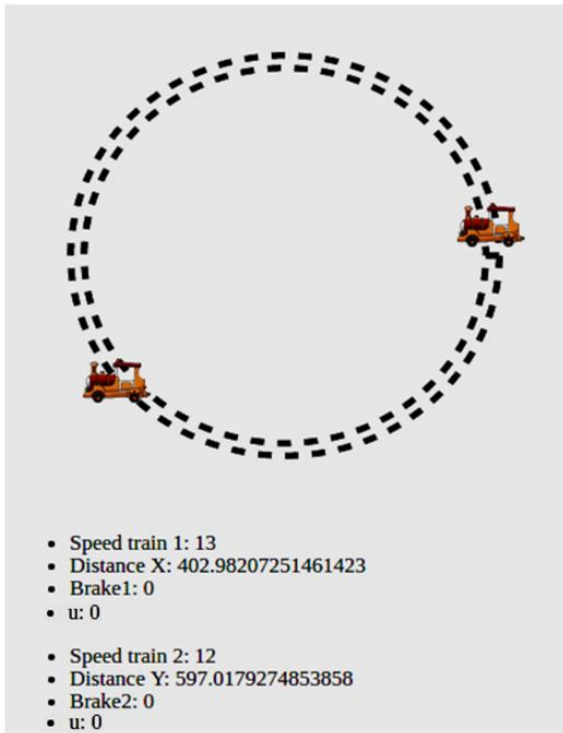
```
<canvas id="cnv" width="400" height="400"></canvas>
<ul>
  <li>Speed train 1: <space id="speedTrain1">10</space></li>
  <li>Distance X: <space id="distanceX">10</li>
  <li>Brake1: <space id="brake1">0</li>
  <li>u: <space id="u1">0</li>

  <br><br>

  <li>Speed train 2: <space id="speedTrain2">10</space></li>
  <li>Distance Y: <space id="distanceY">10</li>
  <li>Brake2: <space id="brake2">0</li>
  <li>u: <space id="u2">0</li>
</ul>

</body>
</html>

<script src = "src/script.js"></script>
```

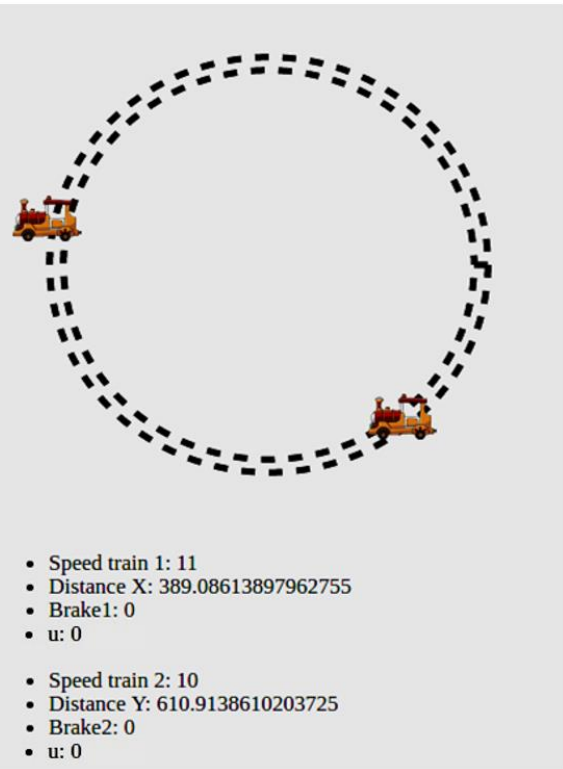


Train 1

						U
	0.25		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	0.25		1		0	0
If	x=medium	&	y=medium	=>	z=medium	
	0.25		0		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0

Train 2

						U
	0.5		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	0.5		0		0	0
If	x=medium	&	y=medium	=>	z=medium	
	0.5		1		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0

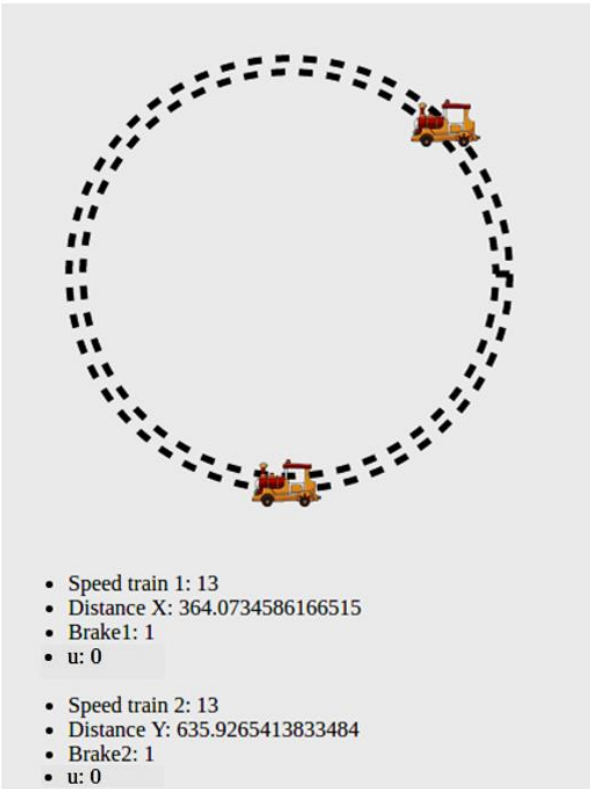


Train 1

						U
	0.75		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	0.75		1		0	0
If	x=medium	&	y=medium	=>	z=medium	
	0.75		0		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0

Train 2

						U
	1		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	1		0		0	0
If	x=medium	&	y=medium	=>	z=medium	
	1		1		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0

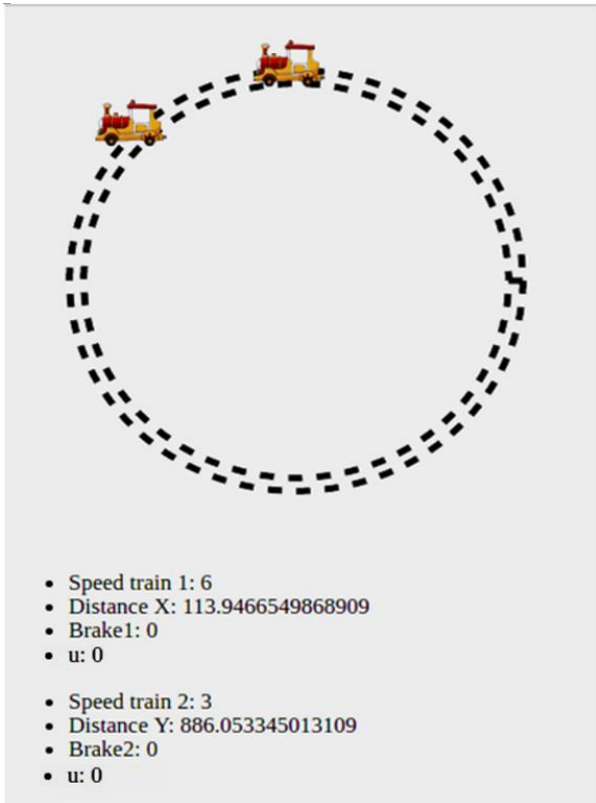


Train 1

					U
	0.25		0		0
If	x=medium	&	y=small	=>	z=strong
	0.25		1		0
If	x=medium	&	y=medium	=>	z=medium
	0.25		0		0
If	x=medium	&	y=large	=>	z=week
Max					0

Train 2

					U
	0.25		0		0
If	x=medium	&	y=small	=>	z=strong
	0.25		0		0
If	x=medium	&	y=medium	=>	z=medium
	0.25		1		0
If	x=medium	&	y=large	=>	z=week
Max					0

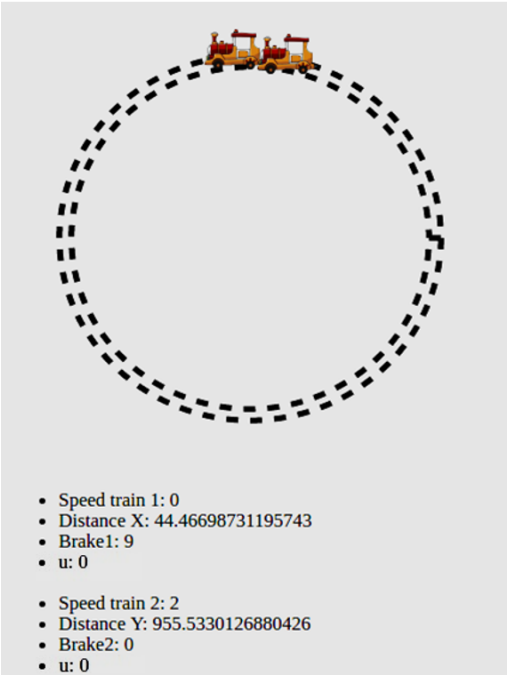


Train 1

					U
	0		0		0
If	x=medium	&	y=small	=>	z=strong
	0		0		0
If	x=medium	&	y=medium	=>	z=medium
	0		0		0
If	x=medium	&	y=large	=>	z=week
Max					0

Train 2

					U
	0		0		0
If	x=medium	&	y=small	=>	z=strong
	0		0		0
If	x=medium	&	y=medium	=>	z=medium
	0		0		0
If	x=medium	&	y=large	=>	z=week
Max					0



Train 1

						U
	0		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	0		0		0	0
If	x=medium	&	y=medium	=>	z=medium	
	0		0		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0

Train 2

						U
	0		0		0	0
If	x=medium	&	y=small	=>	z=strong	
	0		0		0	0
If	x=medium	&	y=medium	=>	z=medium	
	0		0		0	0
If	x=medium	&	y=large	=>	z=week	
Max						0