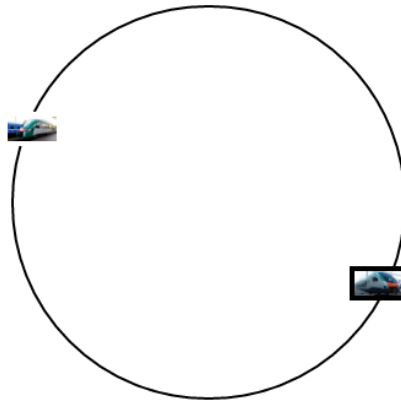




fst speed: 10  
snd speed: 14

fst to snd distance is 449  
snd to fst distance is 551

fst train brake: 0  
snd train brake: 1

Mu = 0

Fst train

Mu\_Speed = 10=>mu\_s=1;

Mu\_Dist = 449=>mu\_d=0.75;

Mu\_Brake = 1=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0

Snd train

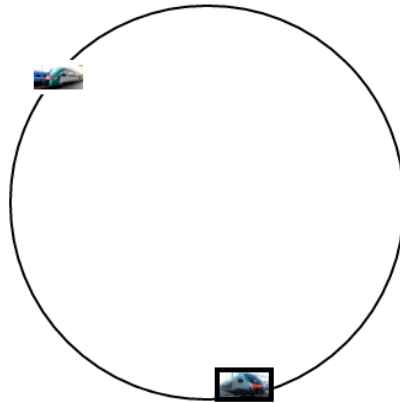
Mu\_Speed = 14=>mu\_s=0;

Mu\_Dist = 551=>mu\_d=0.25;

Mu\_Brake = 1=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0

Z will always be equals 0 so Mu will always be 0.



fst speed: 14  
snd speed: 0

fst to snd distance is 346  
snd to fst distance is 654

fst train brake: 1  
snd train brake: 0

Mu = 0

Fst train

Mu\_Speed = 14=>mu\_s=0;

Mu\_Dist = 346=>mu\_d=0.74;

Mu\_Brake = 1=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0

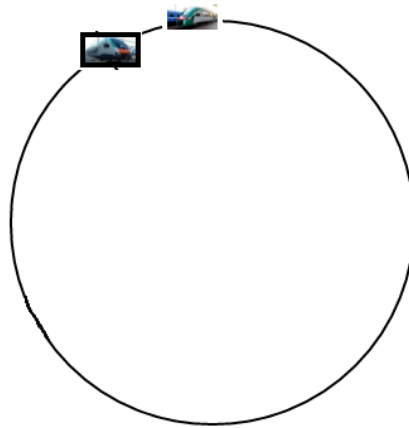
Snd train

Mu\_Speed = 0=>mu\_s=0;

Mu\_Dist = 654=>mu\_d=0;

Mu\_Brake = 0=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0



fst speed: 5  
snd speed: 2

fst to snd distance is 50  
snd to fst distance is 950

fst train brake: 9  
snd train brake: 0

Mu = 0

Fst train

Mu\_Speed = 5=>mu\_s=0;

Mu\_Dist = 50=>mu\_d=0;

Mu\_Brake = 9=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0

Snd train

Mu\_Speed = 2=>mu\_s=0;

Mu\_Dist = 950=>mu\_d=0;

Mu\_Brake = 0=>mu\_b=0;

M=min(mu\_s, mu\_d)\*mu\_b => M=0\*0=0

Source code:

Index.html

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <title></title>

  <link rel="stylesheet" href="css/style.css">

</head>

<body>


  <div class="subway_loop">

  </div>


  <div class="speed sndSpeed">snd speed: <span class="sndSpeedValue"></span></div>

  <div class="speed fstSpeed">fst speed: <span class="fstSpeedValue"></span></div>


  <div class="distance sndDistance">snd to fst distance is <span
class="sndDistanceValue"></span></div>

  <div class="distance fstDistance">fst to snd distance is <span class="fstDistanceValue"></span></div>


  <div class="brake brakesnd">snd train brake: <span class="brakesndValue"></span></div>

  <div class="brake brakefst">fst train brake: <span class="brakefstValue"></span></div>

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

</body>

</html>
```

Script.js

```
var fst = document.querySelector(".fst");
var snd = document.querySelector(".snd");
var sndSpeedValue = document.querySelector(".sndSpeedValue");
var sndDistanceValue = document.querySelector(".sndDistanceValue");
var fstSpeedValue = document.querySelector(".fstSpeedValue");
var fstDistanceValue = document.querySelector(".fstDistanceValue");
var brakefstValue = document.querySelector(".brakesndValue");
var brakesndValue = document.querySelector(".brakefstValue");
var startSpeed = 0.001;
var x0 = 77;
var y0 = 74;
var r = 79;
var i = -1.5;
var j = 1.5;
var start = Date.now();
var sndSpeed = 0.001,
    fstSpeed = 0.001;
var rand;
var sndway = 0,
    fstway = 0;

var rightsnd = snd.style.left + 20;
var leftsnd = snd.style.left;

var rightfst = fst.style.left + 20;
var leftfst = fst.style.left;

var topsnd = snd.style.top;
```

```
var bottomsnd = snd.style.top - 10;
```

```
var topfst = fst.style.top - 10;
```

```
var bottomfst = fst.style.top;
```

```
var timer = setInterval(function () {  
    brakefstValue.innerHTML = 0;  
    brakesndValue.innerHTML = 0;  
    var timePassed = Date.now() - start;  
    snd.style.left = x0 + r * Math.cos(i) - 35 + 'px';  
    snd.style.top = y0 + r * Math.sin(i) - 5 + 'px';
```

```
    fst.style.left = x0 + r * Math.cos(j) - 10 + 'px';  
    fst.style.top = y0 + r * Math.sin(j) - 5 + 'px';
```

```
    i = i + sndSpeed;
```

```
    j = j + fstSpeed;
```

```
    rand = randomValue(-2, 2) / 10000;
```

```
    if (sndSpeed > 0 || rand > 0) {
```

```
        sndSpeed += rand;
```

```
    }
```

```
    if (sndSpeed > 0.002) sndSpeed = 0.002;
```

```
    sndway += sndSpeed;
```

```
    sndSpeedValue.innerHTML = Math.round(sndSpeed * 10000);
```

```
    sndDistanceValue.innerHTML = 500 + Math.round(Math.abs(sndway - fstway) / 6.0414 * 1000);
```

```
    rand = randomValue(-2, 2) / 10000;
```

```
    if (fstSpeed > 0 || rand > 0) {
```

```

    fstSpeed += rand;
}
if (fstSpeed > 0.002) fstSpeed = 0.002;
fstway += fstSpeed;

fstSpeedValue.innerHTML = Math.round(fstSpeed * 10000);

fstDistanceValue.innerHTML = 1000 - (500 + Math.round(Math.abs(sndway - fstway) / 6.0414 * 1000));

//start second task code
//{if x>=14 then z=1, x=x-1}
if (Math.round(fstSpeed * 10000) >= 14) {
    fstSpeed -= 1;
    brakesndValue.innerHTML = "1";
    console.log("fst 1")
}
if (Math.round(sndSpeed * 10000) >= 14) {
    sndSpeed -= 1;
    brakefstValue.innerHTML = "1";
    console.log("snd 1")
}

//{if y<=50 then z=9, x=x-9}
if (1000 - (500 + Math.round(Math.abs(sndway - fstway) / 6.0414 * 1000)) <= 50) {
    fstSpeed -= 9;
    brakefstValue.innerHTML = "9";
}
if (500 + Math.round(Math.abs(sndway - fstway) / 6.0414 * 1000) <= 50) {
    sndSpeed -= 9;
    brakesndValue.innerHTML = "9";
}

```

```
if (sndSpeed < 0) sndSpeed = 0;
if (fstSpeed < 0) fstSpeed = 0;
//end second task code
if (Math.abs(sndway - fstway) > 3.02) {
    clearInterval(timer);
}

}, 0.5);
```

```
function randomValue(min, max) {
    return Math.round(min - 0.5 + Math.random() * (max - min + 1));
}
```

Style.css

```
.subway_loop {
    margin: 20% auto;
    width: 159px;
    height: 159px;
    border: 1px solid black;
    border-radius: 80px;
}
```

```
.train {
    position: relative;
    border: 2px solid;
}
```

```
.snd {
```

```
left: 50%;  
top: 0;  
border-color: #FFFFFF;  
}
```

```
.fst {  
left: 50%;  
top: 100%;  
border-color: black;  
}
```

```
.speed {  
position: fixed;  
font-size: 14px;  
left: 5%;  
  
}
```

```
.sndSpeed {  
bottom: 0px;  
}
```

```
.fstSpeed {  
bottom: 20px;  
}
```

```
.distance{  
position: fixed;  
font-size: 14px;  
left: 35%;  
}
```

```
.sndDistance {
```

```
    bottom: 0px;  
}
```

```
.fstDistance {  
    bottom: 20px;  
}
```

```
.brake {  
    position: fixed;  
    font-size: 14px;  
    left: 75%;  
}
```

```
.brakesnd {  
    bottom: 0px;  
}
```

```
.brakefst {  
    bottom: 20px;  
}
```