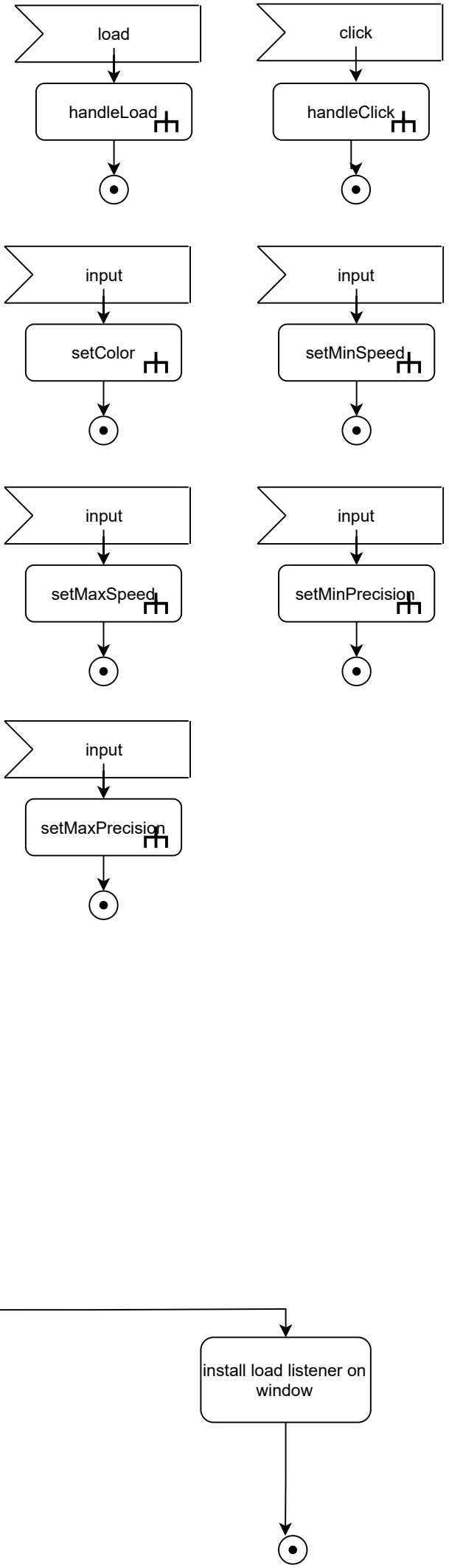
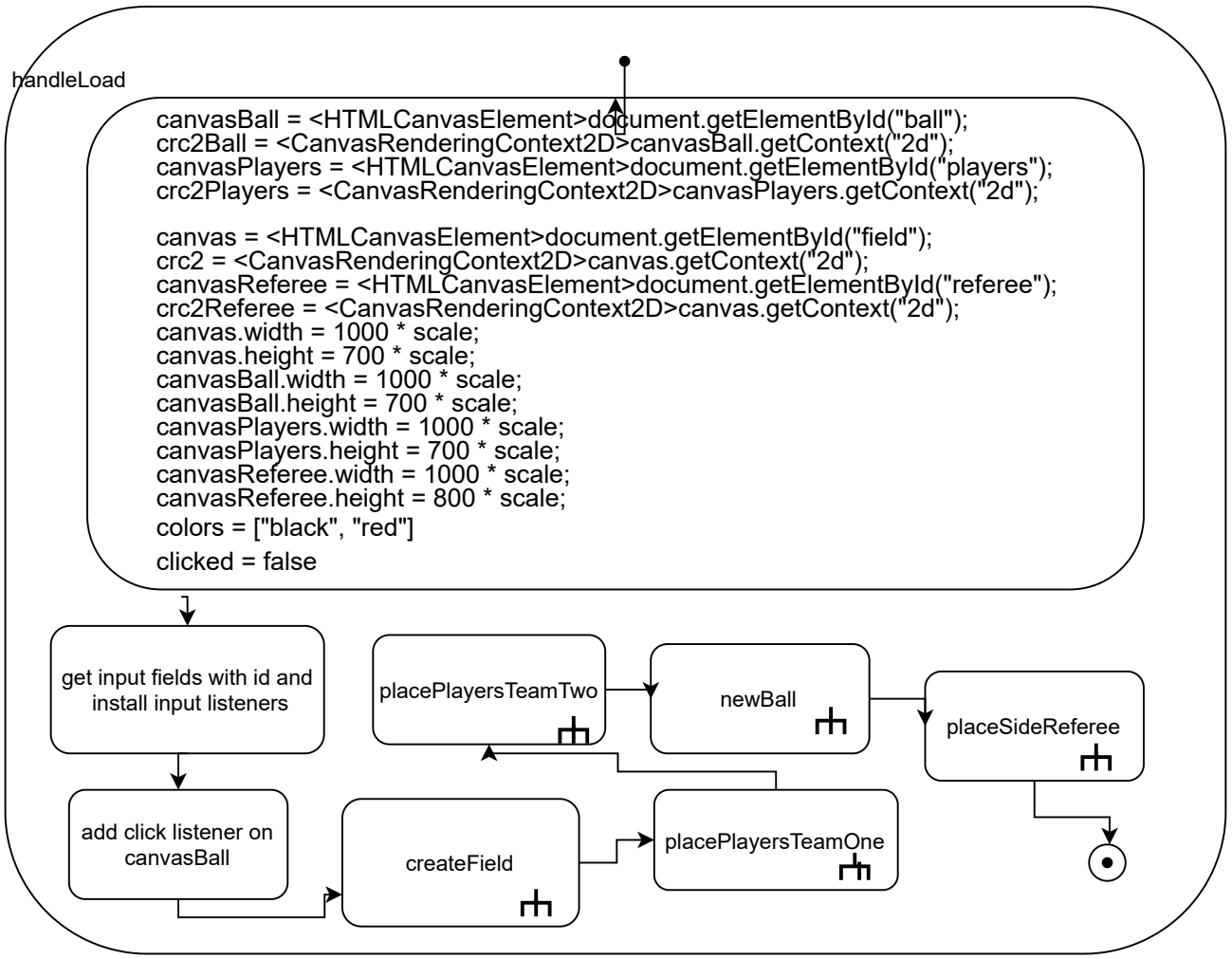
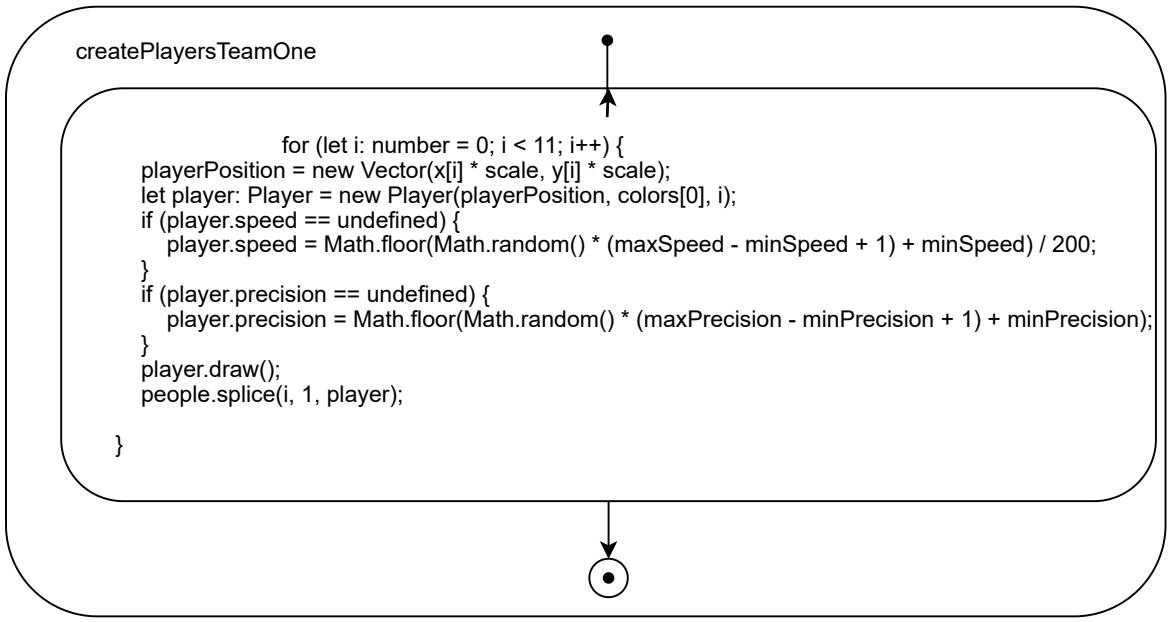
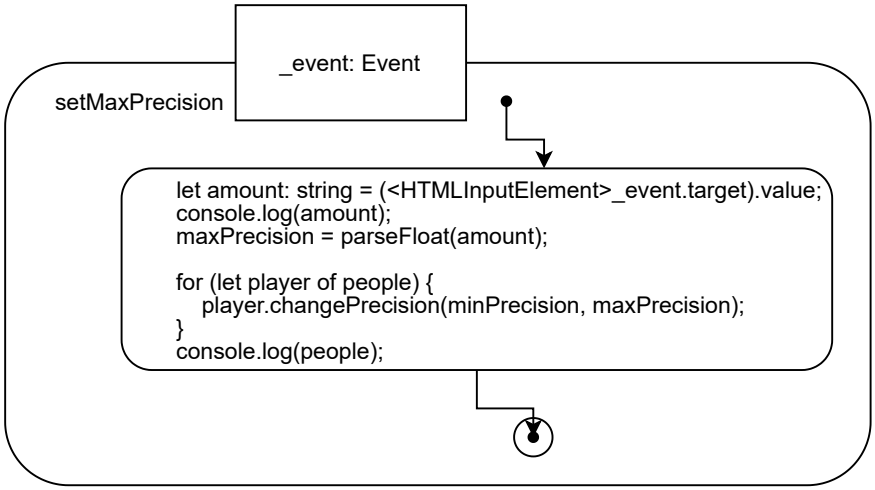
Football : Activity Diagramm

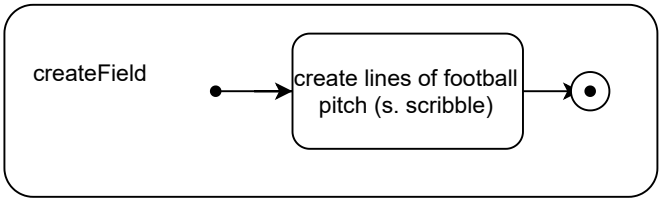
export let canvas: HTMLCanvasElement
export let crc2: CanvasRenderingContext2D
export let scale: number = window.devicePixelRatio
export let canvasBall: HTMLCanvasElement
export let canvasPlayers: HTMLCanvasElement
export let crc2Players: CanvasRenderingContext2D
export let canvasReferee: HTMLCanvasElement
export let crc2Referee: CanvasRenderingContext2D
let colorOne: HTMLInputElement
let colorTwo: HTMLInputElement
let minSpeedInput: HTMLInputElement
let maxSpeedInput: HTMLInputElement
let minPrecisionInput: HTMLInputElement
let maxPrecisionInput: HTMLInputElement
let form: HTMLDivElement
export let minSpeed: number = 1
export let maxSpeed: number = 5
let minPrecision: number = 1
let maxPrecision: number = 5
let scoreTeamOne: HTMLElement
let scoreTeamTwo: HTMLElement
let currentPlayer: HTMLElement
let playerNumber: HTMLElement
let playerSpeed: HTMLElement
let playerPrecision: HTMLElement
let x: number[] = [10, 150, 150, 150, 150, 425, 425, 425, 725, 750, 725]
let y: number[] = [350, 125, 275, 425, 575, 175, 350, 525, 125, 350, 575]
let a: number[] = [990, 850, 850, 850, 850, 575, 575, 575, 275, 250, 275]
let b: number[] = [350, 575, 425, 275, 125, 525, 350, 175, 575, 350, 125]
export let people: Player[] = []
export let colors: string[]
export let referees:Referee[] = []
export let clickX: number
export let clickY: number
export let ball: Ball
export let positionBall: Vector
export let playerPosition: Vector
export let i: number = 0
export let j: number = 6
let scores: number[] = [0, 0]
let ballMovement: number
let playerMovement: number
let clicked: boolean

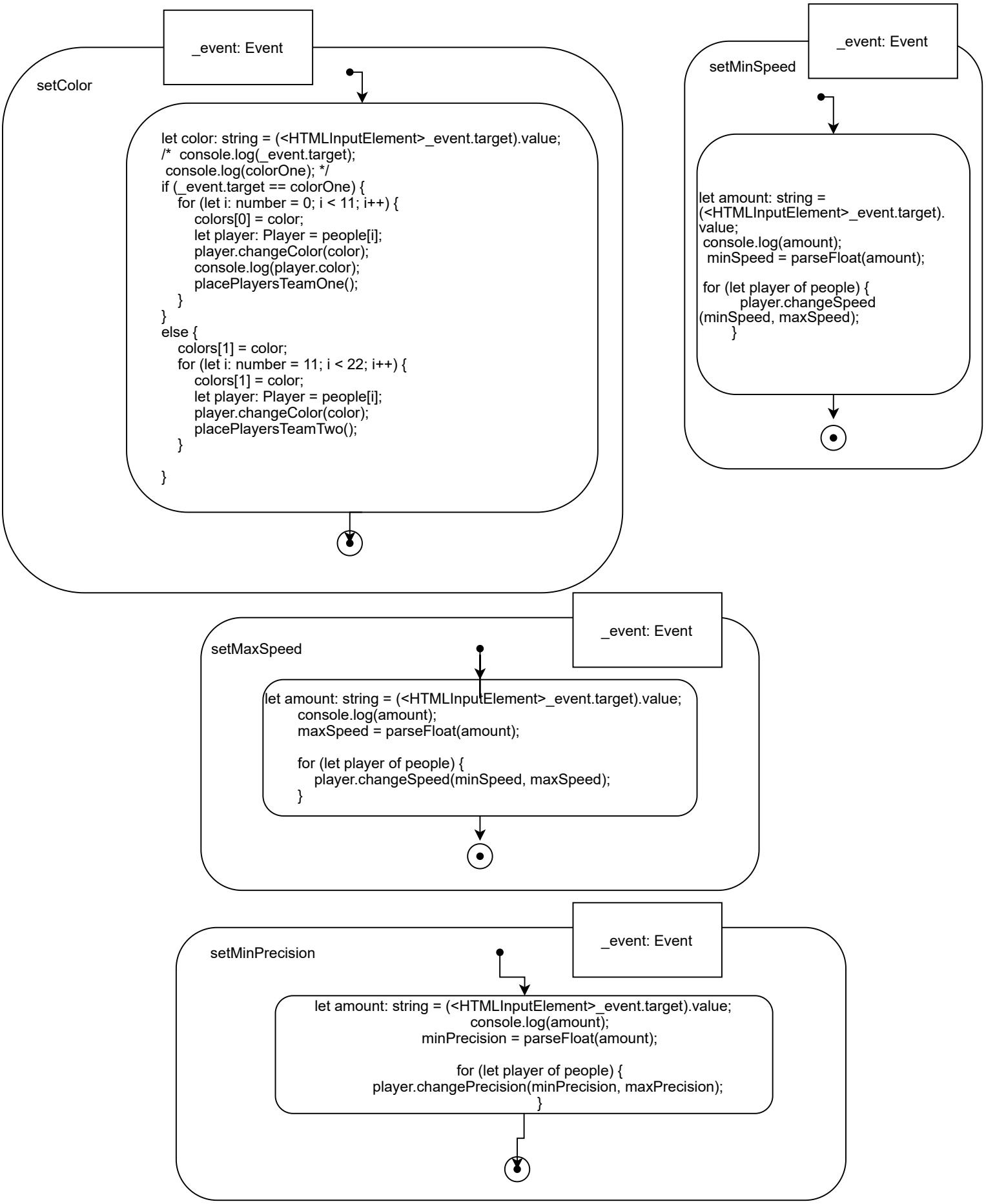


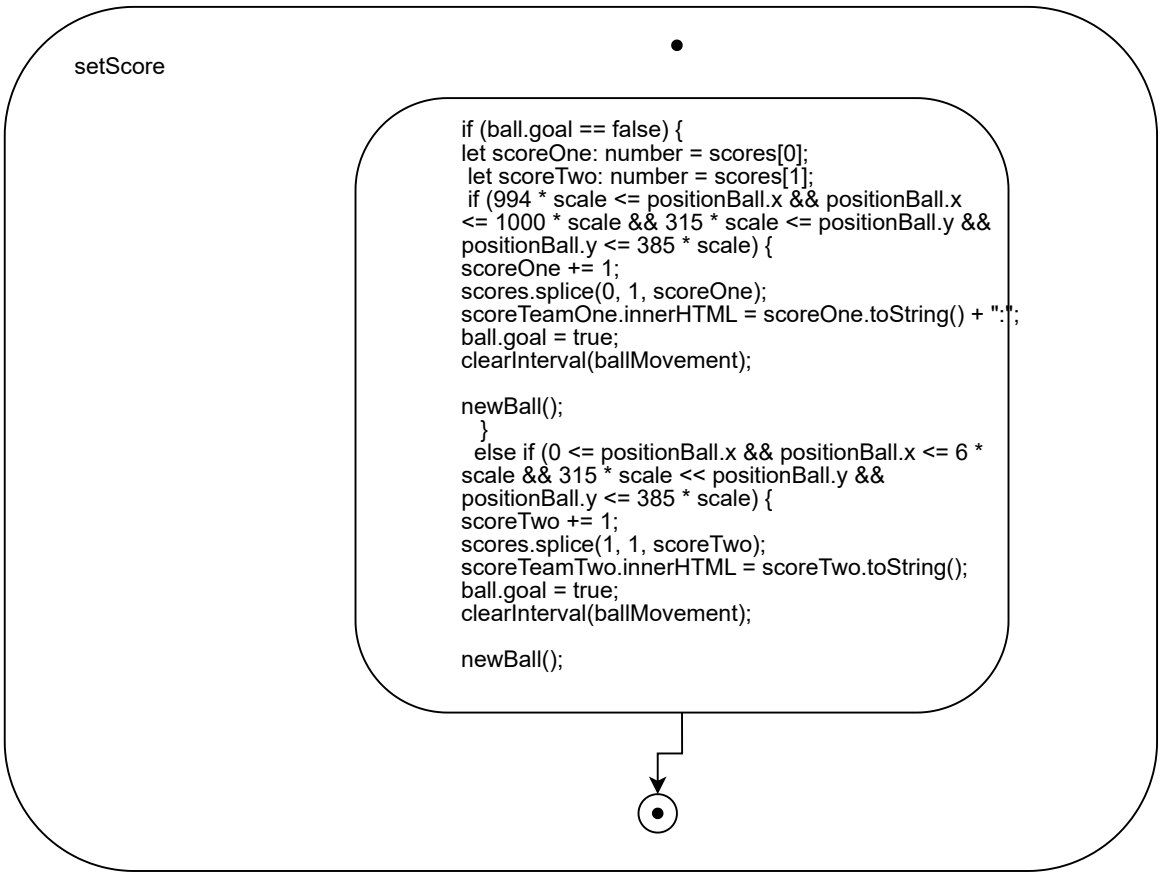

handleLoad
canvasBall = <HTMLCanvasElement>document.getElementById("ball");
crc2Ball = <CanvasRenderingContext2D>canvasBall.getContext("2d");
canvasPlayers = <HTMLCanvasElement>document.getElementById("players");
crc2Players = <CanvasRenderingContext2D>canvasPlayers.getContext("2d");
canvas = <HTMLCanvasElement>document.getElementById("field");
crc2 = <CanvasRenderingContext2D>canvas.getContext("2d");
canvasReferee = <HTMLCanvasElement>document.getElementById("referee");
crc2Referee = <CanvasRenderingContext2D>canvas.getContext("2d");
canvas.width = 1000 * scale;
canvas.height = 700 * scale;
canvasBall.width = 1000 * scale;
canvasBall.height = 700 * scale;
canvasPlayers.width = 1000 * scale;
canvasPlayers.height = 700 * scale;
canvasReferee.width = 1000 * scale;
canvasReferee.height = 800 * scale;
colors = ["black", "red"]
clicked = false
get input fields with id and install input listeners
add click listener on canvasBall
createField
placePlayersTeamTwo
placePlayersTeamOne
newBall
placeSideReferee

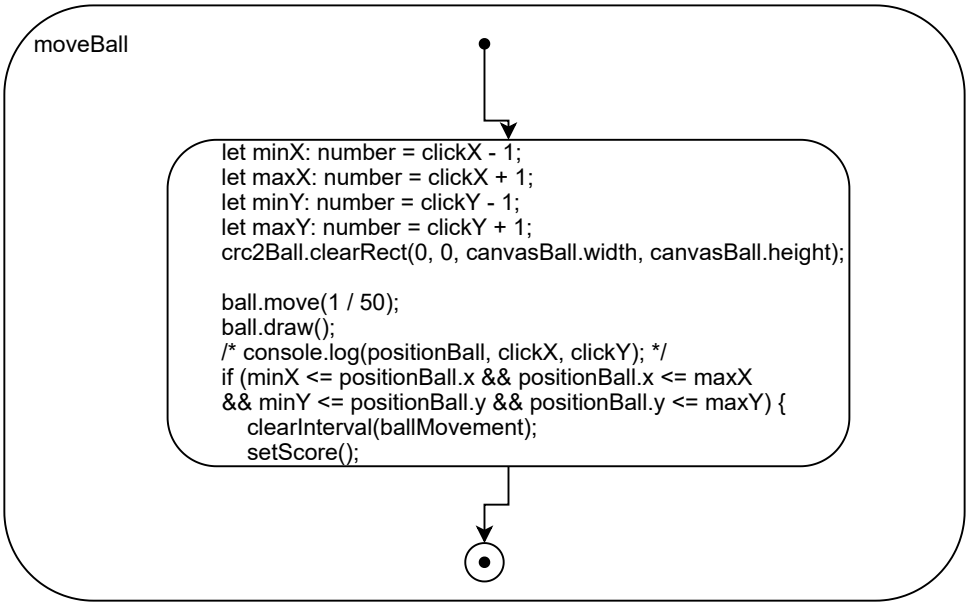

createPlayersTeamOne
for (let i: number = 0; i < 11; i++) {
playerPosition = new Vector(x[i] * scale, y[i] * scale);
let player: Player = new Player(playerPosition, colors[0], i);
if (player.speed == undefined) {
player.speed = Math.floor(Math.random() * (maxSpeed - minSpeed + 1) + minSpeed) / 200;
}
if (player.precision == undefined) {
player.precision = Math.floor(Math.random() * (maxPrecision - minPrecision + 1) + minPrecision);
}
player.draw();
people.splice(i, 1, player);
}


_event: Event
setMaxPrecision
let amount: string = (<HTMLInputElement>_event.target).value;
console.log(amount);
maxPrecision = parseFloat(amount);
for (let player of people) {
player.changePrecision(minPrecision, maxPrecision);
}
console.log(people);


createField
create lines of football pitch (s. scribble)


_event: Event
setColor
let color: string = (<HTMLInputElement>_event.target).value;
/* console.log(_event.target);
console.log(colorOne); */
if (_event.target == colorOne) {
for (let i: number = 0; i < 11; i++) {
colors[0] = color;
let player: Player = people[i];
player.changeColor(color);
console.log(player.color);
placePlayersTeamOne();
}
}
else {
colors[1] = color;
for (let i: number = 11; i < 22; i++) {
colors[1] = color;
let player: Player = people[i];
player.changeColor(color);
placePlayersTeamTwo();
}
}
_event: Event
setMinSpeed
let amount: string =
(<HTMLInputElement>_event.target).
value;
console.log(amount);
minSpeed = parseFloat(amount);
for (let player of people) {
player.changeSpeed
(minSpeed, maxSpeed);
}
_event: Event
setMaxSpeed
let amount: string = (<HTMLInputElement>_event.target).value;
console.log(amount);
maxSpeed = parseFloat(amount);
for (let player of people) {
player.changeSpeed(minSpeed, maxSpeed);
}
_event: Event
setMinPrecision
let amount: string = (<HTMLInputElement>_event.target).value;
console.log(amount);
minPrecision = parseFloat(amount);
for (let player of people) {
player.changePrecision(minPrecision, maxPrecision);
}


setScore
if (ball.goal == false) {
let scoreOne: number = scores[0];
let scoreTwo: number = scores[1];
if (994 * scale <= positionBall.x && positionBall.x
<= 1000 * scale && 315 * scale <= positionBall.y &&
positionBall.y <= 385 * scale) {
scoreOne += 1;
scores.splice(0, 1, scoreOne);
scoreTeamOne.innerHTML = scoreOne.toString() + ":";
ball.goal = true;
clearInterval(ballMovement);
newBall();
}
else if (0 <= positionBall.x && positionBall.x <= 6 *
scale && 315 * scale << positionBall.y &&
positionBall.y <= 385 * scale) {
scoreTwo += 1;
scores.splice(1, 1, scoreTwo);
scoreTeamTwo.innerHTML = scoreTwo.toString();
ball.goal = true;
clearInterval(ballMovement);
newBall();


moveBall
let minX: number = clickX - 1;
let maxX: number = clickX + 1;
let minY: number = clickY - 1;
let maxY: number = clickY + 1;
crc2Ball.clearRect(0, 0, canvasBall.width, canvasBall.height);
ball.move(1 / 50);
ball.draw();
/* console.log(positionBall, clickX, clickY); */
if (minX <= positionBall.x && positionBall.x <= maxX
&& minY <= positionBall.y && positionBall.y <= maxY) {
clearInterval(ballMovement);
setScore();

createPlayersTeamTwo

```
for (let i: number = 11; i < 22; i++) {
  playerPosition = new Vector(a[i - 11] * scale, b[i - 11] * scale);
  let player: Player = new Player(playerPosition, colors[1], i);
  if (player.speed == undefined) {
     player.speed = Math.floor(Math.random() * (maxSpeed - minSpeed + 1) + minSpeed) / 200;
  }
  if (player.precision == undefined) {
     player.precision = Math.floor(Math.random() * (maxPrecision - minPrecision + 1) + minPrecision);
  }
  player.draw();
  people.splice(i, 1, player);

}
```

placeSideReferee

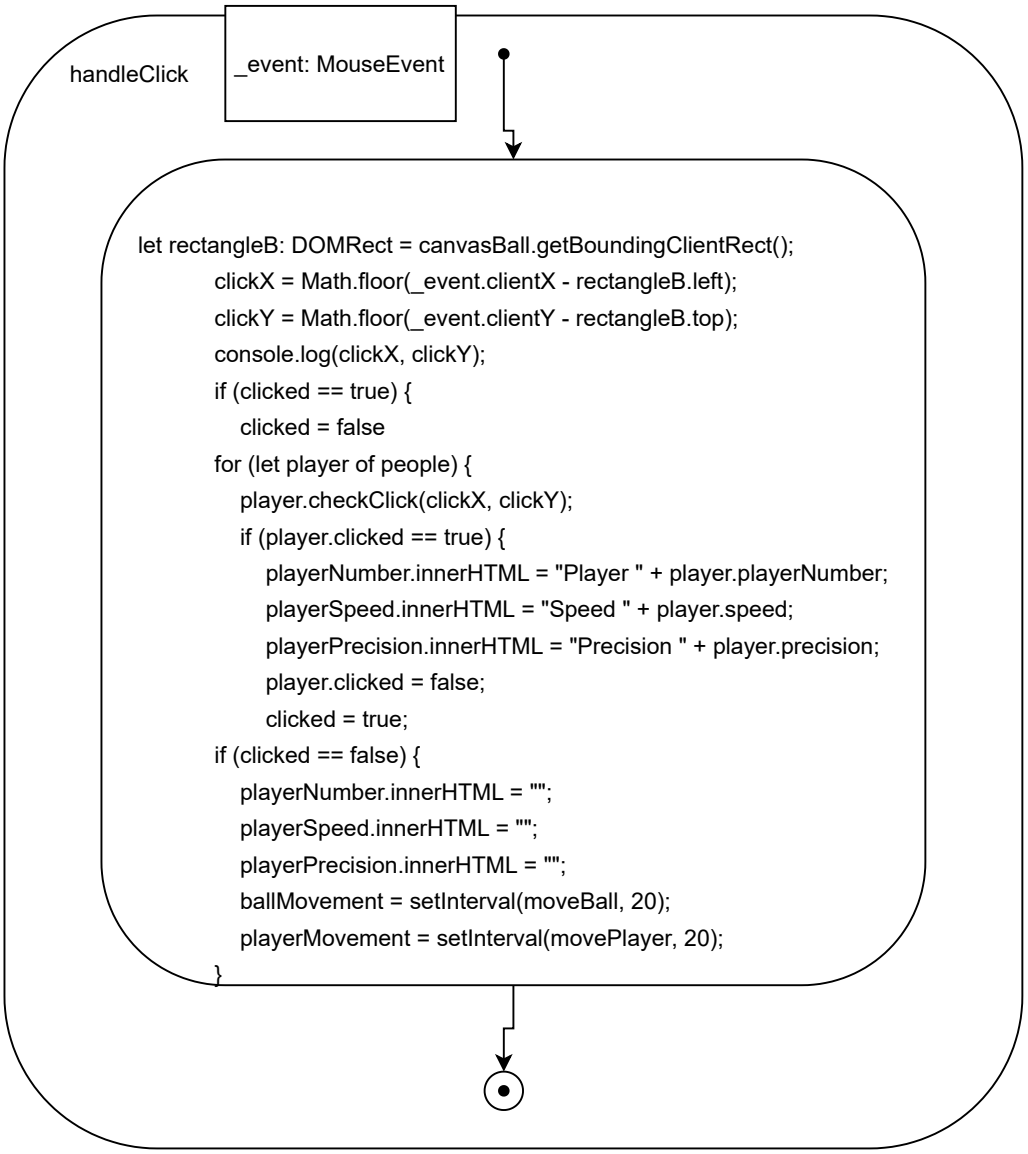
```
let position: Vector = new Vector(10 * scale, 1 * scale);
      let refereeOne: Referee = new Referee(position);
refereeOne.draw();
 referees.splice(0, 0, refereeOne);
let positionTwo: Vector = new Vector(10 * scale, 845 / scale);
      let refereeTwo: Referee = new Referee(positionTwo);
refereeTwo.draw();
referees.splice(1, 0, refereeTwo);
```

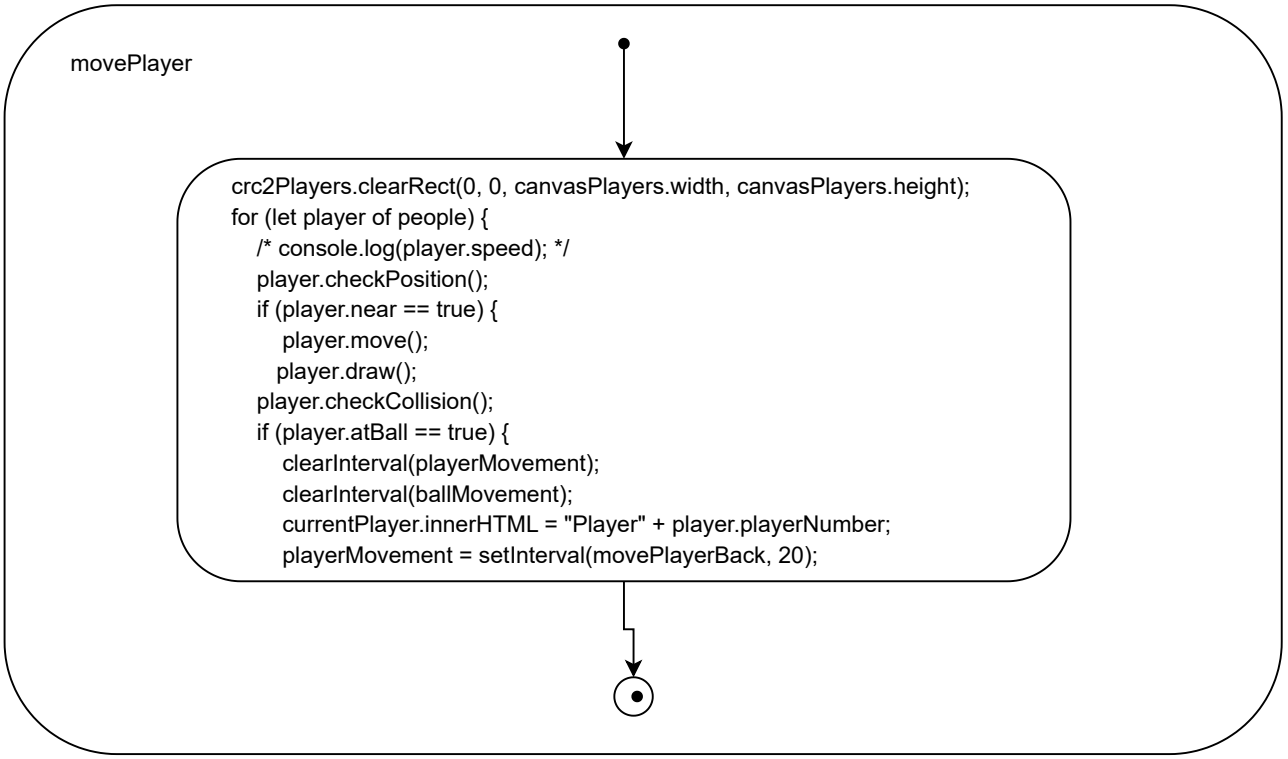
newBall

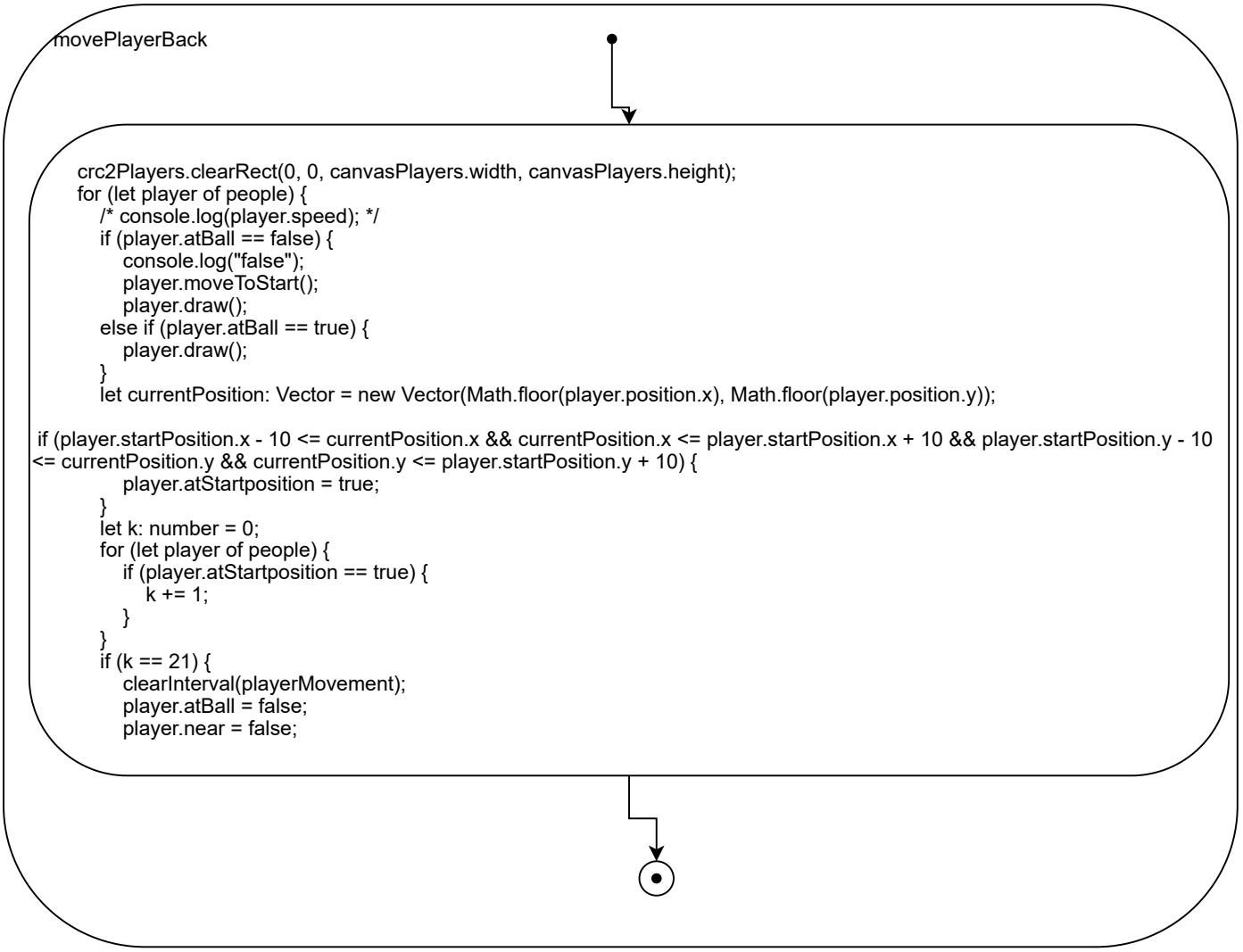
```
crc2Ball.clearRect(0, 0, canvasBall.width, canvasBall.height);
positionBall = new Vector(500 * scale, 350 * scale);
ball = new Ball(positionBall);
ball.draw();
```

newBall

```
crc2Ball.clearRect(0, 0, canvasBall.width, canvasBall.height);
      positionBall = new Vector(500 * scale, 350 * scale);
      ball = new Ball(positionBall);
      ball.draw();
```


handleClick
_event: MouseEvent
let rectangleB: DOMRect = canvasBall.getBoundingClientRect();
clickX = Math.floor(_event.clientX - rectangleB.left);
clickY = Math.floor(_event.clientY - rectangleB.top);
console.log(clickX, clickY);
if (clicked == true) {
clicked = false
for (let player of people) {
player.checkClick(clickX, clickY);
if (player.clicked == true) {
playerNumber.innerHTML = "Player " + player.playerNumber;
playerSpeed.innerHTML = "Speed " + player.speed;
playerPrecision.innerHTML = "Precision " + player.precision;
player.clicked = false;
clicked = true;
if (clicked == false) {
playerNumber.innerHTML = "";
playerSpeed.innerHTML = "";
playerPrecision.innerHTML = "";
ballMovement = setInterval(moveBall, 20);
playerMovement = setInterval(movePlayer, 20);
}


movePlayer
crc2Players.clearRect(0, 0, canvasPlayers.width, canvasPlayers.height);
for (let player of people) {
/* console.log(player.speed); */
player.checkPosition();
if (player.near == true) {
player.move();
player.draw();
player.checkCollision();
if (player.atBall == true) {
clearInterval(playerMovement);
clearInterval(ballMovement);
currentPlayer.innerHTML = "Player" + player.playerNumber;
playerMovement = setInterval(movePlayerBack, 20);


movePlayerBack
crc2Players.clearRect(0, 0, canvasPlayers.width, canvasPlayers.height);
for (let player of people) {
/* console.log(player.speed); */
if (player.atBall == false) {
console.log("false");
player.moveToStart();
player.draw();
else if (player.atBall == true) {
player.draw();
}
let currentPosition: Vector = new Vector(Math.floor(player.position.x), Math.floor(player.position.y));
if (player.startPosition.x - 10 <= currentPosition.x && currentPosition.x <= player.startPosition.x + 10 && player.startPosition.y - 10
<= currentPosition.y && currentPosition.y <= player.startPosition.y + 10) {
player.atStartposition = true;
}
let k: number = 0;
for (let player of people) {
if (player.atStartposition == true) {
k += 1;
}
}
if (k == 21) {
clearInterval(playerMovement);
player.atBall = false;
player.near = false;