Coding Assignment 7.1

PacMen Factory Exercise

#### **Learning Outcome Addressed**

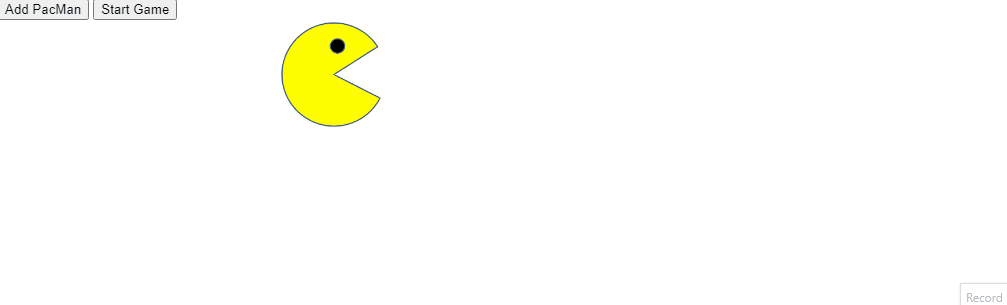
 9. Use JavaScript to dynamically display data on a web page

### Making multiple Pacmen

In a previous assignment, you were able to create a pacman and make it move across the screen. In this activity, we're going to take that a step further.

**Your task in this activity is to create a pacman on demand (button click) and move these pacmen across the page**

By the end you should have something that behaves like this:

[](https://cdn.filestackcontent.com/06VqvImdRdSeP0olduZK)

Here's how the game is played:

* When you click the "Add PacMan" button, a new pacman should appear at a random position on the screen.
* When you click the "Start Game" button, the pacman or pacmen created should start moving at random velocity on the screen.
* When a given pacman hits the edge of the screen, it should change position to stay within the frame of the web page.

The starter code includes comments to guide you through this activity.

hint: remember that window.innerWidth provide the width of the web page, you can use this value to detect if a pacman is at the edge of the screen

Task

Implement the makePac() and checkCollisions functions.

<html>

<head>

    <title>Pacmen</title>

    <!-- DO NOT CHANGE THIS LINE OF CODE -->

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

</head>

<body>

    <div id='game'>

        <button onclick='makeOne()' width='200' height='30'>Add PacMan</button>

        <button onclick='update()' width='200' height='30'>Start Game</button>

    </div>

</body>

</html>

let pos = 0;

const pacArray = [

  ['./images/PacMan1.png', './images/PacMan2.png'],

  ['./images/PacMan3.png', './images/PacMan4.png'],

];

let direction = 0;

const pacMen = []; // This array holds all the pacmen

// This function returns an object with random values

function setToRandom(scale) {

  return {

    x: Math.random() \* scale,

    y: Math.random() \* scale,

  };

}

// Factory to make a PacMan at a random position with random velocity

function makePac() {

  // returns an object with random values scaled {x: 33, y: 21}

  let velocity = setToRandom(10); // {x:?, y:?}

  let position = setToRandom(200);

  // Add image to div id = game

  let game = document.getElementById('game');

  let newimg = document.createElement('img');

  newimg.style.position = 'absolute';

  newimg.src = 'PacMan1.png';

  newimg.width = 100;

  // TODO: set position here

  // TODO add new Child image to game

  game.appendChild(/\* TODO: add parameter \*/);

  // return details in an object

  return {

    position,

    velocity,

    newimg,

  };

}

function update() {

  // loop over pacmen array and move each one and move image in DOM

  pacMen.forEach((item) => {

    checkCollisions(item);

    item.position.x += item.velocity.x;

    item.position.y += item.velocity.y;

    item.newimg.style.left = item.position.x;

    item.newimg.style.top = item.position.y;

  });

  setTimeout(update, 20);

}

function checkCollisions(item) {

  // TODO: detect collision with all walls and make pacman bounce

}

function makeOne() {

  pacMen.push(makePac()); // add a new PacMan

}

//don't change this line

if (typeof module !== 'undefined') {

  module.exports = { checkCollisions, update, pacMen };

}