

Introduction to the HTML5 Canvas

In this exercise we will create an image using HTML canvas tags and the JavaScript canvas API.

Exercises

Save each exercise as a separate source file:

1. Below is an example of the typical layout of a HTML file. In Moodle, the file canvas.html has a similar layout. Download the file to a folder called "GraphicsAssignment1" and open in Notepad++ (or a text editor of your choosing)

```
1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <meta charset="UTF-8">
5.     <title></title>
6.     <style type="text/css">
7.       ...
8.     </style>
9.   </head>
10.  <body>
11.    ...
12.    <script type="text/javascript"></script>
13.  </body>
   </html>
```

2. Open canvas.html in Chrome, and open the JavaScript console.
3. The following line changes the fill colour of the context to red. Change canvas.html to make the rectangle blue instead.

```
// Set the fill colour to bright red.
ctx.fillStyle = "rgb(255, 0, 0)";
```

4. The fillRect method takes four arguments, as below. Change the height of the square in canvas.html to 200px, and change the width of the square to 1000px. (You may need to consult API docs to do this)

```
ctx.fillRect(a, b, c, d);
```

5. Draw a black border around the canvas, using CSS.

```
canvas {
```

```
border: ...  
}
```

6. Use the JavaScript console to draw a second rectangle in red.
7. Modify the HTML file to draw the second rectangle in red automatically.
8. Instead of using RGB to set colour values, we can use RGBA to also use an alpha channel, as below. Add some transparency (40%) to the squares.

```
/* Set the text colour of paragraphs to blue, with 40% transparency. */  
p {  
  color: rgba(0, 0, 255, 0.6);  
}
```

9. Add a red and blue circle to canvas.html
10. Draw a red square with a blue circle perfectly fitting inside it.

Advanced exercises

1. Start with a blue circle at the top left of the Canvas, and after three seconds move the circle 50px to the right.
2. Draw Pac-Man on a Canvas using JavaScript.