COM1008: Web and Internet Technology
Assignment: JavaScript (25%)

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Deadline: 3pm, Monday 10 December (week 12)
Handin: zip file of all your files via MOLE.

1 Introduction

This assignment will test your ability to use JavaScript and the HTML5 Canvas element to develop a graphical application running on a web page. This is an individual assignment. The work you submit must be your own work and not plagiarised.

2 The Task

A single web page should be created. The <body> element, besides some explanatory text, should include a canvas element and some buttons to control what happens on the canvas. The user should be able to use the mouse to click the buttons and also to click on the canvas. All of this should be controlled using JavaScript.

The canvas should display a drawing of a small animal, such as a mouse, cat, or dog, in the centre of the canvas – this can be a lifelike animal or a cartoon-like animal. It could be drawn using basic drawing commands on the canvas (e.g. drawing lines, curves and shapes) or it could be constructed from a range of images representing different poses, such as standing, sitting, etc. Either is ok. You choose.

There should be four buttons on the web page. Three of the buttons are used to produce different actions from the animal, e.g. stand up, sit down, stretch, move to a corner of the canvas. You choose the three actions. The buttons should be labelled so that it is clear which action they produce. The fourth button resets the animal back to its original state in the centre of the canvas.

Three different effects should be implemented depending on where the user clicks with the mouse on the canvas. You must decide on the three effects. You can use any from the following list, or you can choose equivalent ones of your own:

- Click on the animal's back to make it stand up or sit down.
- Click above the animal to make it "reach" for the clicked point.
- Click on the animal's tail to make it chase its tail, or turn around.
- Click below the animal to make it lie down, or roll over.
- Click on a canvas point away from the animal to make it move to that point.
- Click on the animal's face to change its colour.
- Click on the animal's whiskers or ears (whichever is more appropriate for your animal) to grow them.
- Click on the animal's mouth to make it yawn, squeak, meow, or bark (as appropriate for your animal).
- Click on the animal's eyes to make it go to sleep.

As advanced work, to aim for full marks, you should consider animated movements as part of relevant effects that you implement, e.g. an animated transition between standing and sitting, or walking to a new position, etc

Important: Below the canvas and the buttons, you should provide a brief explanation of how to use the software and what happens when a user clicks on the canvas and where to click to make a particular effect happen. **The description should make it obvious to us how to produce each effect.** We will need this for marking.

*This assignment has been adapted from a previous assignment by Dr Steve Maddock

3 Handin via MOLE

Handin via the assignment link on MOLE. Handin all the code by creating a zip file called name.zip, where name is your name, e.g. Jane-Smith.zip. Note: Remember to identify in each and every HTML and CSS and JavaScript file that you wrote the code.

4 Marking

This will include:

- Comments, layout and code structure (10%)
- How well the application works and the completeness of the application (12%)
- Quality, creativity and advanced work (3%)

5 Practical considerations

5.1 Keeping your work private

Your website should be developed in a local folder in your CiCS managed desktop file space, not in your Department mypublic_html folder.

5.2 Unfair means

The standard Department rules for use of unfair means will be applied: https://sites.google.com/sheffield.ac.uk/comughandbook-201819/general-information/assessment/unfair-means

Do not copy any similar examples from the web since that would be plagiarism.

6 Code reuse

Do NOT use Bootstrap or any other similar frameworks for creating the web page. Do NOT use JS libraries such as jquery. You should write all the JavaScript, including canvas and interaction code, using plain, 'vanilla' JavaScript.

You may reuse HTML and CSS and JavaScript code that I wrote that is given in lecture notes, as long as it is not code that is from another source that is being used to illustrate something – I may have used it to illustrate something, but you will not have permission to reuse it. If there is any doubt, then assume you cannot reuse it.