ACS Applied Computer Science

THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

ACS-2909-050
Internet Programming

Fall 2016

Assignment 2

Due date: November 7, 2016 11:59 pm **Total marks: 24**

Motivation

The goal of this assignment is to use the Canvas object and add in user interaction, as well as how to use web services

Questions

The answer for each question should be given in a separate set of files labelled `Q*.*`. Your name and student number should appear in all source documents, but it does not need to be displayed by the browser. Your solutions will be tested using Chrome.

1. Write an application that uses a canvas element to create two circles (with different colors) in two different parts of the canvas. The circle should be able to be dragged within the canvas, and should stop when it gets to the edges. Put another way, the edge of the circle should not go past the edge of the canvas. Each circle should be dragged separately. When you release the mouse button, the circle should stop.

   Evaluation: This question is worth **10 marks**.

   Listing 1: Function to check if coordinates are inside a circle

```
function isInCircle(x, y, circleX, circleY, radius) {
    var insideOfCircle = (Math.pow((x - circleX),2) +
        Math.pow((y - circleY),2)) < Math.pow(radius,2);
    return insideOfCircle;
}
```

2. Make a web service request every 1 second to *http://courses.acs.uwinnipeg.ca/2909-001/assignments/A2Q2.php* for 20 seconds. A JSON object will be returned. Count up the amount of *circle* and *rectangle* types and display the counts. The web service will occasionally return a status of 500 and these should also be counted and displayed.

   Evaluation: This question is worth **6 marks**.

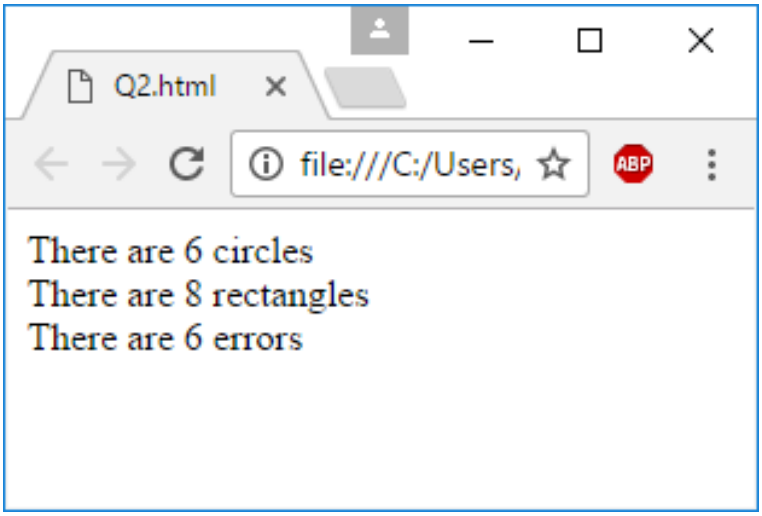

Figure 1: Sample output

3. Create two canvas elements, a canvas for circle objects and a canvas for rectangle objects, layered on top of each other. Using the web service from *Q2*, take each response, and draw either a circle onto the canvas for circle objects, or a rectangle onto the canvas for rectangle objects. Use the data from the listings to draw the appropriate size, location and colour of the shape.

   Evaluation: This question is worth **8 marks**.

Listing 2: Circle object that is returned

```
{
    "type": "circle",
    "x" : #, "y" : #,
    "radius" : #, "colour": HEX
}
```

Listing 3: Rectangle object that is returned

```
{
    "type": "rectangle",
    "x" : #, "y" : #,
    "height" : #, "width": #,
    "colour": HEX
}
```

Hand in instructions

Zip all the files into a single archive named `YourStudentID_Ass2.zip`. Submit the zip file to the TA, Matthew Hiebert, at: hiebert-m70@webmail.uwinnipeg.ca. Marks will be deducted for students that do not follow instructions.