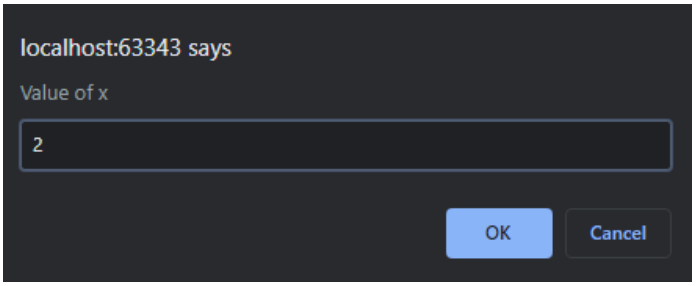
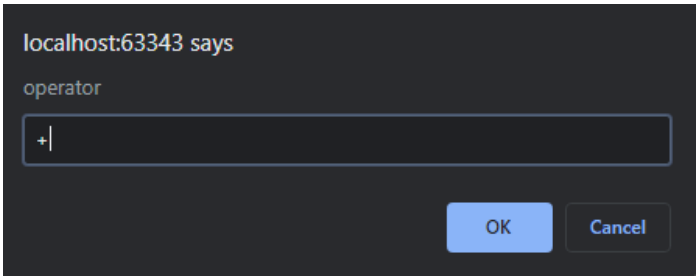
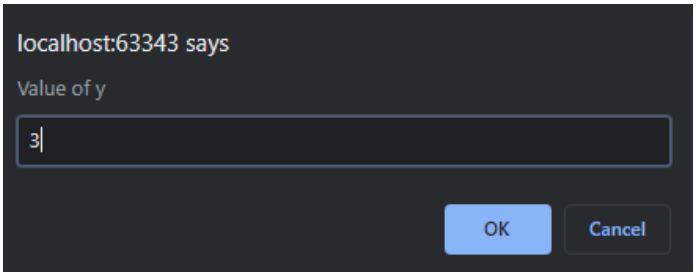
Assignment 3 (15pt total)

Problem1: Simple JavaScript Calculator (5 pt total)

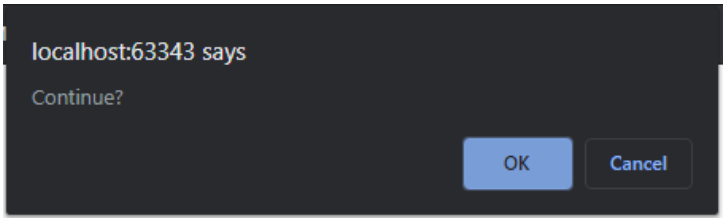
Write an HTML document (calculator.html) whose sole function is to load and execute a JavaScript file calculator.js. The JavaScript code repeatedly prompts for 2 numbers (x and y) and for an arithmetic operator (addition (+), subtraction (-), modulus (%), division (/), and multiplication (*)) as shown in the three dialog boxes below. (0.5pt)







Then the page asks the user to continue the loop as shown below. The user exits the loop by clicking the cancel button. If the user clicks OK, then the page will show three prompts again to get more user input (0.5pt).



The program constructs a table in which shows numbers, an operator, and a computation result as a row. If an operator is not one of (+,-,*,/,%), then the table show an error message in the result column. If the user puts non-numeric characters for x and y (you can check it by

isNaN(…)), then the table shows another error message in the result column (JavaScript code 1.5pt, table 0.5pt). The image below shows the examples of the table:

x	op	y	result
20	*	123	2460
ds	+	20	wrong input number
200	&	23	computation error

The simplest way to create a table with JavaScript is

document.write("<table>");

document.write("<tr><th>header1</th>…. <th>headerN</th></tr>");

document.write("<tr><td>column1</td>…. <td>columnN</td></tr>");

document.write("</table>");

Define your own table style. You can find how to style an HTML table here: https://www.w3schools.com/css/css_table.asp

After exiting the loop, the program constructs another table in which shows a minimum, maximum, average, and total of the results as a row. For this table, do not use any results that have an error (JavaScript code 1.5pt, table 0.5pt). The below images are examples:

x	op	y	result
10	*	20	200
104	%	3	2
10	+	20	30
5	/	5	1

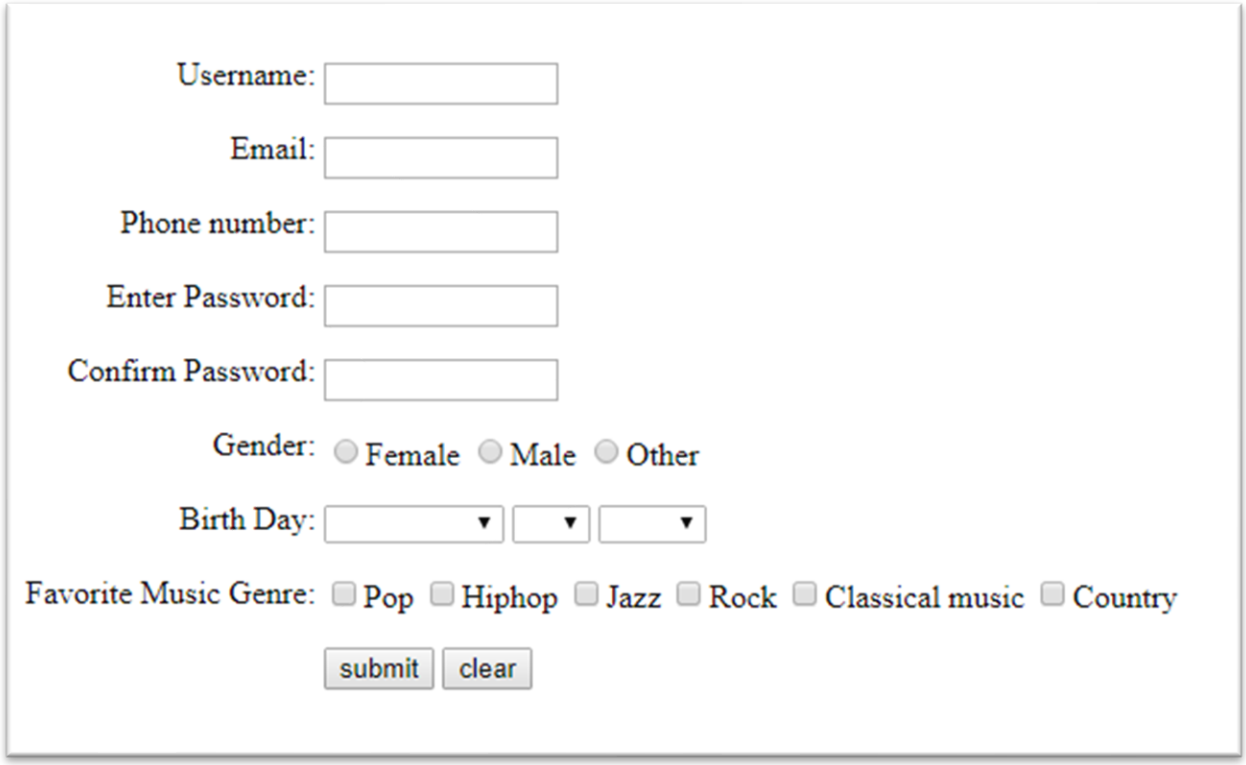
Min	Max	Average	Total
1	200	58.25	233

x	op	y	result
10	a	2	computation error
10	-	8	2
200	*	4	800
a	+	1	wrong input number

Min	Max	Average	Total
2	800	401	802

Problem2: simple signup page

Write an HTML document (form.html) that has the following inputs (5pt). You must use regular expressions to validate input strings. Do not use a pattern attribute:



1. Forms:
    a. Username (0.25 pt):
        i. Type: text
        ii. A username should only contain lowercase letters and numbers. It cannot be shorter than 4 characters and longer than 12 characters.
    b. Email (0.25 pt):
        i. Type: text
        ii. An email address should contain “@” and end in .net, .com, .org or .edu.
    c. Phone number (0.25 pt):
        i. type: text
        ii. A phone number should be 10 digits with hyphens (123-456-7890)
    d. Password (0.25 pt):
        i. Type: password
        ii. A password should contain at least 1 uppercase character, 1 lowercase character, 1 number and 1 special character.
    e. Confirm Password (0.25 pt):
        i. Type: password
        ii. The confirm password should be same as the password in #4.
    f. Gender (0.25 pt):
        i. Type: Radio button
        ii. male and female

g. Birthday (0.25 pt):
    i. Dropdown menus
    ii. Month: January to December (the first value is blank)
    iii. Day: 1 to 31 (the first value is blank)
    iv. Year: 1970 to 2010 (the first value is blank)
h. Favorite Music Genre (0.25 pt):
    i. Type: checkbox
    ii. Pop, Hiphop, Jazz, Rock, Classical music and Country

2. Submit (2 pt):
    a. Type: button
    b. When the submit button is clicked:
        i. Check validation of input fields
        ii. If the fields are empty, print the filed names in red:

Please Enter **Username**

Please Enter **Email**

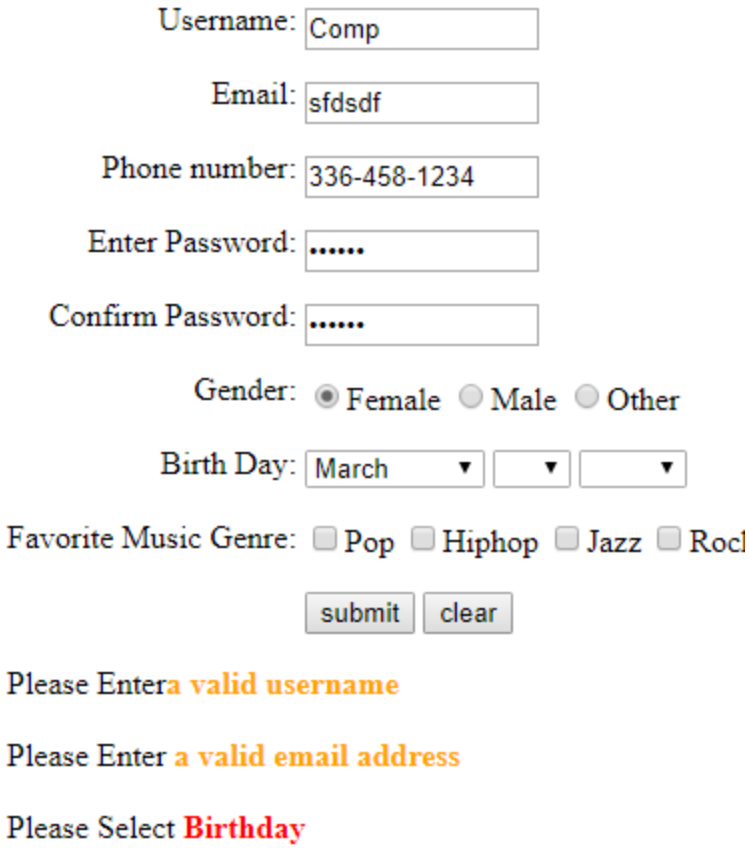
Please Enter **Phone Number**

Please Enter **Password**

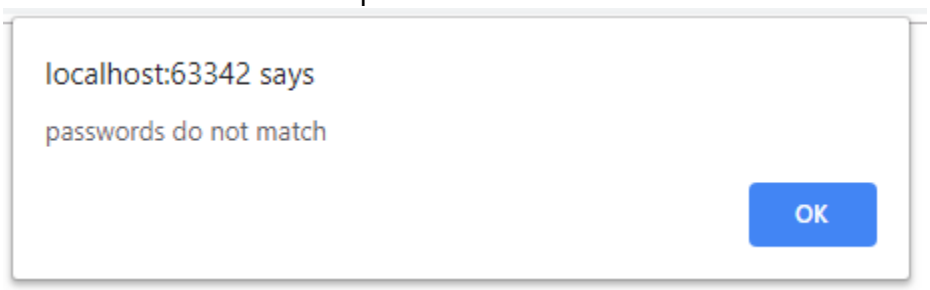
Please Select **Gender**

Please Select **Birthday**

        iii. If the inputs are not valid, print the filed names in orange, for example:



iv. If all inputs are valid then check the two passwords are the same. If not, show an alert box with “the passwords do not match”



v. If all inputs are valid and the two passwords are the same, then it redirects to your Github homepage.

3. Clear (1pt):
    a. Type: reset
    b. When the button is clicked, all the warnings are removed too.

Problem3: D3 events and effects (5pt)

In: linkedin
Out: reddit
Mouse X: 370, Y: 71

Write a JavaScript code with D3 (d3event.html). You don't need to use "svg"

Requirements:

1. Find and download icons of social media platforms.
2. Add 1 span and 3 divisions by D3:
    a. (0.5pt) span: add all the icons. Set the size of the icons to 100px (w) x 100px (h).
    b. (0.5pt) divisions:
        i. div1: "In: "
        ii. div2: "Out:"
        iii. div3: "Mouse X: , Y:"
3. Each image element has following mouse events:
    a. (0.5pt) mouseenter: update the div1 with the icon's name (e.g. "In: facebook"). Change the icon's opacity to 0.5
    b. (0.5pt) mouseleave: update the div2 with the icon's name (e.g. "out: facebook"), Change the icon's opacity to 1.0
    c. (0.5pt) dblcick: make a new tab for its' website (e.g. https://www.facebook.com)
    d. (0.5pt) mousedown and mouseup or other events: define your own effects (e.g. change the size of icon etc)
4. (2 pt) The span element has:
    a. mousemove: update div3's x and y based on the current mouse position (you can use "d3.pointer")

For the problem3, do not use any html tags except <html>,<head> and <body>. All html elements must be added by using D3 otherwise you will not get any points.

Submissions:

Upload all files to your github.io repository. Your index.html has links to redirect to the html files for 3 problems (calculator.html, form.html, and d3event.html).

Compress all files and upload the zip file on Canvas along with your github.io webpage URL of the three pages. (https://yourusername.github.io/calculator.html, https://yourusername.github.io/form.html, and https://yourusername.github.io/ d3event.html)

No submission will be accepted by email.