Practical: JavaScript(IV)

1. Draw the DOM tree of the following document. (Do not need to write the full content of the text node, refer to lecture note for reference)

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Document</title>
</head>
<body>
<main>
  <h1>Apples</h1>
  <p>The apple is the pomaceous fruit of the apple tree.</p>

  <article>
    <h2>Red Delicious</h2>
    <p>These bright red apples are the most common found in many
    supermarkets.</p>
    <div id="reference">
        <h3>Examples</h3>
        <ul>
            <li>Gala</li>
            <li>Fuji</li>
        </ul>
    </div>
  </article>

  <article>
    <h2>Granny Smith</h2>
    <p>These juicy, green apples make a great filling for
    apple pies.</p>
    <p>More information on Granny Smith can be found at
    <a href="https://www.orangepippin.com/apples/granny-smith">Orange Pippin</a>
    </p>
  </article>
</main>
</body>
</html>
```

a) How many child nodes does the node **main** have?
b) How many sibling nodes does the node **h3** have?
c) Which node is the **parent node** of the **a link** node which hyperlink to orange pippin?
d) Write the statement which use document.getElementById() to get the **div** of id equal to **reference**.
e) Write the statement which use document.querySelector() to get the **unordered list** under the div of id equal to reference.
f) Write the statement which use document.querySelectorAll() to get **all the articles** under the node **main**.
g) Write the statements to change the designated url of the a link to https://en.wikipedia.org/wiki/Granny_Smith and change **Orange Pippin** to **Wikipedia**.
h) Write the statements to add the following html content to the **main** node.

```
<footer>
   <p>&copy;RGApple of Singapore</p>
 </footer>
```

Apples

The apple is the pomaceous fruit of the apple tree.

Red Delicious

These bright red apples are the most common found in many superma

Examples

- Gala
- Fuji

Granny Smith

These juicy, green apples make a great filling for apple pies.

More information on Granny Smith can be found at Orange Pippin

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2. Complete the following codes such that:

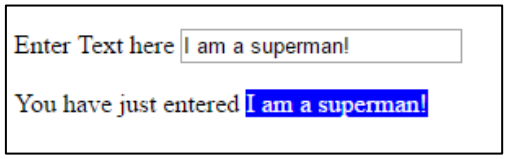
   a. after the web page has loaded for 2 secs, the colour of the ball will be changed from blue to red. Clear the timer after that.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Document</title>
       <style>
       #ball {
              width:30px;
              height:30px;
              border-radius:50%;
       }
       </style>
       <script>
       function changeColor(){
              document.getElementById("ball").style.backgroundColor="red";
              clearTimeout(timer);
       }
       </script>
</head>
<body>
    <div id="ball" style="background-color:blue"></div>
       <script>
           var timer;
           // set the timer here to ensure page is loaded
       </script>
</body>
```

b. After the web page has loaded, in every 2 sec, the ball will be alternatively in blue or green. Clear the timer after 10 sec.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Document</title>
       <style>
       #ball {
              width:30px;
              height:30px;
              border-radius:50%;
       }
       </style>
       <script>
       // you need to add/modify code here to meet the requirements
       function changeColor(){
                var ball=document.getElementById("ball");
                if (ball.style.backgroundColor=="blue")
                     ball.style.backgroundColor="red";
                else
                     ball.style.backgroundColor="blue";
       }
       </script>
</head>
<body>
    <div id="ball" style="background-color:blue"></div>
       <script>
           // set the timer here to ensure page is loaded
       </script>
</body>
```

3. a) Complete the following code such that what text entered will be echoed below.



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Document</title>
      <style>
            span#echoText{ background-color:blue; color:white}
      </style>
      <script>
      //function to be called when keyup
      function updateChanges(){

      }
      </script>
</head>
<body>
<p>Enter Text here <input type="text" id="userInput" onkeyup="  "/></p>
<p> You have just entered <span id="echoText"></span></p>
</body>
</html>
```

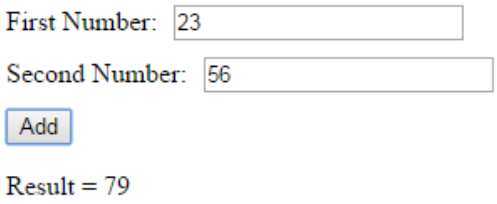
b) Inline handler is used in (a). Modify the code above to use addEventListener to register the handler for the userInput.

4. Write a web page which

    a. Use input box to get 2 numbers from users

    b. When the “Add” button is clicked, calculate and display result

Sample:




```
<html>
<head>
<title>JavaScript - using function</title>
<script>
function add(){
  // get the value of element with id n1
  // get the value of element with id n2
  // calculate result
  // display the result at the <span> of id result
 }
</script>
</head>
<body>
<label>First Number:<input type="number" id="n1"/></label>
<label>Second Number:<input type="number" id="n2"/></label>
<input type="button" value="Add" />
<p>
Result = <span id="result"></span>
</p>
</body>
</html>
```

5. Let's make a simple photo Gallery as below:

When you hover any of the small pictures, it will be twitted by 45% (done for you using CSS).

When the picture is clicked, you should see a larger version of picture displayed on top:

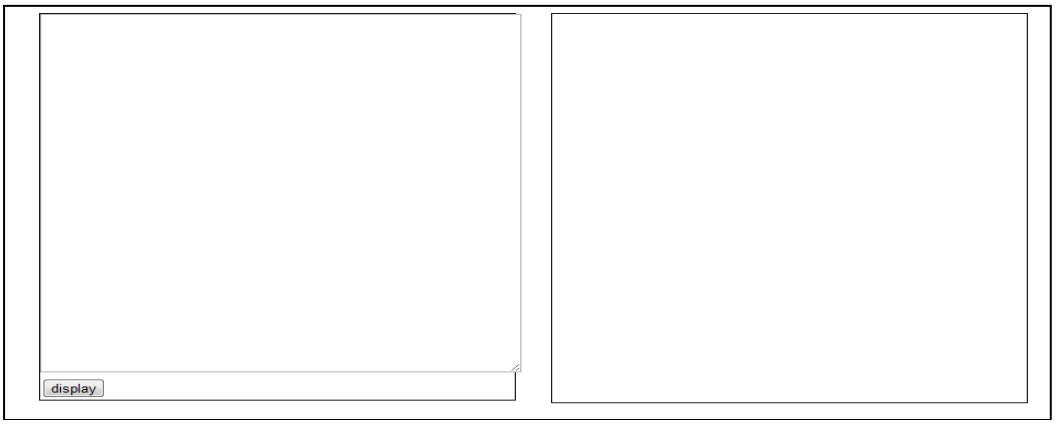
Steps:

i. Copy the **photoGallery(Incomplete).html** to your working folder.

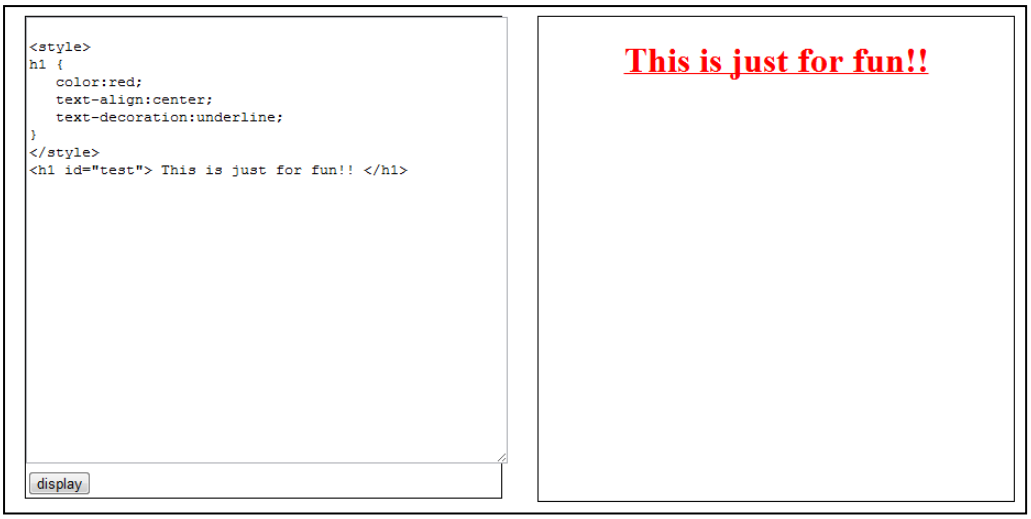
ii. Make sure that all necessary images are stored in the **images** folder under the same working folder

iii. Complete the function ***showPicture(theImg)*** and save it as **photoGallery.html**.

6. Write a super simple editor for web page.



After you enter the html/CSS content to the division on the right, click the display button, result will be shown on the right.

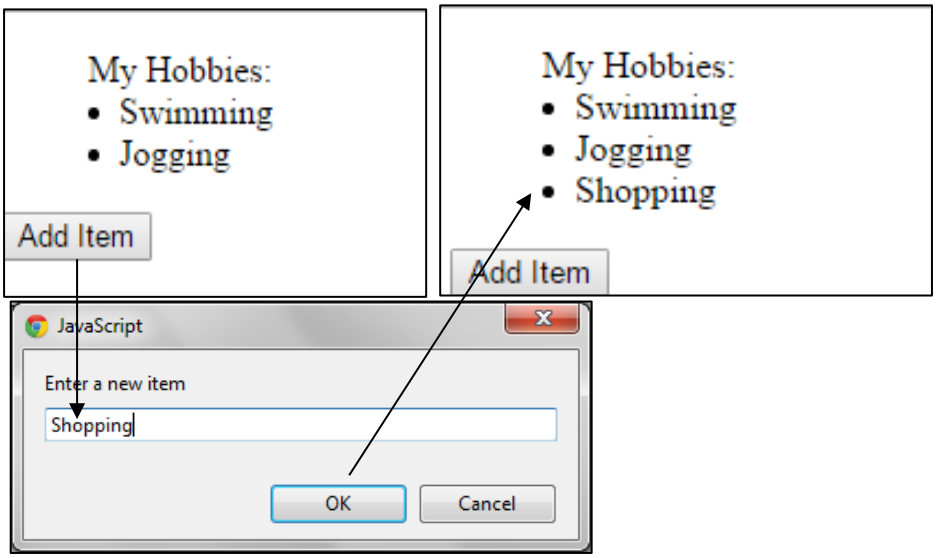


Steps:

i. Copy the **trylt(Incomplete).html** to your working folder.

ii. Complete the function ***toDisplay()*** and save it as **trylt.html**.

7. Adding new list item dynamically. When user clicks at to add item, user will be prompted for new item. Enter the new item and click ok, the list item will be added



Steps:

i. Copy the **addItem(Incomplete).html** to your working folder.

ii. Complete the function ***change()*** and save it as **addItem.html**.

The above exercise let you experience how to add an html element to the web document dynamically.
Draw a DOM tree of before and after one item is added as above.

Before adding "Shopping"	After adding "Shopping"

Challenge

Write a simple game using JavaScript time events. (Usage of setTimeout, setInterval, clearTimeout, clearInterval)

When the start button is clicked:

i. Pictures of bears will be flashed randomly for 2 seconds.
ii. User will then be asked how many times a particular(randomly picked) picture appeared

1. User enters answer and click at the check button to check answer.
2. Program checks answer and prompt accordingly.

*Incomplete codes can be found at **guessImages(Incomplete).html**.*