

Javascript Events

Web Authoring and Design

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Outline

- Review
- What do we mean by a Javascript Events?
- Common Event Examples
 - Timer, Key Input, Mouse
- Summary
- Review/Discussion

Question

- Write down a simple `forms`
html/javascript example – which will
trigger (call) javascript function

Answer

```
<!DOCTYPE html>
<html>
<body>

<p>Enter value and click "Submit" to submit the form:</p>

<form id="frm1">
  Enter value: <input type="text" name="fname"><br>
  <input type="button" onclick="myFunction()" >
</form>

<script>
function myFunction() {
  //.....
}
</script>

</body>
</html>
```

Question

- Write down an example of a Javascript object – contains, a variable and a method

Answer

```
var student = {  
    name: "Jack",  
    age: 12,  
    getName: function()  
    {  
        alert(this.name);  
    }  
};
```

Question

- Write a simple javascript program that would store a cookie

Answer

```
<html>
  <head>
    <script type = "text/javascript">
      <!--
        function WriteCookie()
        {
          if( document.myform.customer.value == "" ){
            alert("Enter some value!");
            return;
          }
          cookievalue= escape(document.myform.customer.value) + ";";
          document.cookie="name=" + cookievalue;
          document.write ("Setting Cookies : " + "name=" + cookievalue );
        }
      //-->
    </script>
  </head>

  <body>
    <form name="myform" action="">
      Enter name: <input type="text" name="customer"/>
      <input type="button" value="Set Cookie" onclick="WriteCookie();"/>
    </form>
  </body>
</html>
```


Question

- Write a simple javascript program that would 'read' a cookie back in from storage

Answer

```
<html>
  <head>
    <script type="text/javascript">
      <!--
        function ReadCookie()
        {
          var allcookies = document.cookie;
          document.write ("All Cookies : " + allcookies );

          // Get all the cookies pairs in an array
          cookiearray = allcookies.split(';');

          // Now take key value pair out of this array
          for(var i=0; i<cookiearray.length; i++){
            name = cookiearray[i].split('=')[0];
            value = cookiearray[i].split('=')[1];
            document.write ("Key is : " + name + " and Value is : " + value);
          }
        }
      //-->
    </script>
  </head>
  <body>
    <form name="myform" action="">
      <p> click the following button and see the result:</p>
      <input type="button" value="Get Cookie" onclick="ReadCookie()"/>
    </form>
  </body>
</html>
```

Event

- What is an 'event' in Javascript?
- Give some examples of events you might be interested in?
- Where would you use events?

Events/Triggers

Javascript has callback functions that trigger when specific events occur

For example, timing triggers, mouse movement, mouse button presses, ...

Timer

Javascript timer is an element of code that triggers after a certain period of time has elapsed

There are two types of Timers you can create in JavaScript

1. Triggers just once after a certain period of time
2. Long time firing timers, that continually triggers at set intervals

setInterval() Method

The `setInterval()` Method returns a unique ID with which the timer can be canceled at a later time

Syntax:

```
window.setInterval("functionname", time in  
milliseconds);
```

Example:

```
var intVal = setInterval(function(){alert('Timer  
Here')},4000);
```

Example

```
<html>
<head>
</head>
<body>
  <button onclick="setInterval(function()
  {alert('Timer Here')},4000);">Call Timer</button>
</body>
</html>
```

Question

■ What is the name of the Javascript event timer?

- a) SetInterval
- b) setInterval
- c) setTimeInterval
- d) setTimer

Answer

■ b) setInterval

Stop setInterval() method

If you want to **stop** the execution of `setInterval()` method, call **`clearInterval()`** method and just pass the interval ID returned by the `setInterval()` method

Syntax:

```
clearInterval(intervalVariable)
```

Example:

```
var timeVar =  
    setInterval(function(){alert('Timer  
Here')},4000); clearInterval(timeVar);
```

Question

■ Javascript event method to stop a timer is called:

- a) stopTimer
- b) clearInterval
- c) resetInterval
- d) killTimer

Answer

■ b) clearInterval

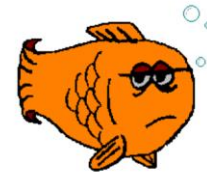
What does the following example do?

```
<html>
<head>
<title>Demo of Image moving across screen in JavaScript</title>
<script language='JavaScript' type='text/JavaScript'>

function timer()
{
    // image will scroll across the screen slowly
    var x =document.getElementById('il').offsetLeft;
    x = x + 1;
    document.getElementById('il').style.left = x + "px"; // vertical movment
    myTime=setTimeout('timer()',10);
}

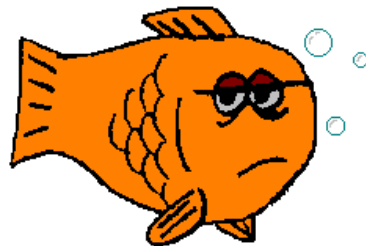
</script>
</head>
<body >
    
    <input type=button onClick=timer() value='Start'>
</body>
</html>
```

Answer



■ Scrolling Image

■ Image of a fish with identifier 'i1' will scroll across the screen when the timer is started



Key Press Events

■ Capture 'key' presses

```
// Add an event listener to the keypress  
event.document.addEventListener("keydown", KeyDown, false);
```

Example

```
<html>
<head>
<title>JavaScript Example</title>
<script language='JavaScript' type='text/JavaScript'>

// when key is pressed (user input)
function KeyDown(e)
{
    var xdir = 0;
    if (e.keyCode == 39) { xdir = 2; } // right key
    if (e.keyCode == 37) { xdir = -2; } // left key

    // image will scroll across the screen slowly
    var x =document.getElementById('il').offsetLeft;
    x = x + xdir;
    document.getElementById('il').style.left = x + "px"; // vertical movment
}

function start()
{
    // Add an event listener to the keypress event.
    document.addEventListener("keydown", KeyDown, false);
}

</script>
</head>
<body >
    <img src='./fish.gif' id='il' style="position:absolute; left: 100; top: 100;">
    <input type=button onClick=start() value='Start'>
</body>
</html>
```


Mouse Events

■ Mouse Movement

```
// Add an event listener to the mouse  
event.document.addEventListener('mousemove',  
MouseMove);
```

Example

```
<html>
<head>
<title>JavaScript Example</title>
<script language='JavaScript' type='text/JavaScript'>

// when key is pressed (user input)
function MouseMove (e)
{
    var mx = e.pageX;
    var my = e.pageY;

    // image position
    var x =document.getElementById('i1').offsetLeft;
    x = mx;
    document.getElementById('i1').style.left = x + "px"; // vertical movment
}

function start ()
{
    // Add an event listener to the mouse event.
    document.addEventListener('mousemove', MouseMove);
}

</script>
</head>
<body >
    
    <input type=button onClick=start() value='Start'>
</body>
</html>
```

Text Javascript

- Place text on screen

 - ▷ e.g., feedback, warnings,

- Move around/display feedback from Javascript

- `<div id='msg'>..</div>`

 - ▷ `document.getElementById("msg").innerHTML='..'`

Example

```
<html>
<head>
<title>JavaScript Demo</title>
<script language='JavaScript' type='text/JavaScript'>

function timer()
{
    // image will scroll across the screen slowly
    var x =document.getElementById('msg').offsetLeft;
    x = x + 1;
    document.getElementById('msg').style.left = x + "px"; // vertical movment
    myTime=setTimeout('timer()',10);

    document.getElementById("msg").innerHTML= 'timer value: ' + x;
}


</script>
</head>
<body >
    <input type=button onClick=timer() value='Start'>
    <div id='msg' style="position:absolute; left: 100; top: 100;">Press Start...</div>
</body>
</html>
```

Output

Start

Press Start...

Start



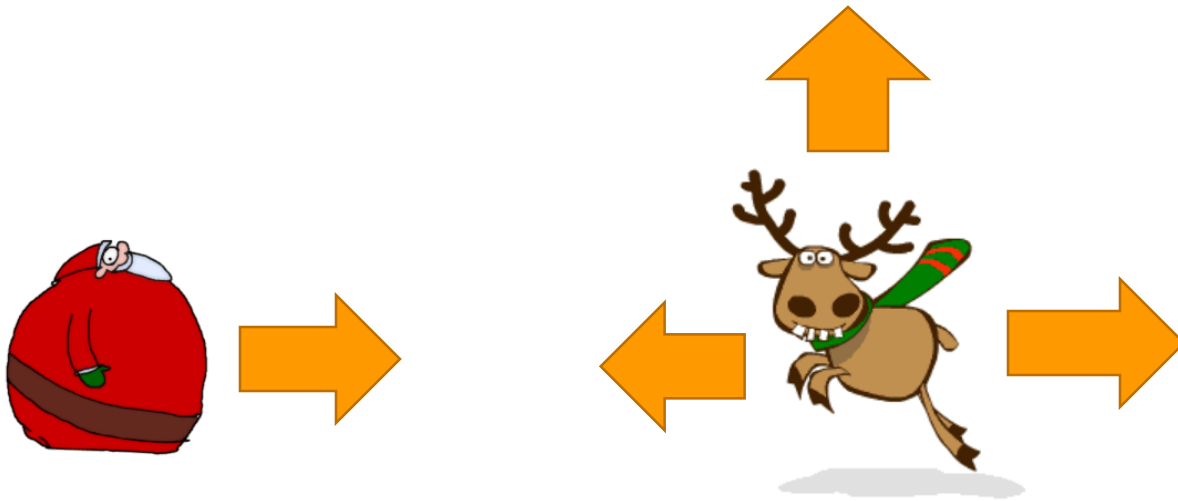
timer value: 236

Review Events

- Timer
- Keyboard Input
- Mouse Input
- Set Text (Move Around Screen)

Example

■ <https://zjnu2017.github.io/WAD/test/javascripsanta.html>



Other Events

- Other events for **you** to investigate and try out:

```
document.addEventListener('mousedown',startDrag,false);  
document.addEventListener('mousemove',drag,false);  
document.addEventListener('mouseup',stopDrag,false);  
document.addEventListener("click", mouseClick, false);  
document.addEventListener("mouseover", overFunction);
```


Run Locally

- Your website should work 'offline' locally if you download the html
 - ▷ e.g., not hardcoded to your github domain
- For instance, if you upload it to a different domain

Professional Design

- Consistency
- Clean and Logical
- Design and Plan First
 - ▷ Use HTML/CSS/Javascript to create your design/dream



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This Week

- Review Slides
- Read Associated Chapters
- **Group Project (Christmas Theme)**
 - **Website & Javascript Game**
 - **Video**
- Create a Simple Javascript Examples
 - ▷ Test it locally (e.g., local computer in Chrome or Explorer)
 - ▷ Experiment
 - ▷ Update GitHub Account/Webpage

Summary

- Overview of Javascript Events
- Javascript Game
 - Interactive and Dynamic
- Hands-On/Practical

Questions/Discussion