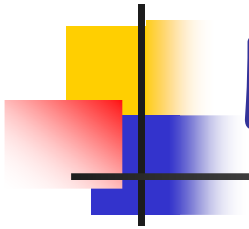


Lecture-2

- Functions
- Exceptions
- Events

Javascript functions

Syntax

```
function <functionName> (params)
  {
        // code
  }
```

Note: Parameters do NOT have variable type.

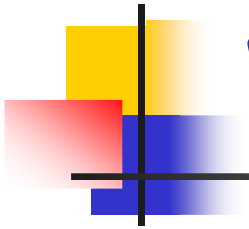
1. Recall: Function definition can be in
   1. <head> part of HTML file.
   2. <body> portion of HTML file
   3. An external file.
2. "return" value of the function is optional.

Functions – example1

```
<html>
 <head>
  <title> Example of a simple function </title>
  <script type="text/javascript">
     function factorial (input)
      {
        product = 1;
        for (i=1; i <= input; i++)
          product *= i;
        document.write ("factorial of i " + product);
      }
  </script>
 </head>

 <body>
  <h1> Example of a simple function </h1>
   <script type="text/javascript">
     factorial (9);
   </script>
 </body>
</html>
```

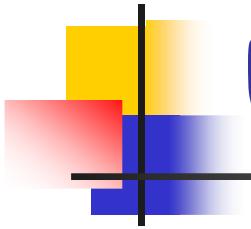
Functions – example2

```
<html>
 <head>
  <title>Browser Information example</title>
  <script type="text/javascript">
   function BrowserInfoFn()
   {
    var browser = navigator.appName;
    var version = navigator.appVersion;
    var ver = parseFloat (version);
    document.write ("Broswer: " + browser + " version: "  +
                                  version + " ver: " + ver + "<br />");
   }
  </script>
 </head>

 <body>
  <h1>Browser Information example</h1>
  <script type="text/javascript">
   BrowserInfoFn();
  </script>
  <hr>
</body>
</html>
```



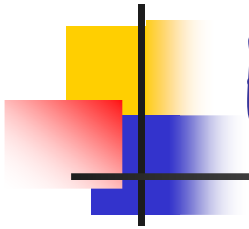
Values of JS popup boxes

- Confirm box
  - var i = confirm ("Press OK or Cancel")
- Prompt box
  - var i = prompt ("Enter some value", "default");



Useful functions

encodeURI	encodes special characters of a URI, except: , / ? : @ & = + $ #
encodeComponentURI	Encodes special characters and , / ? : @ & = + $ # of a URI
decodeURI	Opposite of encodeURI
decodeComponentURI	Opposite of decodeComponentURI
escape	encodes special characters, except: * @ - _ + . /
unescape	Opposite of escape – decodes a string
eval	Evaluates and executes a string as Javascript code
isFinite	Finds out if argument is a finite, valid number
isNaN	Finds out if argument is not a number
Number	Converts a string to integer
String	Converts argument to string
parseFloat	Parses argument and returns a float value
parseInt	Parses argument and returns an integer value



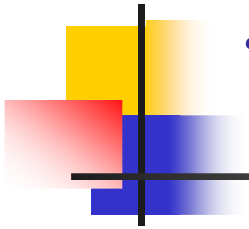
Exceptions

- Syntax and usage
  - Similar to Java/C++ exception handling

```
try
{
   // your code here
}
catch (excptn)
{
   // handle error
   // optional throw
}
```

Exceptions – example

```
<html>
 <head>
   <title> Error handling example </title>
   <script type="text/javascript">
    function handleError( )
    {
       try
       {
          i = foo( ); // Calling an undefined function raises an exception
          return i;
       }
       catch (err)
       {
          alert ("Something was wrong");
          return ("Error!");
       }
    }
   </script>
 </head>

 <body>
  <script type="text/javascript">
     var i = handleError();
     document.write ("i: " + i);
  </script>
 </body>
</html>
```



Throw

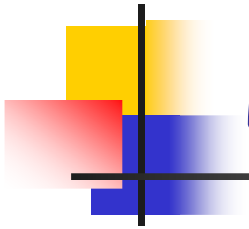
- Syntax
  - throw (exception)

Example

```
Try
{
   // some code
}
catch (error)
{
   // handle error
   throw (error2)
}
```

Throw example

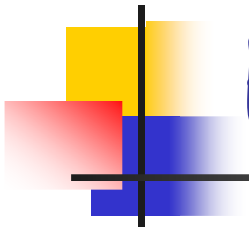
```
<html>
 <body>
  <script type="text/javascript">
    var x = prompt ("Enter a number between 0 and 10:","");
     try {
        if (x > 10)
          throw "Err1";
        else if (x < 0)
          throw "Err2";
     }
     catch (er) {
        if (er == "Err1")
           alert ("Error! The value is too high");
        if (er == "Err2")
           alert ("Error! The value is too low");
     }
   </script>
 </body>
</html>
```



Handling errors – onerror

- onerror – an event to handle errors.

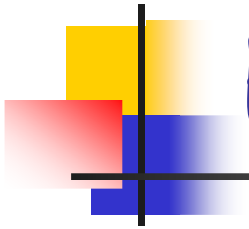
```
onerror=handleErr // Call handleErr on errors

function handleErr(msg,url,l)
// msg – error msg, url – current URL, l – line #
{
   //Handle the error here
   return true or false
}
```



Events

- Events in Javascript – "something" happening. Examples
  - Web page is loaded/unloaded
  - Mouse key clicked/double-clicked
  - Mouse hovering over/out-of a region
  - Any keyboard key is pressed/released
  - An error has occurred
  - A "submit" or "reset" button is pressed.
  - An element gets or loses focus.
- Complete list of events are given at

http://www.w3schools.com/jsref/jsref_events.asp

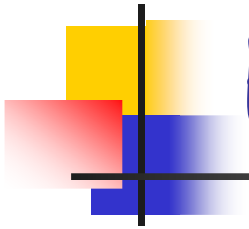


Events – onload( )

Called (if defined) when a web page is loaded.

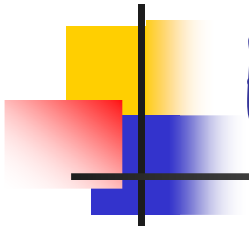
Simple Example

```
<html>
  <head>
    <title> On Load event example </title>
    <script type="text/javascript">
    function onloadFn( )                    // Function definition
     {
        alert ("Web page finished loading");
     }
    </script>
  </head>
  <body onload="onloadFn()">                // Call it when page is loaded
</body>
</html>
```



Events – onunload

- Opposite of onload
  - Called when
    - We go out of a web page or
    - A web page is re-loaded.
- Example
  - Same example as before
    - Except replace onload with onunload.

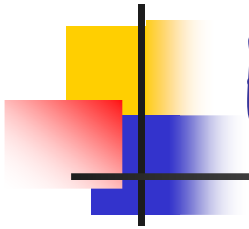


Events – onerror

- Recall our example of error handling

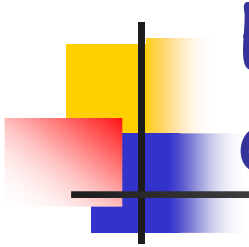
Example:

```
onerror=handleErr // Call handleErr on errors

function handleErr(msg,url,l)
// msg – error msg, url – current URL, l – line #
{
   //Handle the error here
   return true or false
}
```



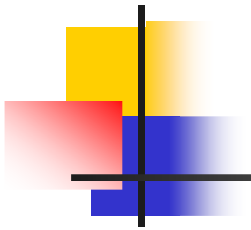
Events – onsubmit, onreset

- onsubmit – Event when a submit button is pressed.
  - Recollect our bank form example.
- onreset – event when a reset button is pressed.
  - Typically, used to cancel/reset the values of all fields.



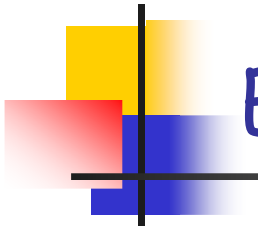
Events – onmouseup, onmousedown, onmouseover, onmouseout

- onmousedown – event when a mouse button is pressed down.
- onmouseup – event when a mouse button is pressed up.
- onmouseover – event when a mouse hovers over (a specific region).
- onmouseout – event when a mouse comes out (of a specific region).



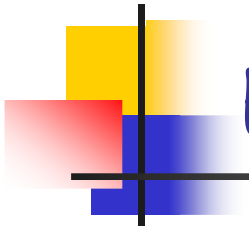
Events – onkeypress, onkeydown, onkeyup

- onkeypress – Event when a key is pressed
- onkeydown – Event when a key is pressed or held down
  - Similar to onkeypress
- onkeyup – Event when a key is released (after being pressed)



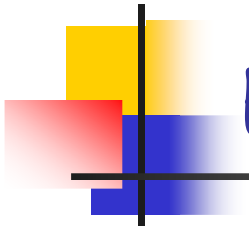
Events – onclick, ondblclick, onchange

- onclick – event when a button is clicked
- ondblclick – event when a button is double clicked
  - Try to avoid onclick when ondblclick is defined



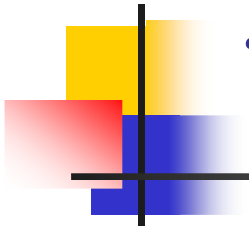
Events – onfocus, onblur, onresize

- onfocus – event when an element gets focus
- onblur – event when an element loses focus
  - Opposite of onfocus



Events - onresize, onchange, onabort

- onresize – event when a browser window is resized (changed).
- onchange – event when the value of a field changes
- onabort – event when loading of an image is interrupted.



Timing events

- setTimeout: execute something after a given time
  - Syntax: var t = setTimeout (code, time_in_msec);
  - Similar to sleep
  - Difference with sleep: Code code "setTimeout" is executed immediately, no timeout there.
- clearTimeout: Cancel a timeout condition
  - Syntax: clearTimeout (t)
    - "t" was the variable returned by setTimeout