

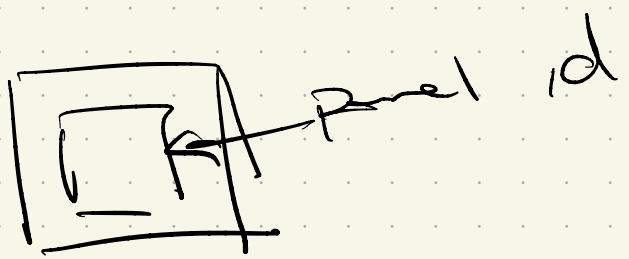


Creating a button in JS

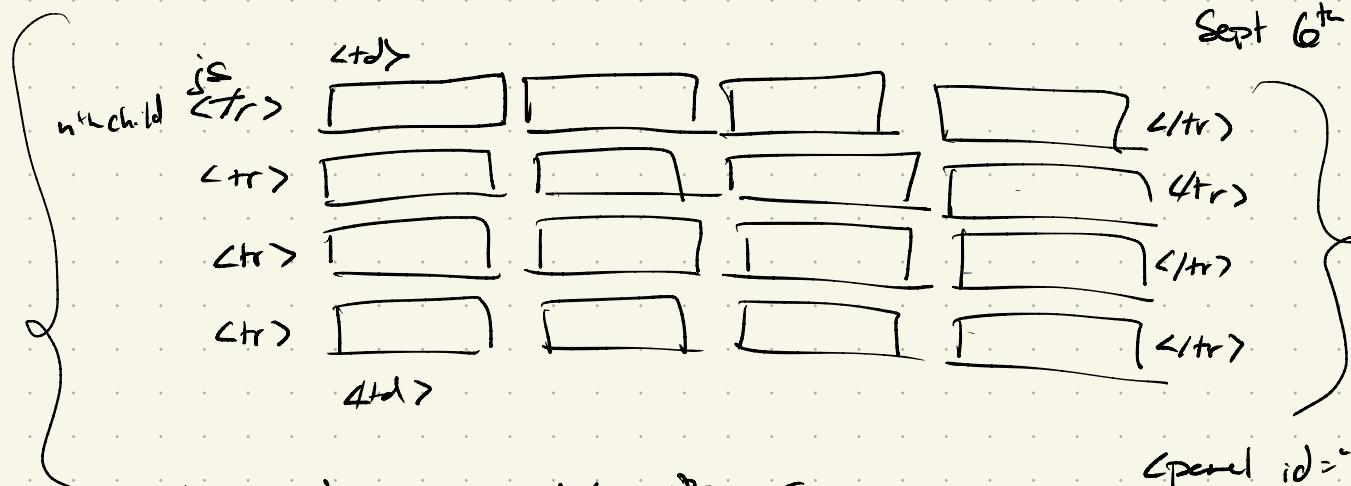
```
var x = document.getElementById("button-name");  
element.addEventListener("click", myFunction);
```

function switchImage() {
 get a src attribute
 if
 getElementById('id').src
 getElementById().src = src
 }
}

Assignment #2



Sept 6th 2022



Starting position range $(0, 4) [0, 4]$ [

$\text{parent id} = \text{"more" } > \text{id}$]
 n^{th} child $(n^{\text{th}} \text{child}())$

each id?

↳ lots of writing

↳ Not scalable

Figure out with child.

Grid works but would need subcontainers to color.

JavaScript is event driven. JS can't effect the files

Inside our browser events are constantly being triggered and ignored

↳ Every instance of the mouse doing anything, that is an event.

Common events → slide 2

onmouseover

onmousedown

We need to set up an event handler

↳ Two ways

→ Store event handler in an event property

→ Set up an event listener on the object that we want to have trigger

→

property events can only store one event

event listeners attach a brand new property to the object.

↳ Can have multiple on one object

↳ All event will be run

List of Window events slide 4? I think → Read the slide

onbeforeprint → runs after the document is printed

onerror → catch the error

onhashchange → changes to another part of url

on

all these events are just for the window

Form events

onblur → user on element loses focus (clicked somewhere else)
onchange → when we change something in the form but will only happen when focus is lost

oninput → similar to onblur but happens right away

onreset

onsearch →

onselect →

onsubmit →

if you type something into a field and then hit enter, it tries to submit the form

onsubmit often used to validate data

drag events

ondrag →

ondragend →

ondragenter →

ondragleave →

ondragover →

ondrop → dropped onto the drop target

Touch events

For touch screens.

Event properties

all objects inherit properties from the object prototype

↳ includes event properties

JS has an object object

all objects "inherit" from this object

don't technically inherit, it goes up the prototype chain
to try to find the property.

onclick →

onmouseover → there are both properties of the object

event properties for ALL event types.

↳ same as any other obj property. Can store anything
we want in the property.

↳ Typically will be a function

↳ can only store one thing so that cannot hold
multiple values (functions)

function init() {

window.onload = init; // function to be run when the event is
triggered.

name of the
object

Event
property
of the
object

Stores the content of init.

Event Listener

Something we can add to an object to listen for an event

- Unlike event properties, can have multiple events added of the same event type.

uses the `addEventListener`.

`Obj.addEventListener(event, function boolean)`

how to add an event listener

```
let panel = document.getElementById("panel");
```

```
panel.addEventListener("click", doSomething, false);
```

↑
not onclick

uses bubbling, we will
learn about it
later

true would mean
catching

Older Browser Compatibility

```
function addEvent(obj, event, fnName){  
    if (obj.addEventListener){ ← Checks that event listener works  
        obj.addEventListener( event, fnName, false);  
    }  
    else {  
        obj.attachEvent("on"+event, fnName);  
    }  
}
```

Turning events off

```
panel.onclick = null;  
↳ turning off an event property  
panel.removeEventListener("click", doSomething, false);  
↳ removing an event listener.
```

older MS browsers use detachEvent.

Event Object

When event is triggered, the system creates an event obj
tells us

↳ which element triggered specifically
 " " told

↳ which the event was attached to

<Section>

```
<ul>
  <li> Coffee </li>      ← click on
  <li> Tea </li>
  <li>       </li>
</ul>
```

Coffee event triggered
event gets triggered cascading upwards
through the parent elements

event delegation

↳ can do something w/ the
elements within the section

Too much writing on The Event Object slide

Using the event object

```
function handler(e) {
```

```
    alert(e.target.id);           → finds id of element that triggered the event  
    (e.type),                  → what type of event  
    (e.clientX);               → report the horizontal x coord of the event when it was triggered.
```

For ie 9 or earlier.

Look at slick

```
function handler(e) {
```

```
    event = e || window.event;  
  
    target = evt.target || evt.srcElement;  
  
    alert(target.id);  
  
}
```

Event capturing phases

↳ Checks for events trigger in one of two different ways for any given event listener.

Moving down through the tree (capturing)

Moving up (bubbling)

Browser Phase Checking example

Look at diagram

Always starts at the top
Capture happens first

Event Delegation

Set an event on an element, but care about the children of that element

<See S>

<V1>

1. ← could add elements individually, but then the listeners would need to be added every time we add a new li.

<V2>

 → We can add an event to the section

<See S>

e. target would be the specific li that triggered the event.

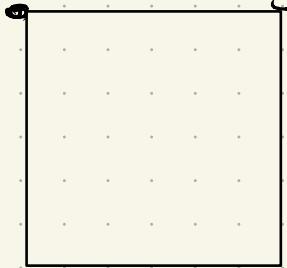
currentTarget gives us the element that had the eventListener added to it.

Nybs code

for loop for setting mouse over & move out
unity list class

in the loop
e.target.style.borderColor =

(rect_x, rect_y)



On May

Start initial and continue

Review: Forms

Forms allow users to input data so we may gather data.

- ↳ We have to keep the data we collect safely and securely.

HTML Element

Can build form through html or js for the project

`<form></form>` tells us where the form starts and ends

attributes

- ↳ `action` → defines the action to be performed when the form is submitted.

where



- ↳ Usually points to a program on the server.

↳ Method

- ↳ Specifies the http method GET & POST

how



GET should only be used for small, non-sensitive data

POST is used for large amounts of data or if the data is sensitive.

↳ sends a file in the background

- ↳ Neither are very secure

<input>

- ↳ Workhorse of the form
- ↳ Should have some HTML content before or after an input element as it only displays the field and not the labels.

<label for='male'> Male</label>

<input type='radio' name='gender' id='male'

<label> is used w/ input to associate text w/ the <input>

<label for=(associated id name)>

first name

<label for='l1'> first name

<input

</label>

↳ can click on the box &
the label to start inputting

<type>

↳ tells you what kind of input you want to use
eg. text, radio

<name>

↳ very important; is the name of the variable that is sent to the server.

<value>

↳ can contain a default value.

input types

text → one line text input field

password → characters typed in this box are masked

submit → defines a button for submitting data to the form handler

reset → reset form

radio →

- name
- thing
- stuff

 → only one selection
Should all have the same value

checkbox → allows for multiple selections

button → defines a button
↳ need to add our own code to make it work

names for radio buttons for one grouping
should be common

newer type weekly

color

Preformatting

date

datetime-local

email → they won't add an email

month

number

range

search

tel

time

url

input restrictions

disabled

max → maximum value for an input field

maxlength → how long

min →

pattern → specifies a regex to check the input against

readonly → field is read only, cannot be changed

required → field MUST be filled in

size → specifies the width in characters of an input field

step → legal number of intervals

value → specifies the default for the input

other attributes

look at the slide # 7

novalidate → don't validate the data

autofocus → input fields should have the cursor on the page
on load

list refers to a <datalist> element that contains predefined
options for an input

multiple - user can input multiple inputs in a field

Other form elements

<textarea> multiline input field

<fieldset> → groups related elements in a form

<legend> → defines a caption for a fieldset

<select> → creates a drop down list

↳ can have groupings in our <select>

<option> → each element in a select

<output> → defines the output of a calculation.

<form>

<label for='firstname'> First Name

<input type='text' value='Chris' id='firstname'>

</label>

user can now
click firstname
to go into the
text box

</form>

Local Web server for testing

storage returns a server.

Creating a webserver on our own computer.

Setting up a local test server

Check the slides

IIS on Windows

↳ location on our computer acting as a webserver.

localhost

↳ point to folder

Simulates actually accessing a webserver online.

Simulates the request/response simulation

Wamp or Xamp to use test web server

After IIS is set up

C has a folder called inetpub

wwwroot → store multiple websites.

localhost/ < foldername > within wwwroot.

if testing server features, need to use the web server, not our filesystem

Form Validation

When to validate & why

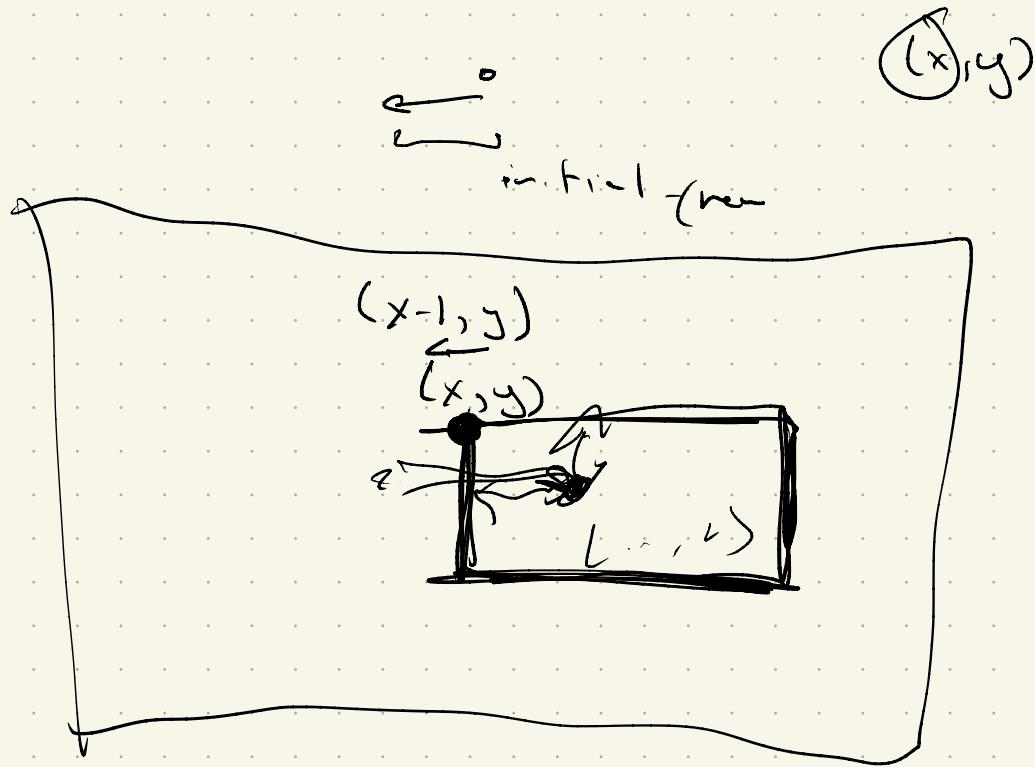
- Never trust user data

Slide 21

Special characters and we convert them into code.

when the data is retrieved we change it back to the character.

Security validation must be done server side because the user can choose to turn off javascript in their browser.



$$(x_1, y_1) \quad (x_2, y_2) \quad \boxed{(x, y)}$$
$$(-x, -y) \quad \text{--- left} = 1$$