CSC309 *Programming on the Web*

week 7: jquery, ajax

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review

- **so far:**
  - **front-end**
    - structure & semantic, appearance, behavior
    - many design tips
  - **back-end**
    - databases
      - structured & semi-structured data
  - **interacting with backend**
      - http, rest, node, express
- **this week:**
  - using **jquery/ajax** for the interaction

review

- **http** (underlying protocol for client/server interaction)

  GET /allWords.html HTTP/1.1 Host: www.project.org

  HTTP1.1 200 Ok Content-Type: text/html <html><p>Hello</p></html>

- **rest** (architectural styling/mindset)

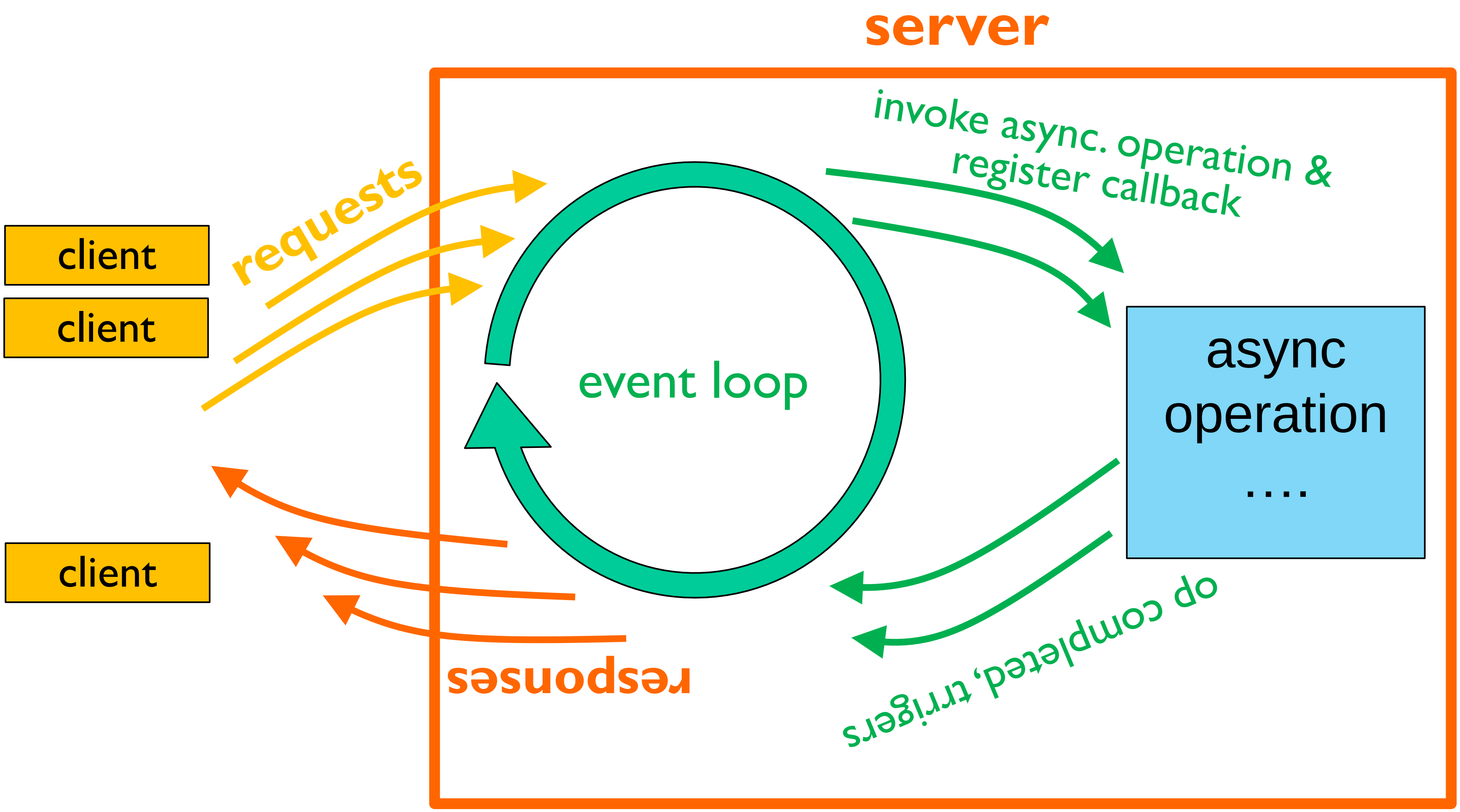
  www.project.org/allWords

  www.project.org/words/computer

- **node** (asynchronous and event driven)

```
…
fs.readFile( “some.txt”, readCompletedCallback);
//do other tasks …
function readCompletdCallback( error, dataBuffer) {
    response.writeHead(200, {'Content-Type': 'text/plain'});
    response.end(‘<html><p>Hello</p></html>');
     …
```

review



server

client

client

client

requests

event loop

invoke async. operation & register callback

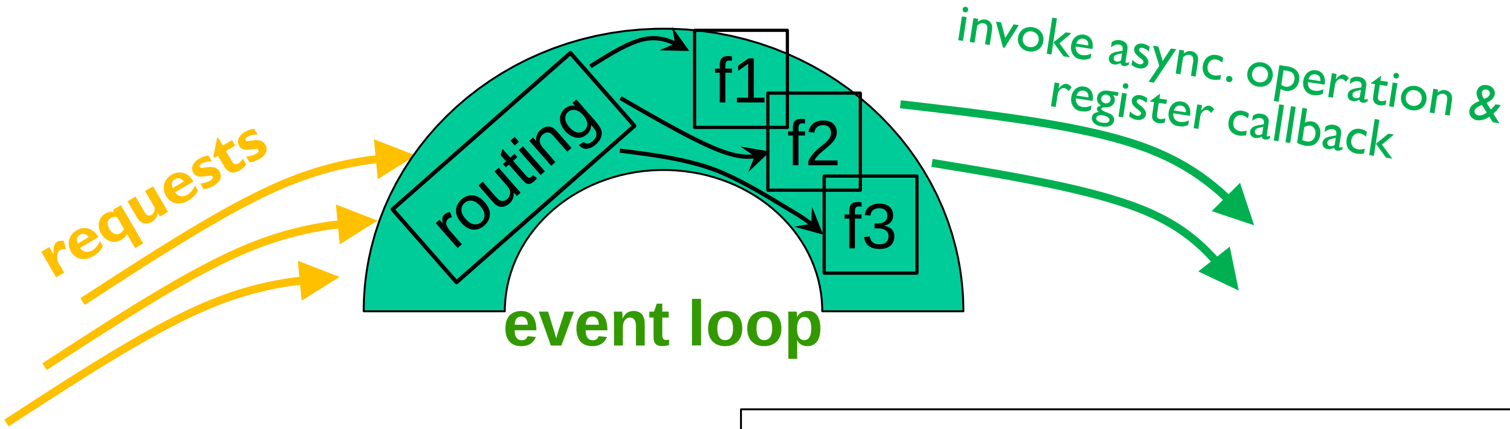
async operation ….

op completed, triggers

responses

review

- **express** (robust routing)



requests

routing

f1

f2

f3

event loop

invoke async. operation & register callback

- **routings in lab 6:**

```
app.get('/name', getName);
app.post('/name', setName);
app.get('/logout', logout);
app.post('/addmsg', addMessage);
app.get('/messages', getMessages);
```

```
function getName(req, res) {
  if (req.session.name) {
   return res.json({name: req.session.name});
  }
  else {
   return res.json({name: ‘ '});
  }
}
```

jquery

- a **js** library for
  - **traversing** and **manipulating** dom
  - **event** handling

```
<html>
<head>
   <title>jquery example</title>
   <script type = "text/javascript"
                src ="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js">
   </script>
   <script type = "text/javascript">
        $(function(){document.write("Hello World!"); });
   </script>
</head>
<body>
   <p>this is dummy</p>
</body>
</html>
```

$(selector).action()

dom selector	jquery selector
window.onload = function(){…}	$(document).ready(function(){…}); or $(function(){ … });
cf slide 4.14	
getElementsByTagName(“p”)	$(“p”)
getElementById(“123”)	$(“#123”)
css selector (slides 3.4, 3.8, 3.9)	
p, div {…}	$(“p, div”)…
div p {…}	$(“div p”)…
div > p {…}	$(“div > p”)…
.welcome {…}	$(“.welcome”)…
[type] {…}	$(“type”)…
a[target=“_blank”]	$(“a[target=‘_blank’]”)…

traverse

```
$(“p”).parent(“div”)…
$(“p”).parents(“div”)…
$(“p”).parentsUntil(“div”)…
```

```
$(“div”).siblings(“p”)…
$(“div”).next(“p”)…
$(“div”).nextAll(“p”)…
$(“div”).nextUntil(“p”)…
```

```
$(“p:nth-of-type(3)”)…
```

```
$(“p”).filter(“.welcome”)…
$(“p”).not(“.welcome”)…
```

```
$(“div”).children(“p”)…
$(“div”).children(“p”).first()…
$(“div”).children(“p”).last()…
$(“div p:nth-child(2)”)…
$(“div”).find(“p”)…
```

```
$(“div”).prev(“p”)…
$(“div”).prevAll(“p”)…
$(“div”).prevUntil(“p”)…
```

```
$(“p”).eq(2)…
$(“p”).first()…
$(“p”).last()…
```

effect

```
$(“p”).slideDown(speed, easing, callback)

$(“p”).animate(param, speed, callback)
               {left:“250px”},“slow”, myFunc()
```

❖ queueing

```
$(“p”).animate({left:“250px”},“slow”, myFunc());
$(“p”).animate({top:“400px”},“slow”, aFunc());
```

❖ chaining

```
$(“p”).animate({left:“250px”},“slow”, myFunc())
      .animate({top:“400px”},“slow”, aFunc());

$('a').parent('li').siblings().find('a');
```

misc.

- implicit loop

```
$(“p”).addClass(“intro”);
```

- add/remove styling

```
$(“p”).eq(2).removeClass(“intro”);
$(“p”).eq(2).toggleClass(“intro”);
```

- explicit loop

```
$(“p”).each(function(index){
            $(this).prepend(index+1);
      });
```

recall: ajax

- **asynchronous javascript and xml**
- idea:
  - updating part of the client page, not reloading the whole page
  - cf. lecture 4: XMLHttpRequest

```
<button type="button" onclick="loadDoc()">Request data</button>
<p id="demo">I will change after click</p>
<script> function loadDoc() {
      var xhttp = new XMLHttpRequest();
      xhttp.onreadystatechange = function() {
        if (this.readyState == 4 && this.status == 200) {
         document.getElementById("demo").innerHTML = this.responseText; }
     };
    xhttp.open("GET", "demo_get.asp", true);
    xhttp.send();
}</script>
```

jquery/ajax

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js"></script>
<button type="button" onclick="loadDoc()">Request data</button>
<p id="demo">I will change after click</p>
<script> function loadDoc() {

    $.get("demo_get.asp", function(data, status){
            if (status == "success") {
                $("#demo").replaceWith(data);
              }
            });

}
</script>
```

- get syntax:

  `$.get(url,callback);`

jquery/ajax

- post syntax:

  $.post(*url, data, callback*);

```
<script>
$(document).ready(function(){
    $("button").click(function(){
        $.post("demo_test_post.asp",
        {
          name: "Donald Duck",
          city: "Duckburg"
        },
        function(data, status){
                succes: $(“h1”).replaceWith(“<h1>”+data+”</h1>”);

        });
    });
});
</script>
```

ajax method

- ajax syntax:

  $.ajax({*name:value, name:value, ...* })

```
<script>
$(document).ready(function(){
    $("button").click(function(){
        $.ajax({
                url: "demo_test_post.asp",
                type:“POST”,
                dataType:“json”,
                data: JSON.stringify({“name”: "Donald Duck",“city”: "Duckburg"}),
                succes: function(data){
                        $(“h1”).replaceWith(“<h1>”+data+”</h1>”);
                     }
               });
        });
});
</script>
```

ajax method

- another example

```
function getName() {
        $.ajax({
                url : "/name",
                dataType : "json",
                 contentType: "application/json; charset=utf-8",
                 success : function (response) {
                        var name = response['name'];
                        updateUI(name);
                   }
                });
 }
```