CSC309 *Programming on the Web*

week 9: event loop revisit, jsonp

Amir H. Chinaei, Spring 2017

Office Hours: M 3:45-5:45 BA4222

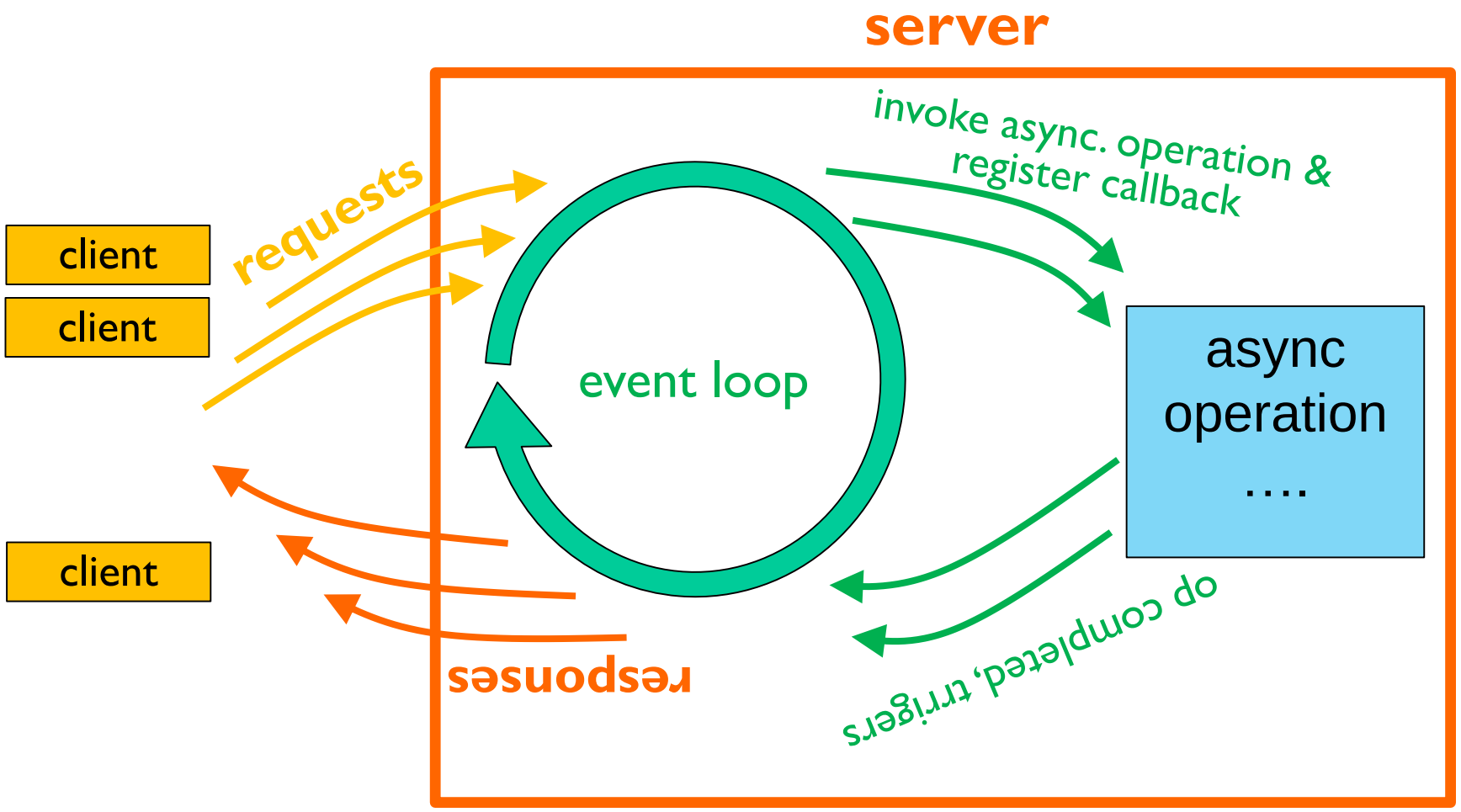
ahchinaei@cs.toronto.edu
http://www.cs.toronto.edu/~ahchinaei/

motivation

- **understanding event loop**
  - a couple of examples in week 6
  - more details (and live-coding) this week

- **cross-origin resource sharing**
  - requesting data from other domains
  - we saw http, XMLHttpRequest (XHR) already
  - jsonp this week

event loop


server
client
client
client
requests
event loop
invoke async. operation &
register callback
async
operation
....
op completed, triggers
responses

case study

// assume
// req1 is non-blocking: async part: ~4 s ; rest: ~0 s.
// req2 is synchronous: requires ~6 s.
// req3 is non-blocking: async part: ~2 s ; rest: ~0 s.
// req4 is synchronous: requires ~0 s.

// Question 1: req2 and req4 enter at time 12, in order;
// what time is each responded?

// Question 2: req4 and req2 enter at time 12, in order;
// what time is each responded?

case study

// req1 is non-blocking: async part: ~4 s ; rest: ~0 s.
// req2 is synchronous: requires ~6 s.
// req3 is non-blocking: async part: ~2 s ; rest: ~0 s.
// req4 is synchronous: requires ~0 s.

// Question 3: req3, req4, req1, and req2 enter at time 12;
// what time is each responded?

// Question 4: req3, req4, req2, and req1 enter at time 12;
// what time is each responded?

// Question 5: req2, req3, and req4 enter at time 12;
// what time is each responded?

case study

```
// this simulates request 1, with an asynchronous function
$("req1").click(function(){
      $("#21").html(" request 1 started at "+time());

      setTimeout (function timer() {
            $("#21").append(" and processed at "+time());
      }, 4000);

});
```

case study

```
// this simulates request 2, a blocking one
$("req2").click(function(){
        $("#22").html(" request 2 started at "+time());
        for( var k = 0; k<200000; k++) {
                console.log(k);
        }
        function x() {
                $("#22").append(" and processed at "+time());
        }
        x = x();
});
```

case study

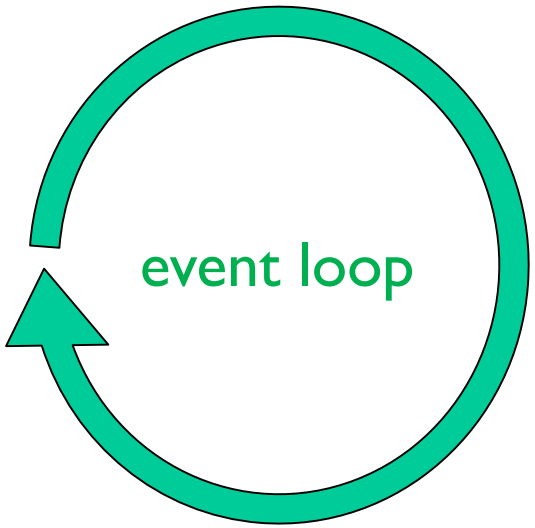
```
// this simulates request 3, with an asynchronous function
   $(“req3").html(" request 3 started at "+time());

   setTimeout (function timer() {
           $("#23").append(" and processed at "+time());
      }, 2000);


// this simulates request 4
   $(“req4").html(" request 4 processed at "+time());
```

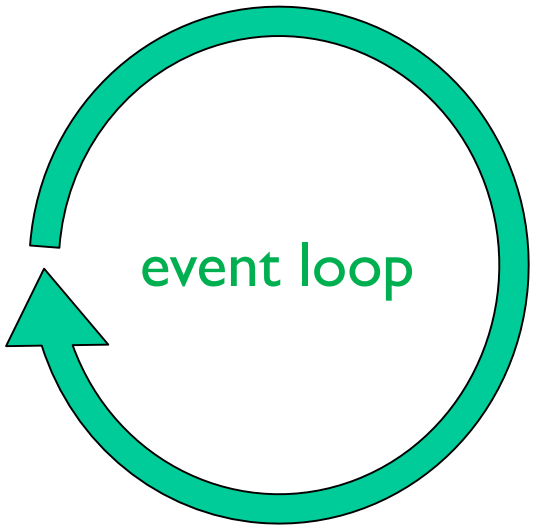
Question 3:

req3, req4, req1, and req2 enter at time 12;



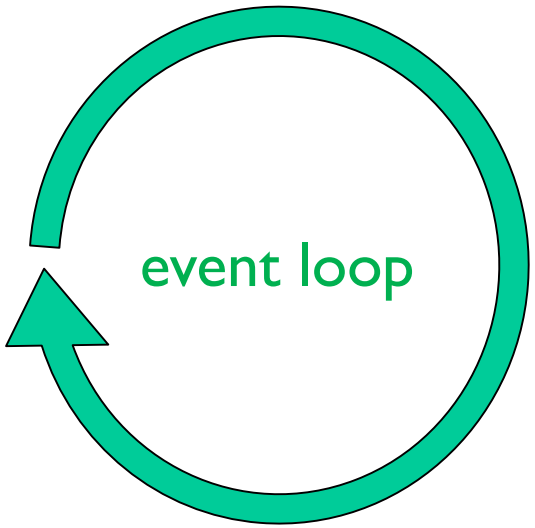
Question 4:

req3, req4, req2, and req1 enter at time 12;



Question 5:

req2, req3, and req4 enter at time 12;



jsonp

- **json** with **p**adding
  - application: requesting data from different domains

- recall:
  - sure the client can send an http **request** (or xhr),
  - to receive data from its server domain

  - but,
  - the **response** in the best form is some data **json** format

example

- **request**

  www.peopledb.com/first

- **response**

  { "name":"John", "age":30, "city":"New York" }

- so, running a script like this

```
<script  src="www.peopledb.com/first">
</script>
```

  results in an error.

jsonp

- you can wrap json response, the way you wish:
- **example: response**

  cb({ "name":"John", "age":30, "city":"New York"})

- now, the script looks like this to the browser:

```
<script  src= cb({ "name":"John", "age":30, "city":"New York" })>
</script>
```

- when the **request** sent is

  www.peopledb.com/first?callback=cb

informal feedback

- 75% rated assignments/proj the most effective in learning
- 58% rated kahoots effective in learning
- 52% stated more clear step-by-step lab instructions
- 40% stated more live-coding in class

- ~ less technologies to be covered
- ~ less assignments/projects

- peer evaluation can always be revised
- peer instruction a ramp-up approach

recall

what would you need to do well?

- pay attention to concepts (in lectures)
- practice the concepts and skills (in labs)
- master your skills by assignments
- put all your learning together in the project
- start early the assignments and project phases
- lectures and labs are limited
  - but for your deep learning, sky's is the limit
- final exam: deep concepts

Introduction 1-9

- spiral model