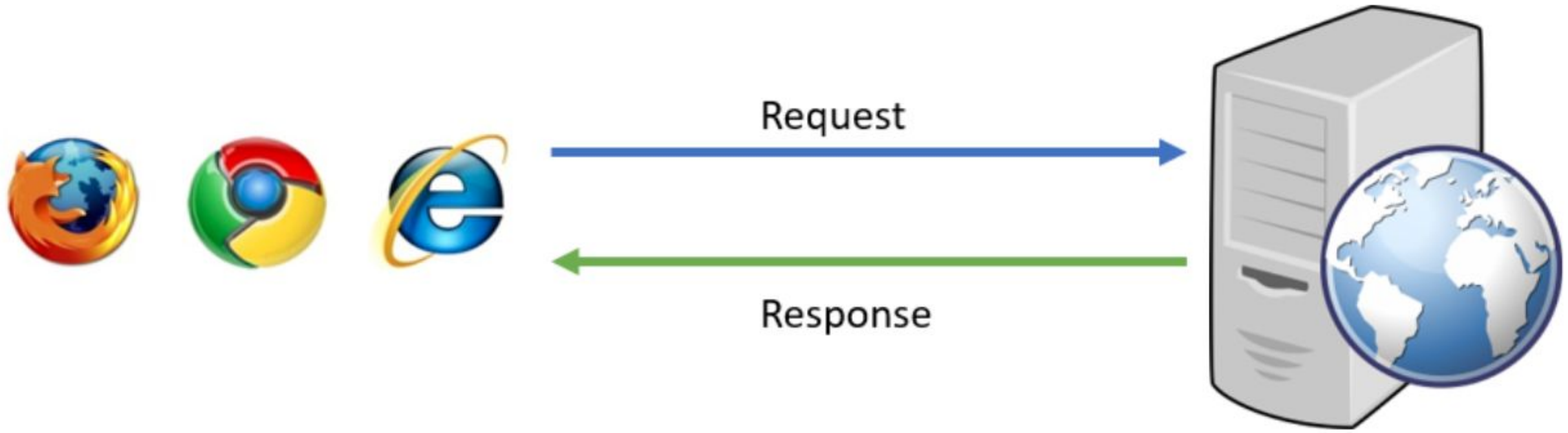
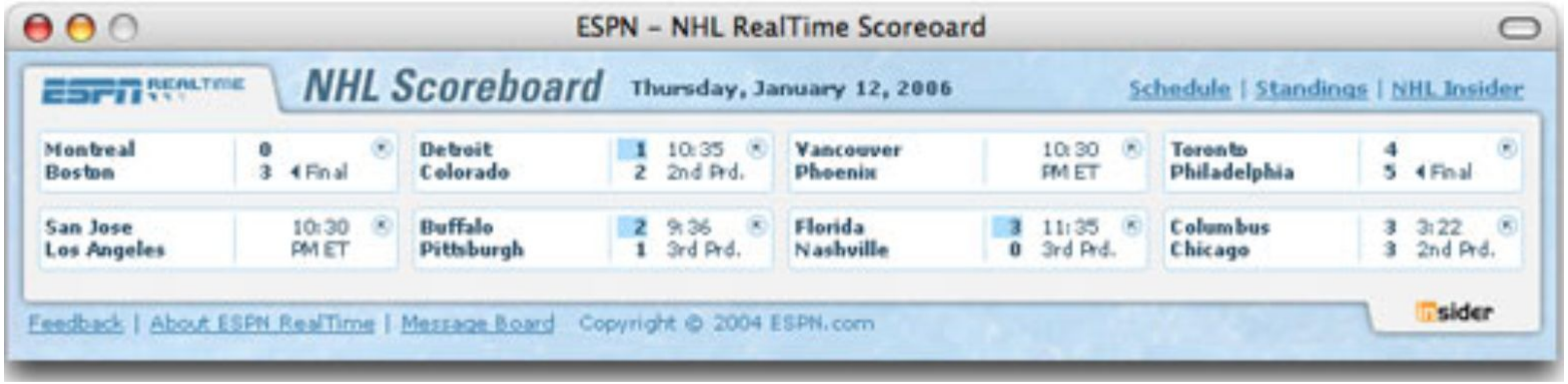
Module 3 - Lecture 9

Accessing Web APIs with JavaScript

HTTP Revisited



Live Score Tracking (2006)



ESPN – NHL RealTime Scoreoard

ESPN REALTIME

NHL Scoreboard Thursday, January 12, 2006

Schedule | Standings | NHL Insider

Montreal	0	
Boston	3	Final
Detroit	1	10:35
Colorado	2	2nd Prd.
Vancouver		10:30
Phoenix		PM ET
Toronto	4	
Philadelphia	5	Final
San Jose		10:30
Los Angeles		PM ET
Buffalo	2	9:36
Pittsburgh	1	3rd Prd.
Florida	3	11:35
Nashville	0	3rd Prd.
Columbus	3	3:22
Chicago	3	2nd Prd.

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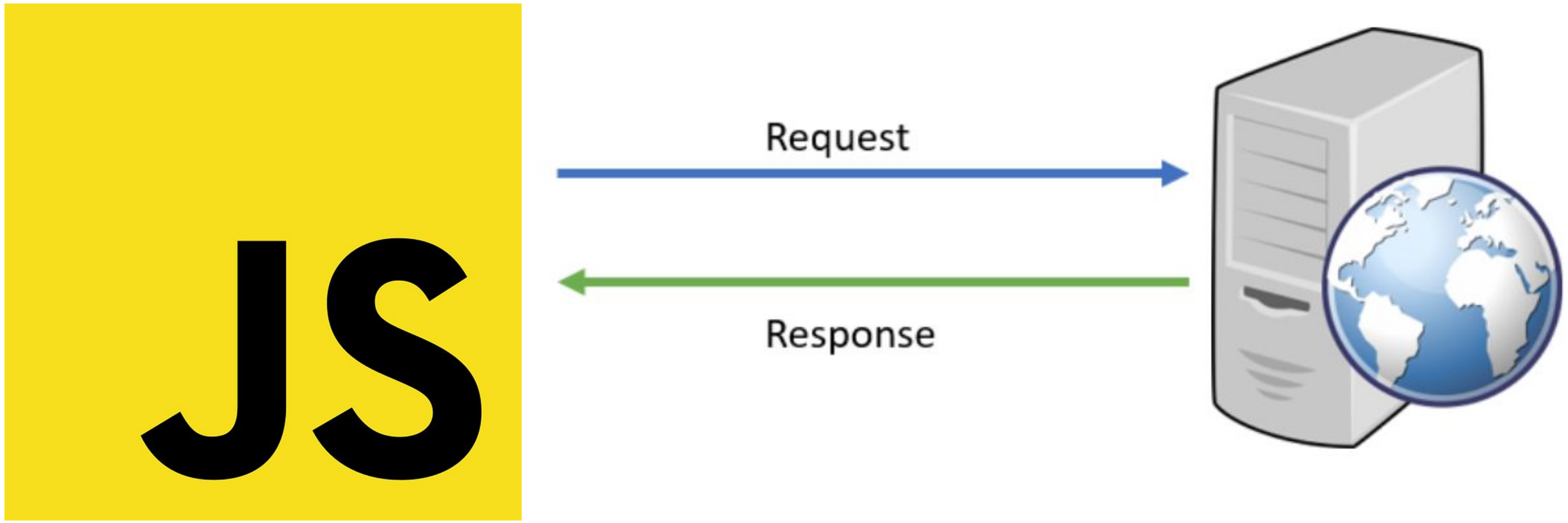
Insider

How does this work?

HTTP (2006)



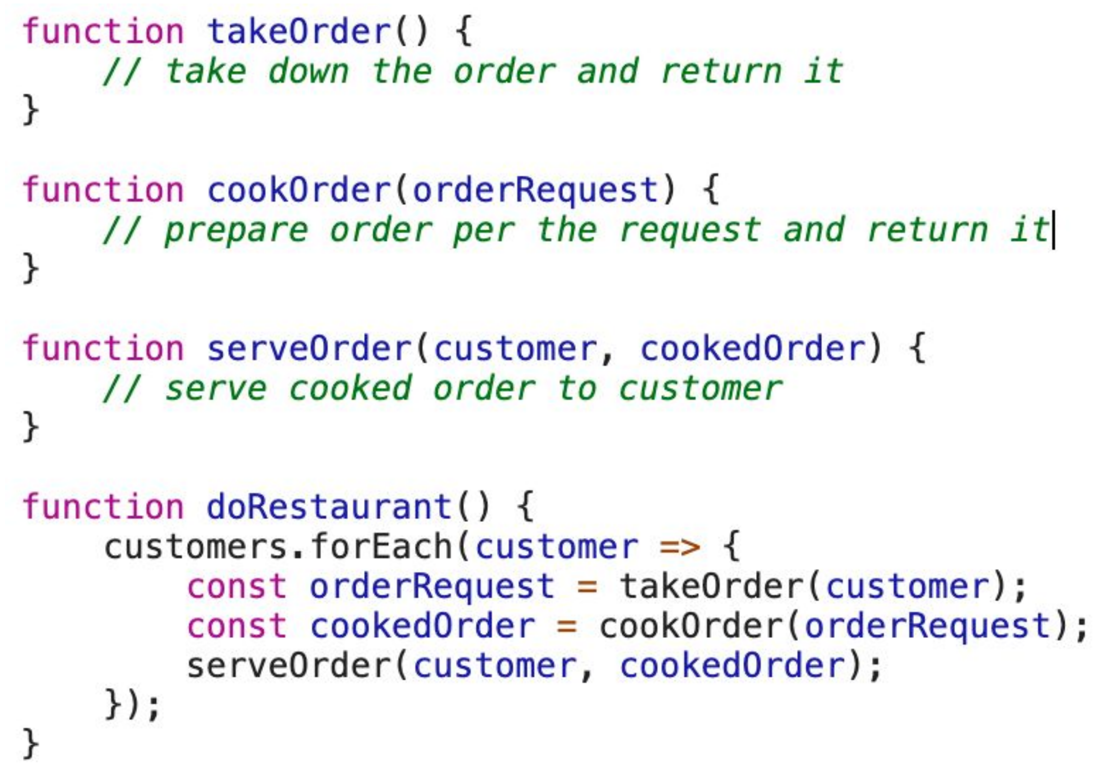
Fetch API

- The Fetch API provides an interface for fetching resources.
- It uses a Request / Response model.
- It can work with other protocols other than HTTP, but we'll ignore those for now.
- Fetch API is somewhat equivalent to Spring's RestTemplate.

Asynchronous Programming

“Have a seat. We’ll bring out your order when it’s finished”

What’s wrong with this?



```
function takeOrder() {
    // take down the order and return it
}

function cookOrder(orderRequest) {
    // prepare order per the request and return it
}

function serveOrder(customer, cookedOrder) {
    // serve cooked order to customer
}

function doRestaurant() {
    customers.forEach(customer => {
        const orderRequest = takeOrder(customer);
        const cookedOrder = cookOrder(orderRequest);
        serveOrder(customer, cookedOrder);
    });
}
```

Promises

- A promise to supply a value at some later point.

- Allows you to associate handlers with an asynchronous action's eventual success value or failure reason.

- 3 states of a Promise

    - ***pending***: initial state, neither fulfilled nor rejected.
    - ***fulfilled***: meaning that the operation was completed successfully.
    - ***rejected***: meaning that the operation failed.
    -

- .then() for accessing returned Promise
- .catch() for handling errors

Asynchronous Approach

```
function takeOrder() {
    // take down the order and return it
}

function cookOrder(orderRequest) {
    // prepare order per the request and return it
}

function serveOrder(customer, cookedOrder) {
    // serve cooked order to customer
}

function doRestaurant() {
    customers.forEach(customer => {
        takeOrder(customer)
            .then((orderRequest) => {
                return cookOrder(orderRequest);
            })
            .then((cookedOrder) => {
                serveOrder(customer, cookedOrder);
            });
    });
}
```

Cross Origin Resource Sharing (CORS)

- Your browser enforces a policy that prevents requests from going to a different domain than the current one.

- The web server has influence over this. They can whitelist domains to permit them through.

- In Spring this can be done using the annotation **@CrossOrigin**
    - This can be added to the Controller or Method Handler.

```
@CrossOrigin(origins = { "http://127.0.0.1:5500", "http://localhost:5500" })
```

QUESTIONS?