INFM 603: Information Technology and Organizational Context

Session 8: Ajax and Asynchronous Programming

Jimmy Lin
The iSchool
University of Maryland

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RideShare Exercise

- Design a database to match drivers with passengers for ride sharing on long car trips:
  - Drivers post available seats; they want to know about interested passengers
  - Passengers come looking for rides: they want to know about available rides and can make reservations
  - These things happen in no particular order
  - To simplify, passengers don't get to post "rides wanted" ads
- Build a web application to accomplish the above

RideShare Exercise: Tasks

- Design the tables you will need
  - First decide what information you need to keep track of
  - Then design tables to capture this information
- Design SQL queries
  - What happens when a passenger comes looking for a ride?
  - What happens when a driver comes to find out who the passengers are?
- Role play!

Tables

- Ride: Ride ID, Driver ID, Origin, Destination, Date, Time, Available Seats
- Passenger: Passenger ID, Name, Address, Phone Number
- Driver: Driver ID, Name, Address, Phone Number
- Booking: Ride ID, Passenger ID

Queries

- Passenger searches for a ride:
  - Join: Ride, Driver
  - Where: Origin and Destination match request, Available Seats > 0
  - Select: Name, Phone Number
- Passenger “books” a ride:
  - Assuming successful search above: decrease Available Seats by one
  - Insert row into Booking table with Ride ID and Passenger ID
- Driver ready to go: Who are my passengers?
  - Join: Ride, Passenger, Booking
  - Where: (Driver) Name, Origin, and Date match
  - Select: (Passenger) Name, Phone Number

Demo

- We’re going to build the RideShare web app…
- Like, right now!

Slight Simplification

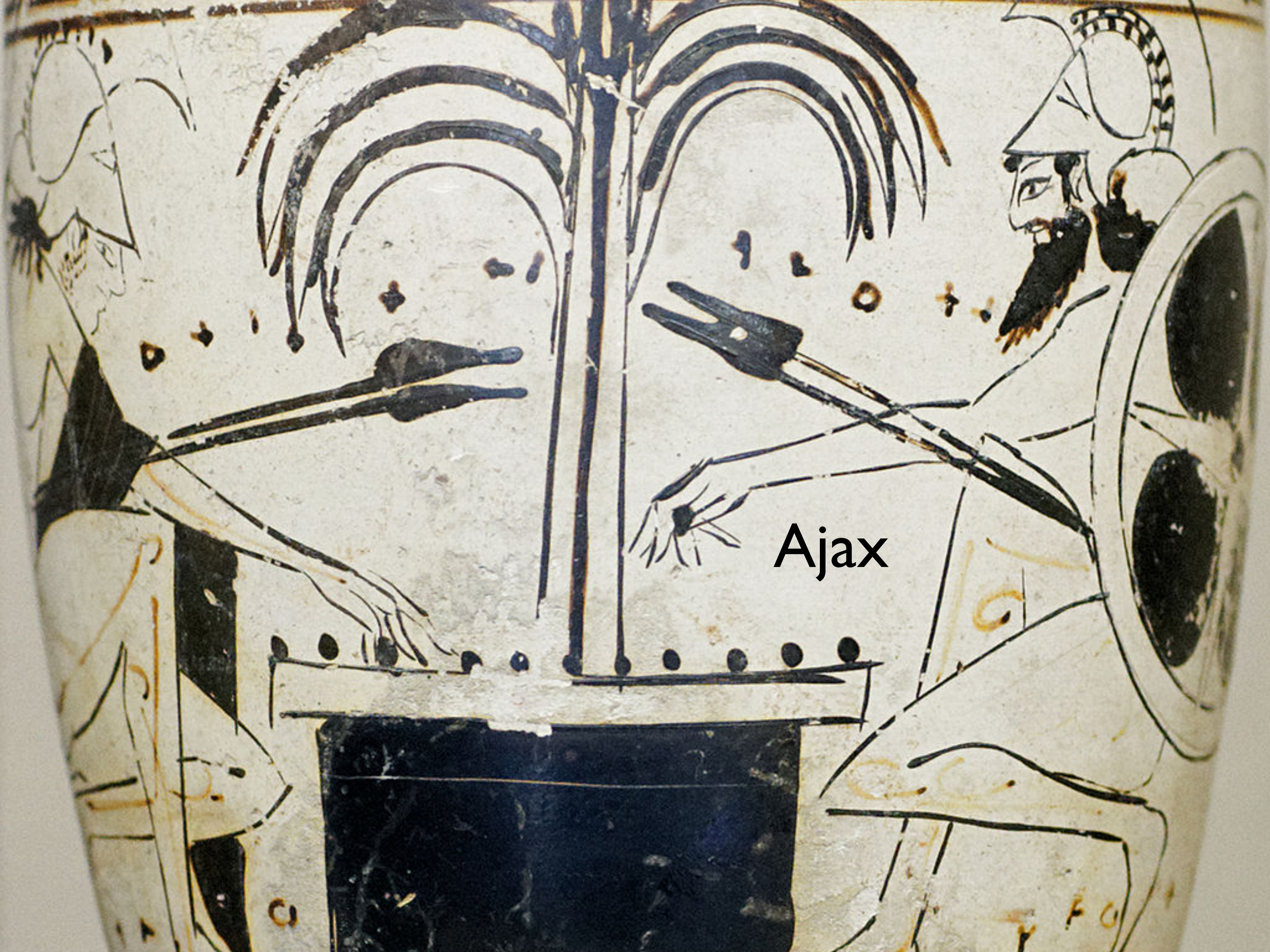
- Ride table:
  - RideId
  - Driver (name)
  - Phone
  - Origin
  - Destination
  - Date
  - Seats
- Booking table:
  - RideId
  - Passenger (name)
  - Phone

Today

- More JavaScript!
- Ajax
- JSON
- More PHP!

Synchronous vs. Asynchronous

- Definitions
  - Synchronous: happening, existing, or arising at precisely the same time
  - Asynchronous: not synchronous
- Communications
  - Synchronous
  - Asynchronous
- Programming
  - Synchronous
  - Asynchronous


Ajax

What’s Ajax?

- Asynchronous JavaScript and ~~XML~~
- The only thing you need to learn:

Get this URL

```
var url = "...";
var request = new XMLHttpRequest();
request.open("GET", url);
request.onload = function() {
  if (request.status == 200) {
    // Your code here
  }
};
request.send(null);
```

Callback function

What's at the URL?

- A static file (e.g., JSON)

```
{
  name: "Fido",
  weight: 40,
  breed: "Mixed",
  loves: ["walks", "fetching balls"]
}
```

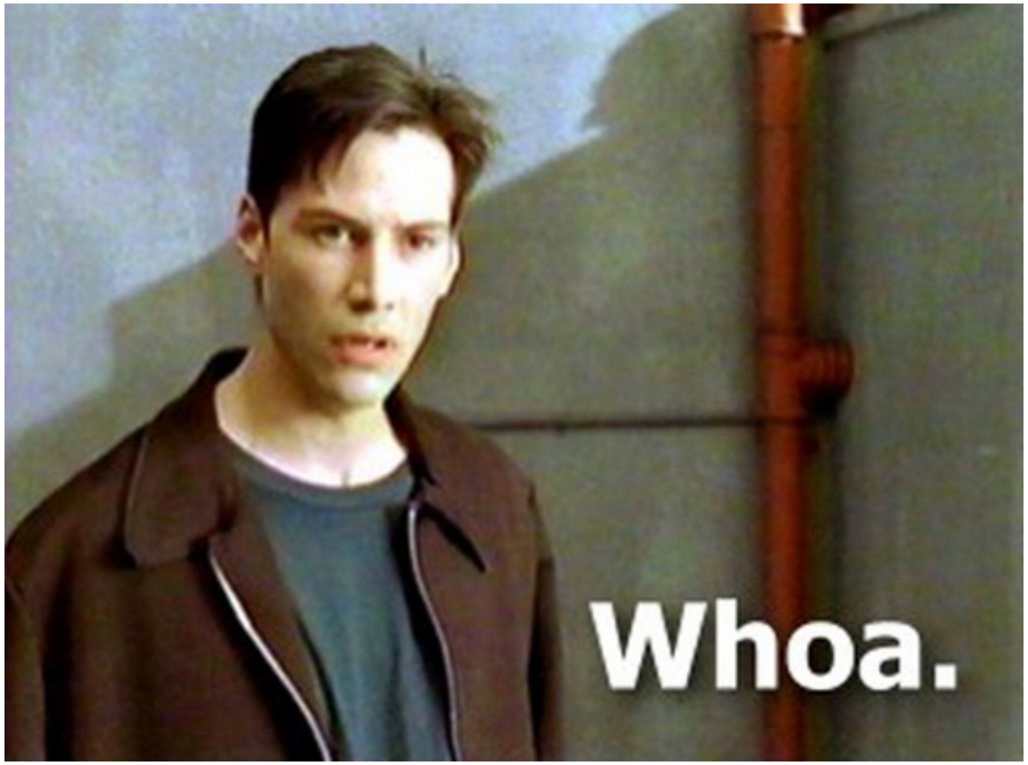
What's at the URL?

- An application programming interface (API)

$\underbrace{\text{http://download.finance.yahoo.com/d/quotes.csv}}_{\text{Think of this as a function call!}}\text{?s=GOOG\&f=nsl1op}$

argument1=value&argument2=value...

- How do we write APIs?



Got it?

Source: The Matrix