



# HTML5 Local Storage... R... Testing...

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# Problem To Solve



- Data Intensive
  - 11063 Records in test
- Long Page Load Times
  - Max load time over one second for test data
  - Current load time for our site is 11.887 seconds
- Static Data

# Things To Learn

- HTML5 Web Storage
  - Bigger Better Cookies
- Debugging Tools
  - Yslow (add on to Firebug)
  - Safari Developer Tools
- R
  - Used in our group
  - Taking class next week



Hand

A logo consisting of a dark gray rectangle with a light gray horizontal bar at the top and a green horizontal bar at the bottom. The word "Code!" is written in white, sans-serif font in the center.

```
<script type="text/javascript">
    function loadDB(){
        if(typeof(Storage)=== "undefined"){
            window.location="WithOutHTML5.jsp";
        }
        else{
            var type = localStorage.getItem('0');
            if(type === 'filled'){
            }
            else{
                window.location="WithOutHTML5.jsp";
            }
        }
    }
    window.onload = loadDB;
</script>
```

➔ Pulling data from local storage

```
<!-- HTML STUFF -->
```

```
    <ul name="list" id="list">
        <script type="text/javascript">
            for(var i = 0; i < localStorage.length-1; i++){
                var key = localStorage.key(i);
                var val = localStorage.getItem(key);
                document.write("<li>" + i + " | " + val + "</li>");
            }
        </script>
    </ul>
```

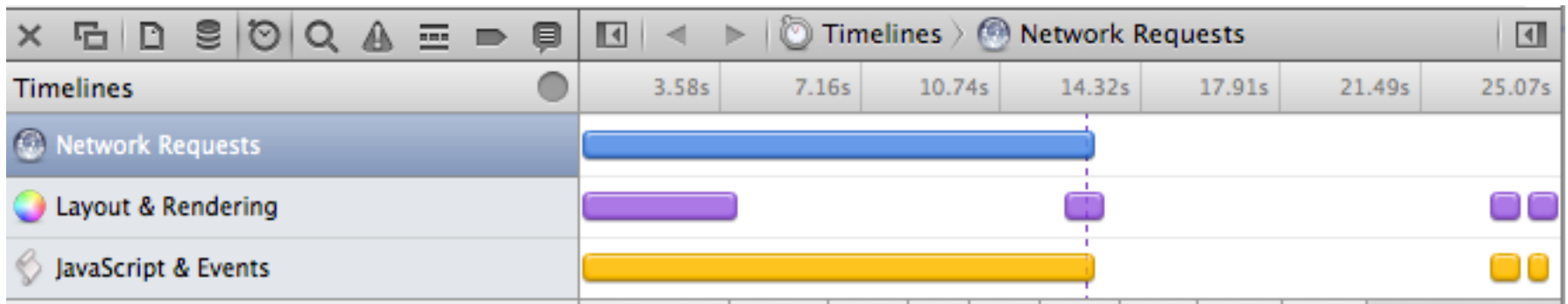
# Code!

## ➤ Pushing data into local storage

```
<script type="text/javascript">
  function loadDB(){
    localStorage.setItem('0', 'filled');
    var list = document.getElementById('list').getElementsByTagName("*");
    for(var i = 0; i < list.length; ++i){
      var a = i+1;
      var b = list[i].innerHTML;
      localStorage.setItem(a, b);
    }
  }
  window.onload = loadDB;
</script>
```

# Collecting Data

- Yslow
- Safari dev tools
- Data collection not efficient would be better suited for automated collection
- Manually cleared cookies and cache after each page load

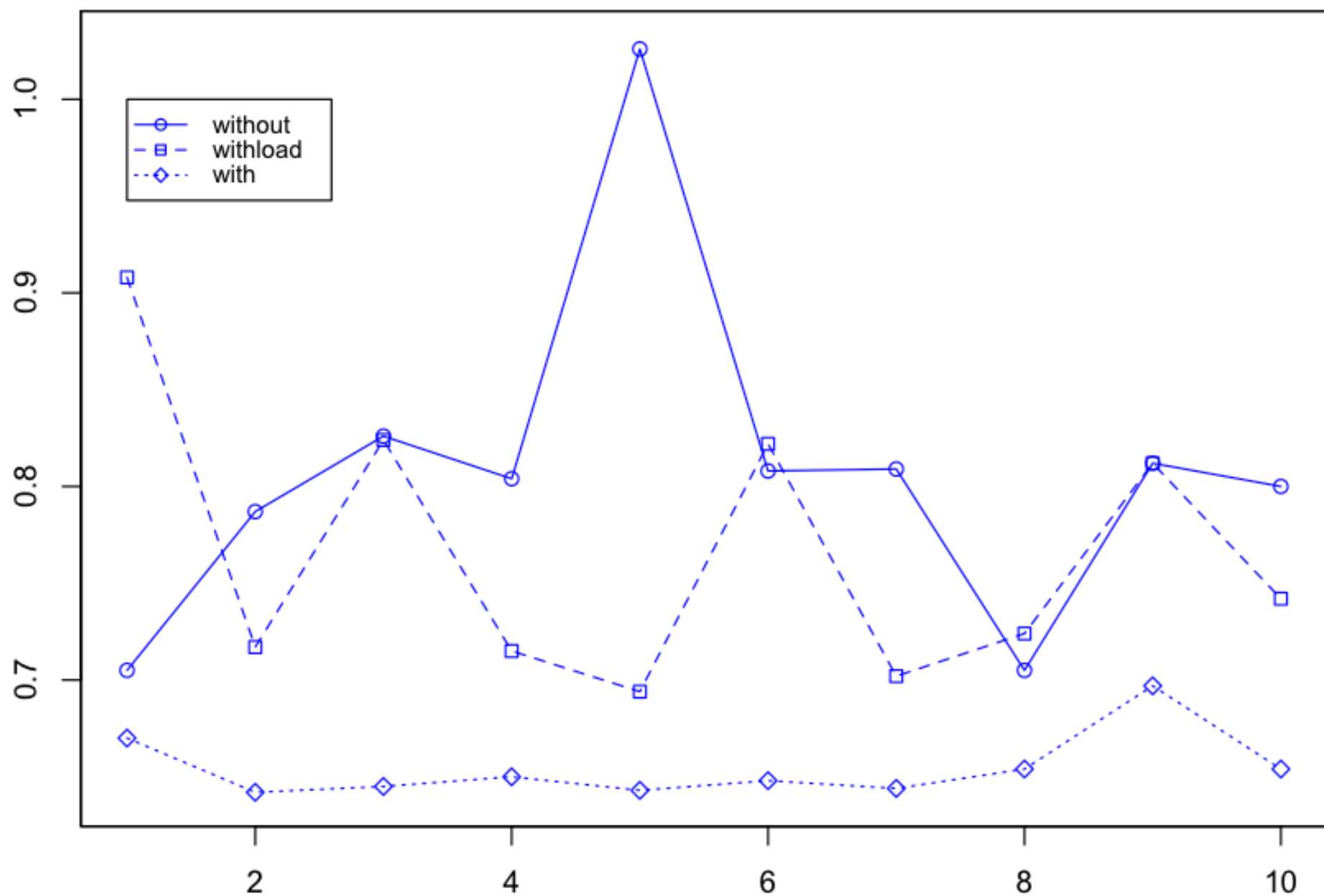


	A	B	C	D
1		WithOutHTML5	WithHTML5	
2		Time	First Time	Second Time
3	0	0.705	0.908	0.67
4	1	0.787	0.717	0.642
5	2	0.826	0.824	0.645
6	3	0.804	0.715	0.65
7	4	1.026	0.694	0.643
8	5	0.808	0.822	0.648
9	6	0.809	0.702	0.644
10	7	0.705	0.724	0.654
11	8	0.812	0.812	0.697
12	9	0.8	0.742	0.654
13				
14	5NS	without	withload	with
15	min	0.705	0.694	0.642
16	Q1	0.787	0.715	0.644
17	mean	0.806	0.733	0.649
18	Q3	0.812	0.822	0.654
19	max	1.026	0.908	0.697
20				
21	Records	Loaded	11063	
22				

# Raw Data



## Page Load Times





```

1 without <- c(0.705, 0.787, 0.826, 0.804, 1.026, 0.808, 0.809, 0.705, 0.812, 0.800)
2 withload <- c(0.908, 0.717, 0.824, 0.715, 0.694, 0.822, 0.702, 0.724, 0.812, 0.742)
3 with <- c(0.67, 0.642, 0.645, 0.650, 0.643, 0.648, 0.644, 0.654, 0.697, 0.654)
4
5 plot(without, type="o", col="blue", ylim=c(0.640, 1.03))
6
7 box()
8
9 lines(withload, type="o", col="red", pch=22, lty=2)
10 lines(with, type="o", col="green", pch=23, lty=3)
11
12 title(main="Page Load Times", col.main="red", font.main=4)
13
14 legend(1, c("without", "withload", "with"), cex=0.8, col=c("blue", "red", "green"), pch=21:23, lty=1:3);
15

```

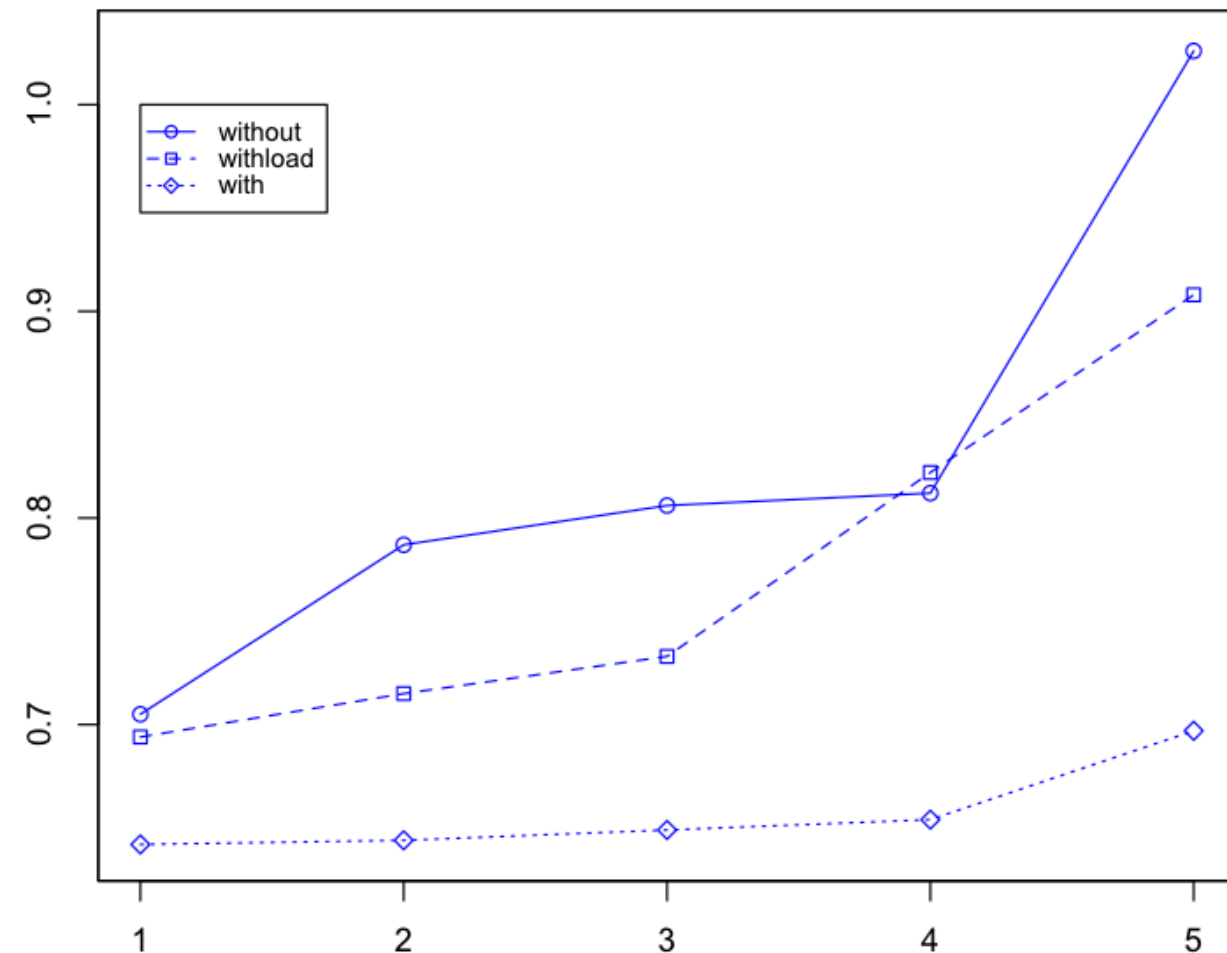
```

1 without <- c(0.705, 0.787, 0.806, 0.812, 1.026)
2 withload <- c(0.694, 0.715, 0.733, 0.822, 0.908)
3 with <- c(0.642, 0.644, 0.649, 0.654, 0.697)
4
5 plot(without, type="o", col="blue", ylim=c(0.640, 1.03))
6
7 box()
8
9 lines(withload, type="o", col="red", pch=22, lty=2)
10 lines(with, type="o", col="green", pch=23, lty=3)
11
12 title(main="Five Number Summarys", col.main="red", font.main=4)
13
14 legend(1, c("without", "withload", "with"), cex=0.8, col=c("blue", "red", "green"), pch=21:23, lty=1:3);
15

```

# Results

## Five Number Summaries



- No HTML
  - mean load time 0.806s
- With HTML (no cookie)
  - mean load time 0.733
- With HTML (with cookie)
  - mean load time 0.649s
- Speed up for 11063 records
  - 0.157s

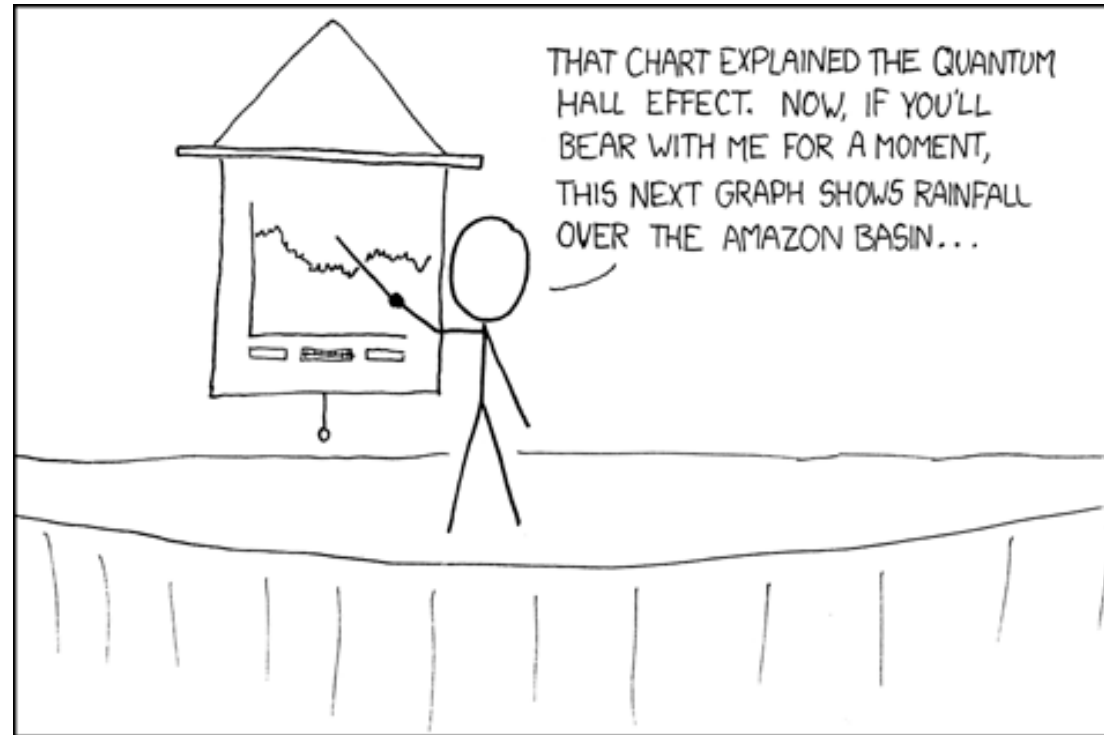
# Conclusion

- Yslow – page load times seemed random
- Safari dev tools – made me a believer
  - Sorry FireBug
- R is cooler then MiniTab
- Internet speeds are fast while IO speeds are slow
- HTML5 Web Storage great for saving page state and user data
- Not ready to push whole publications database in to users local storage
- Experiment thoughts
  - Poor sample size
  - Poor amount of results collected
  - Learning tools while collecting results
  - Lack of sleep ☺



# Future Work

- Create a test project from scratch, not pieces together parts of current project
- Collect more results from multiple tools
- Collect more data per result (bandwidth, size of data...)
- Review other experiments in similar work
- Use local storage for user data and page state in current projects



IF YOU KEEP SAYING "BEAR WITH ME FOR A MOMENT", PEOPLE TAKE A WHILE TO FIGURE OUT THAT YOU'RE JUST SHOWING THEM RANDOM SLIDES.

# References

- <https://addons.mozilla.org/en-US/firefox/addon/yslow/#>
- <http://www.harding.edu/fmccown/r/>
- <http://diveintohtml5.info/storage.html>
- Countless others found from
  - <http://www.google.com>

