Johannes Akse

January 28, 2016

# Contents

# 1 Introduction

## 1.1 Goal

## 1.2 Development in a real time setting

Even though the functionality looks easy, the development has not been trivial.

## 1.3 Gsuite - A need to simplify the UI

## 1.4 Requirement specifications

## 1.5 Design choices

## 1.6 Challenges

## 1.7 Problem statement

## 1.8 Terminology

### 1.8.1 Acronyms

# 2 Background

## 2.1 Web clients

## 2.2 Anticipated behavior in a web application

## 2.3 Single page application on top of server heavy page - A hack?

## 2.4 Storing state in the browser

## 2.5 Location.hash or models as driving appliBehaviourcation state

## 2.6 Communicating with the DOM

## 2.7 Strictly objects vs class structures

(Discussion?)

#### 2.7.1 ECMA 5 vs ECMA 6

(Discussion?)

### 2.8 Using third party libraries or design from scratch?

(Discussion?)

## 3 Methodology

Why local testing has been crucial to development

### 3.1 Behavior driven development

Find source.

#### 3.1.1 Jasmine

Using Jasmine as integration testing tool

### 3.2 Modularity

For modularity and encapsulation. (Discussion?)

#### 3.2.1 Browserify, taking Nodejs NPM module loading technology to the browser

## 4 Development

### 4.1 Building blocks / Objects

#### 4.1.1 Main

ModeApp ToolApp

#### 4.1.2 Prototypes

Model prototype View prototype Controller prototype History prototype Dispatcher prototype Observer

## 5 Discussion

### 5.1 Specific or broad approach

* Code for the future ie pushState * Both setHistory and changeHistory c - More work. More mess p - Faster refactoring when new specifications

* uriAnchor vs. own development * How to handle bugs in third party plugins? * Using framework or library vs creating from scratch (Introduced in the background). * Local storage vs simple

# 6 Conclusion

## 6.1 Thoughts on future development

# Bibliography

## Books


Copernicus, Nicolaus (1543). *De Revolutionibus Orbium Coelestium*. apud. Ioh. Petreium. `http://ads.harvard.edu/books/1543droc.book` (visited on 01/13/2014).

Foley, James David (1990). *Computer graphics: principles and practice*. Reading, Mass.: Addison-Wesley.

Kopka, Helmut and Patrick W. Daly (1995). *A guide to LaTeX2ε : document preparation for beginners and advanced users*. 2nd ed. Addison-Wesley.

— (2004). *Guide to LaTeX: tools and techniques for computer typesetting*. 4th ed. Addison-Wesley.

Norman, Donald A. and Stephen W. Draper, eds. (1986). *User centered system design: new perspectives on human-computer interaction*. Hillsdale, N.J.: Lawrence Erlbaum.

Olsen, D.R. (1992). *User interface management systems: models and algorithms*. San Francisco: Morgan Kaufmann.

Shneiderman, Ben (1992). *Designing the user interface: strategies for effective human-computer interaction*. Reading, Mass.: Addison-Wesley.

Stephenson, Neal (1999). *In the beginning ...was the command line*. New York: Avon Books.

Syropoulos, Apostolos, Antonis Tsolomitis, and Nick Sofroniou (2002). *Digital typography using LaTeX*. Springer.


## Articles


Foley, James David (1987). "Interfaces for advanced computing". In: *Scientific American* 257.4, pp. 127–135.

Hartson, H. Rex and Deborah Hix (1989). "Human-computer interface development: concepts and systems for its management". In: *ACM Computing Surveys* 21.1, pp. 5–92.

Jacob, Robert J. K. (1986). "A specification language for direct-manipulation user interfaces". In: *ACM Transactions on Graphics* 5.4, pp. 283–317.

Johnson, J. et al. (1989). "The Xerox Star: a retrospective". In: *Computer* 22.9, pp. 28–29.

Myers, Brad A. (1995). "User interface software tools". In: *ACM Transactions on Computer-Human Interaction* 2.1, pp. 64–103.

Shneiderman, Ben (1983). "Direct Manipulation: A Step Beyond Programming Languages". In: *Computer* 16.8, pp. 57–69.

## Manuals


Langmyhr, Dag F. (2008). *Lokal guide til BibTeX*. http://www.ifi.uio.no/~dag/latex-links/bibtex-guide.pdf (visited on 01/13/2014).

Langmyhr, Dag F. and Knut Hegna (2013). *Local Guide to BibLaTeX*. http://dag.at.ifi.uio.no/latex-links/biblatex-guide.pdf (visited on 01/13/2014).

Lehman, Philipp (2013). *The biblatex package*. 2.8a. http://mirrors.ctan.org/macros/latex/contrib/biblatex/doc/biblatex.pdf (visited on 01/13/2014).

Rahtz, Sebastian and Heiko Oberdiek (2012). *Hypertext marks in LaTeX : a manual for hyperref*. http://www.ctan.org/tex-archive/macros/latex/contrib/hyperref/doc/manual.pdf (visited on 01/13/2014).

Dominik, Carsten (2009). *RefTeX user manual*. 4.34. http://www.gnu.org/software/auctex/manual/reftex.pdf (visited on 01/13/2014).


## Other documents


Achilles, Alf-Christian and Paul Ortyl (2014). "The Collection of Computer Science Bibliographies". http://liinwww.ira.uka.de/bibliography/index.html (visited on 01/13/2014).

Hartson, H. Rex and Kevin A. Mayo (1993). *Synthesis-Oriented Situational Analysis as an Alternative to Analytic Evaluation for Iterative User Interface Design*. Technical Report TR-93-09. Virginia Polytechnic Inst. and State University.

Hutchins, E. L., J. D. Hollan, and Donald A. Norman (1986). "Direct manipulation interfaces". In: *User centered system design: new perspectives on human-computer interaction*. Ed. by Donald A. Norman and Stephen W. Draper. Hillsdale: Lawrence Erlbaum, pp. 87–124.

Jacob, Robert J. K. (2000). "User interface". In: *Encyclopedia of computer science*. Ed. by Anthony Ralston, Edwin D. Reilly, and David Hemmendinger. 4th ed. Nature publishing Group, pp. 1821–1826.

Ko, Andrew J. and Brad A. Myers (2006). "Barista: An implementation framework for enabling new tools, interaction techniques and views in code editors". In: *Proceedings of the SIGCHI conference on Human Factors in computing systems*. 1124831, 387–396. Montreal, Quebec, Canada: ACM Press.

*LaTeX/Bibliography Management* (2012). Webpage. http://en.wikibooks.org/wiki/LaTeX/Bibliography_Management (visited on 01/13/2014).