

LFE Medieninformatik • Felix Heller

Patchwork Prototyping for Web Applications

**Medieninformatik Hauptseminar
Wintersemester 2009 /2010
„Prototyping“**





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History

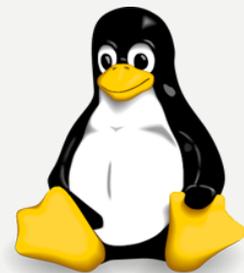
Participatory design (users involved in design process)

- At the beginning: Computerization of work
- Later: Widespread use of computers
- Today: Internet access is usual



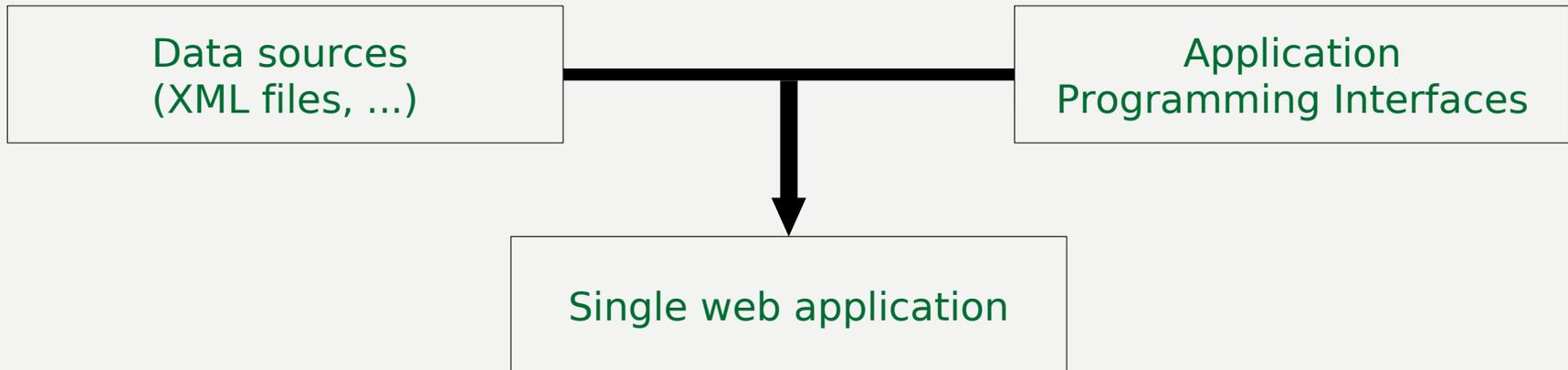
Free /Libre Open Source Software (FLOSS)

- No licensing costs
- Lower risk of rights violations
- Over the time: Growing amount of products
- Today: Great innovative potential for web applications





Definition: Mashup



Popular example: **HousingMaps.com** (invented in 2005)

- Collects data from Craigslist.org (real-estate listings)
- Allows filtering of information
- Shows the processed data with Google Maps API



Definition: Mashup

For Rent [For Sale](#) [Rooms](#) [Sublets](#)

Powered by [craigslist](#) and [Google Maps](#)
(this site is in no way affiliated with craigslist or Google)

City: Price: [Show Filters](#) ^{New} [Refresh](#) [Link](#)

[About / Feedback](#)



| pics | price | bd | description | city | date |
|------|--------|-----|---|-------------|------|
| | \$1700 | 1bd | No Fees* Huge Artist Studio Loft Beautiful Plenty Of Sunlight | Brooklyn | 1/20 |
| | \$1790 | 2bd | A perfect secure environment in a private beautiful house w/garden and | Long Beach | 1/20 |
| | \$1650 | 2bd | Gorgeous 2Bd. New Appliances. Updated Bathroom | Brooklyn | 1/20 |
| | \$1945 | 4bd | Brand New 4BR Duplex! L & J Trains! | Brooklyn | 1/20 |
| | \$1800 | 2bd | Renovated 2 bedroom with access to backyard | Brooklyn | 1/20 |
| | \$2000 | 2bd | Its Brand New 2BR 2Full Baths! Free | Brooklyn | 1/20 |
| | \$1600 | 2bd | Aristocratic 2bd Apt on 2nd Fl. | Queens | 1/20 |
| | \$1950 | | Huge Studio In Williamsburg - Storage Space/ Luxury Unit Including! | Brooklyn | 1/20 |
| | \$1950 | 4bd | Amazing! Huge! Brand New 4BR Duplex! No Fees! | Brooklyn | 1/20 |
| | \$1925 | 2bd | Open House Sunday 01/24 - No Fee-1M Free 305E 95St 1E-See Jan 24@2-3:30 | New York | 1/20 |
| | \$1900 | 2bd | Box > 100% Brand New > Next To Bedford L Stop > 347-728-8854 | Brooklyn | 1/20 |
| | \$1650 | 2bd | It'S A Must See . . . sec-8 welcome | Queens | 1/20 |
| | \$1500 | 1bd | New Spacious Apt Genuine 5 Mins From Uni-Hos Includes Cab/Internet | Stony Brook | 1/20 |

Definition: Rapid prototyping

Time is an important and precious resource!

- Quickly develop and iterate new application
- Improve communication between developers and users
- Insights of strengths / weaknesses **during** development phase
- Explore new features and alternatives

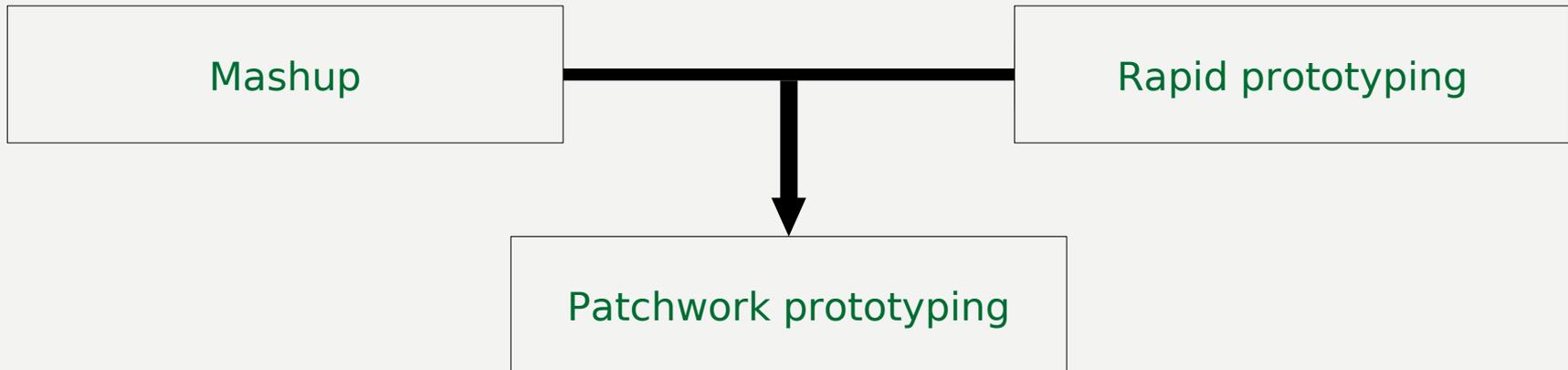
Advantages

- Work more efficiently
- Spend less money for wrong developments
- Application has not to be finished





Definition: Patchwork prototyping



- Approach to rapid prototyping
- Participatory design concept
- Produces high fidelity prototypes

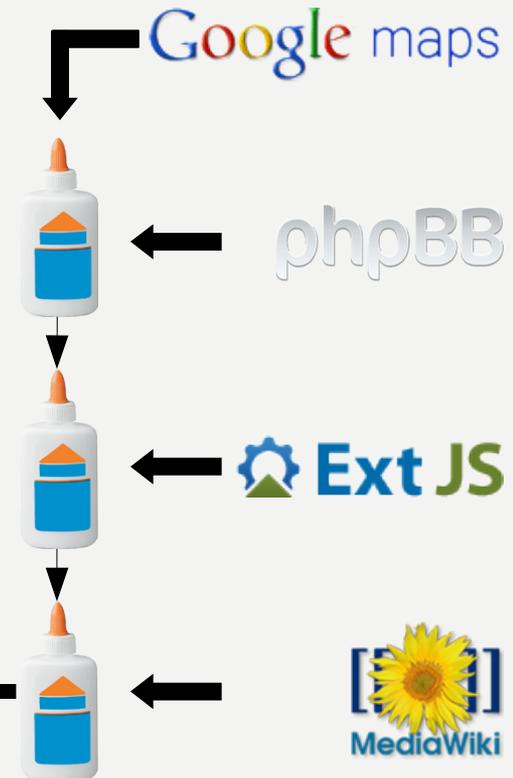
Definition: Patchwork prototyping

- Using mashups, FLOSS and web services
- „Glueing“ different components together
- Collecting feedback of users (user-driven method)
- Continuously developing prototypes
- Using the prototypes in daily work activities

Example: Hiking community

- Display hiking paths on a map: *Google Maps*
- Bulletin board for discussion and questions: *phpBB*
- Charts for height levels of hiking routes: *ExtJS*
- Collection of excellent routes: *MediaWiki*

working
patchwork prototype





Patchwork prototyping

Comparison to low fidelity prototypes

- Produced with office materials (pen, paper, scissors, ...)
→ Computer is not necessary
- Facilitator needed (for demonstration purposes)
- Useful in early project phase



Similarities

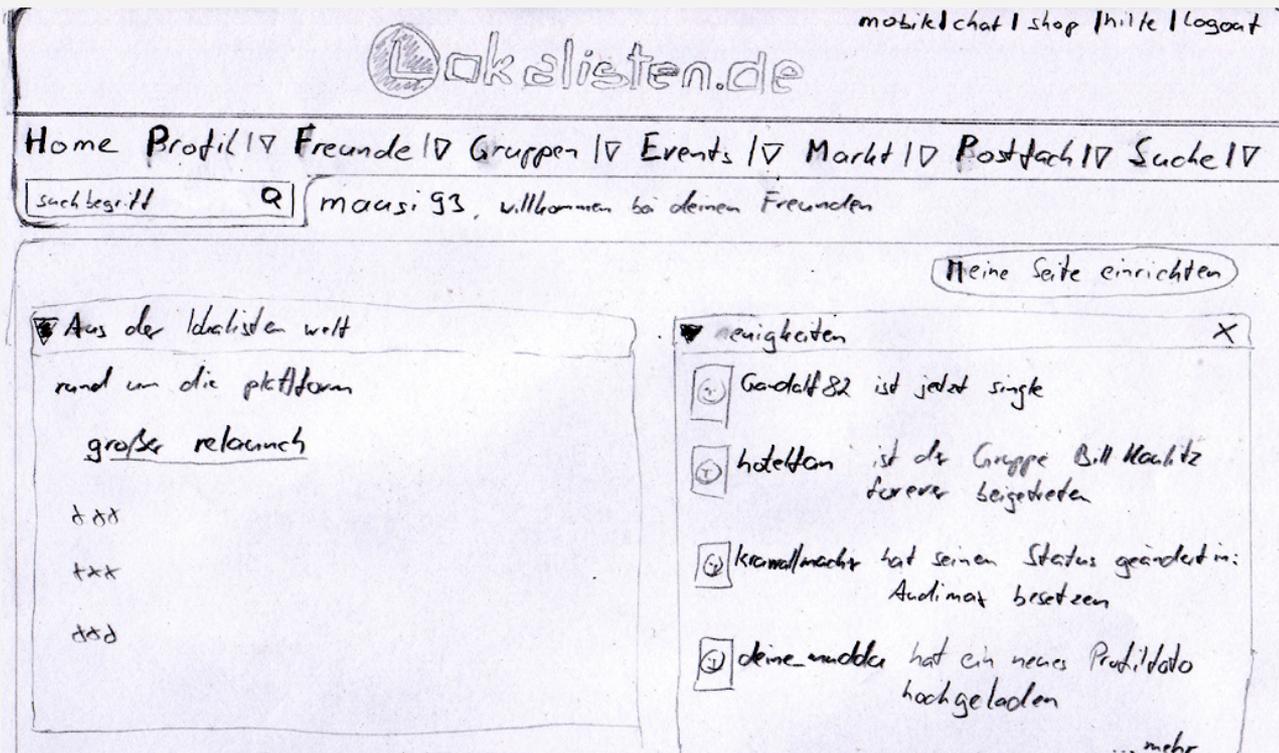
- Can be produced cheap
- Can be produced fast

Differences

- Knowledge of programming languages not necessary
- Help to decide about fundamental design issues
- Limited functionality
- Limited interactivity

Patchwork prototyping

Comparison to low fidelity prototypes





Patchwork prototyping

Comparison to high fidelity prototypes

Similarities

- Simulate real functionality
- Offer complete interactive UI
- Feedback already available after a short period of time
- Nearly same behaviour and functionality as the final product
→ Prototypes sometimes seen as final product

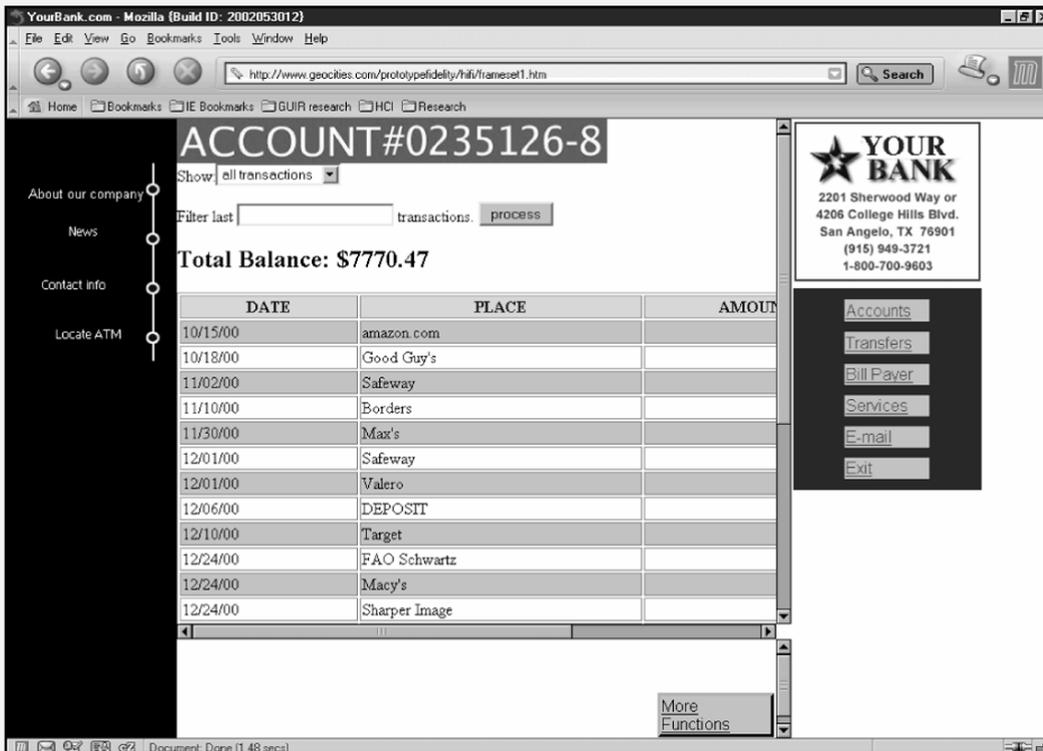
Differences

- More time needed for developing and modifying
- Higher development costs
- Skilled programmers are always required



Patchwork prototyping

Comparison to high fidelity prototypes



ACCOUNT#0235126-8

Show all transactions

Filter last transactions.

Total Balance: \$7770.47

| DATE | PLACE | AMOUNT |
|----------|---------------|--------|
| 10/15/00 | amazon.com | |
| 10/18/00 | Good Guy's | |
| 11/02/00 | Safeway | |
| 11/10/00 | Borders | |
| 11/30/00 | Max's | |
| 12/01/00 | Safeway | |
| 12/01/00 | Valero | |
| 12/06/00 | DEPOSIT | |
| 12/10/00 | Target | |
| 12/24/00 | FAO Schwartz | |
| 12/24/00 | Macy's | |
| 12/24/00 | Sharper Image | |

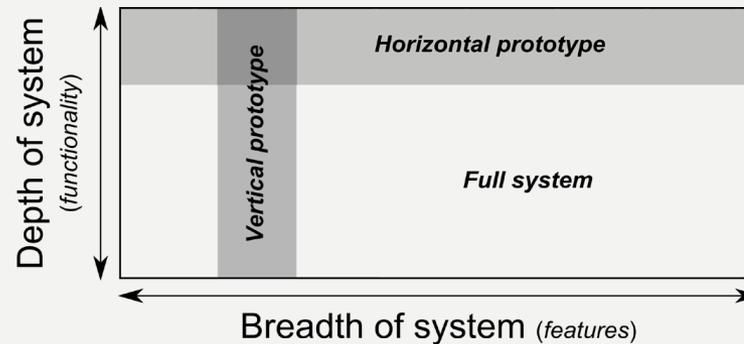
YOUR BANK
2201 Sherwood Way or
4206 College Hills Blvd.
San Angelo, TX 76901
(915) 949-3721
1-800-700-9603

Accounts
Transfers
Bill Payer
Services
E-mail
Exit

More Functions

Patchwork prototyping

Comparison to horizontal and vertical prototypes



Horizontal prototypes

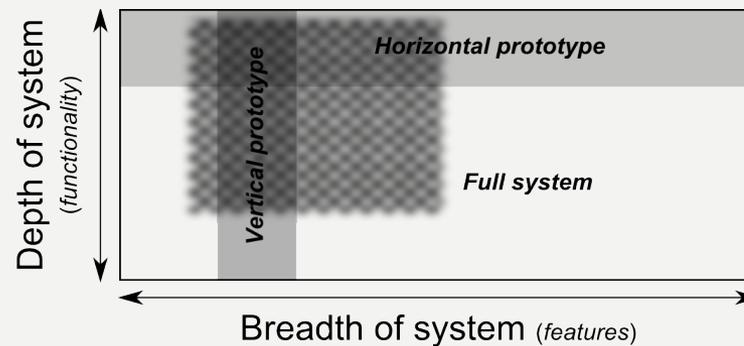
- Include a lot of features
- Realized features are only superficially complete

Vertical prototypes

- Include only selected features
- Realized features are almost like in the final product

Patchwork prototyping

Comparison to horizontal and vertical prototypes



Patchwork prototypes

- Include a lot of features
- Realized features are only superficially complete

Patchwork prototypes

- Include only selected features
- Realized features are almost like in the final product

→ Share similarities of both kinds

→ Original categorization of the two kinds does not match anymore



Project example

Patching together community tools

- 1997: Start of the project platform
- 2003: Implementation of LAMP (Linux, Apache, MySQL, PHP)
- First: Development of community platform from scratch
- Later: Use of phpBB (bulletin board) and TinyMCE (WYSIWYG editor)
- **Problem:** Security vulnerability in phBB → successful attack
- First: Components „glued“ together with simple hyperlinks
- Later: More complex adaption (single sign-on for all components)
- At the end: phpBB software was seen as overscaled
- Result: „Homemade“ bulletin board that offered a better integration with the rest of the platform





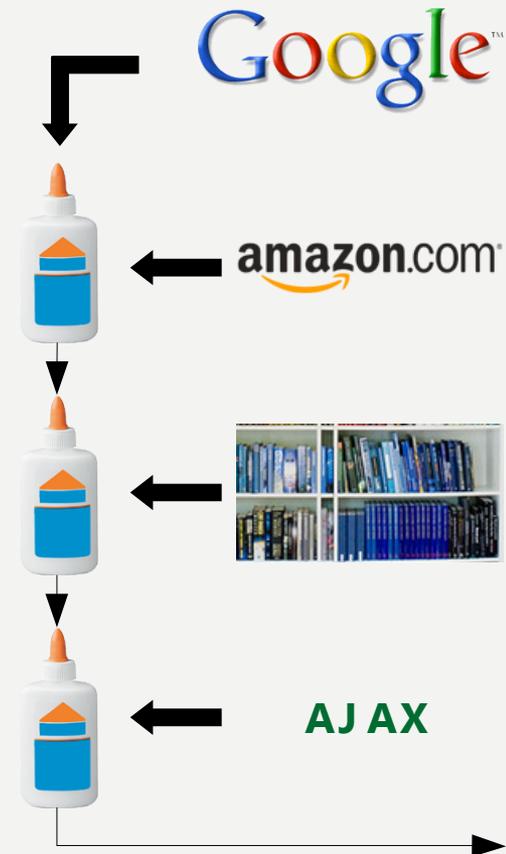
Project example „Wasabe“ Combining powerful search engines

Wikipedia / Amazon Search and Browse Environment

- Parallel search for term in Amazon and Wikipedia
- No own Wikipedia API → use of Google SOAP API
- Maximum of multiple hundred lines of source code

Further improvements

- Use of Amazon API to get related items and ISBNs
- Collected ISBN numbers used to get information about the availability of items in the local library
- Use of AJAX (Asynchronous JavaScript and XML) to speed up the application



Project example „Wasabe“

Combining powerful search engines

Wasabe

Amazon/OPAC Results

[Implementing Collaboration Technologies in Industry](#)
 Bjorn E. Munkvold, S. Akselsen, R.P. Bostrom, [Business networks](#), [Communication in organizations](#), [Engineering - Industrial](#).
[Library has this book - request it](#)

[Computer-Supported Cooperative Work : Introduction to Distributed Applications](#)
 Uwe M. Borghoff, Johann H. Schlichter, [Computer Bks - General Information](#), [Computer Books: General](#), [Computers](#).
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[Cscw 98: Computer Supported Cooperative Work](#)
[Siggroup](#), [Computer Books: General](#).
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[Grid and Cooperative Computing : Second International Workshop, GCC 2003, Shanghai, China, December 7-10, 2003, Revised Papers, Part II \(Lecture Notes in Computer Science\)](#)
 Minglu Li, Xian-He Sun, Qianni Deng, [Computer Books: General](#), [Computers](#), [Information Storage & Retrieval](#).
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Wikipedia Results

[Computer supported cooperative work](#)
(Redirected from CSCW). Jump to: navigation, search. The term computer supported cooperative work (CSCW) was first coined by Irene Greif and Cashman in 1984 ...

[Computer supported cooperative work](#)
The term computer supported cooperative work (CSCW) was first coined by ... On the one hand, many authors consider that CSCW and groupware are synonyms. ...

[Talk: Computer-supported collaboration](#)
Appropriate topic areas for CSCW 2004 therefore include all contexts in which technology is used to mediate human activities such as communication, ...

[Social loafing](#)
(CSCW, 2000) It is a way for the group members to share the knowledge and the tasks to be fulfilled unfailingly. For example, if Sally and Raül were loafing ...

[Computer-supported collaboration](#)
" Innovations and experiences with Intranets, the Internet, WWW": "Innovative installations: CSCW and the arts": "Innovative technologies and architectures ...

[Wikipedia: Announcements November 2004](#)
... students at the University of Michigan School of Information are studying Wikipedia as part of a course on computer supported cooperative work (CSCW). ...

[Laboratoryv](#)
... CSCL would need to draw the best lessons learned on both sides in computer-mediated communication (CMC) and computer-supported cooperative work (CSCW) ...

[Hiroshi Ishii](#)
... Laboratories in Kyoto, where he had made his mark in Human Computer



Conclusion

Patchwork prototyping is a promising new technology

- It combines positive attributes of ...
 - Low and high fidelity prototypes
 - Horizontal and vertical prototypes
- Large number of APIs, mashups and qualitative FLOSS
→ Large number of patchwork prototypes in the future?

But...

- ...not yet relevant in academic literature
- ...not possible in every scenario
- ...main „needs“ for patchwork prototyping have to be fulfilled
(e.g. collection of feedback, availability of third-party software)