Webengineering

2017-04-24

Dr. Michael Lesniak

mlesniak@micromata.de

German || english ?

About me

- Michael

- Computer Science @ TU Clausthal
- Diploma thesis @ Trento, Italy
- Researcher @ TU Berlin / Daimler
- Researcher @ Uni Kassel / Fohry
- PhD (parallel programming)

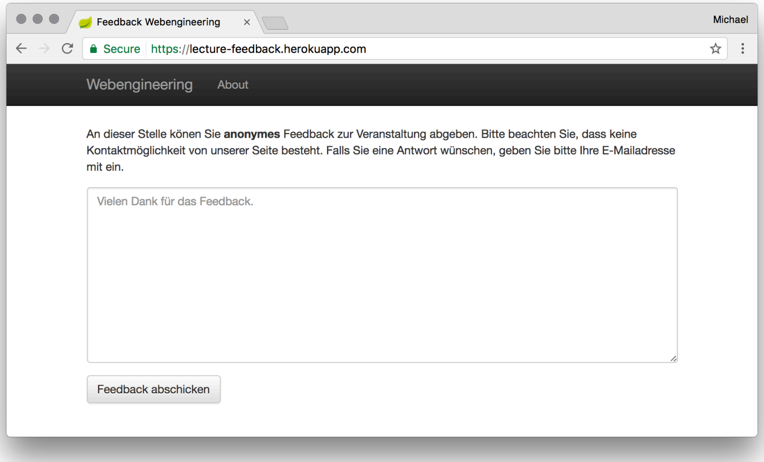
academics

- Software developer @ Micromata
- Logistics, Healthcare, Automotive, …
- Big Data & Machine learning
- Developer, Software Architect, Technical Consultant, Trouble shooter, …
- Applications: Small, …, very large

professional

Feedback

- I‘m a huge fan of agile development and iterative improvement.
- Any feedback? Send an email to mlesniak@micromata.de
- Feedback application
  - **Anonymous**
  - Source code available under https://github.com/mlesniak/lecture-feedback



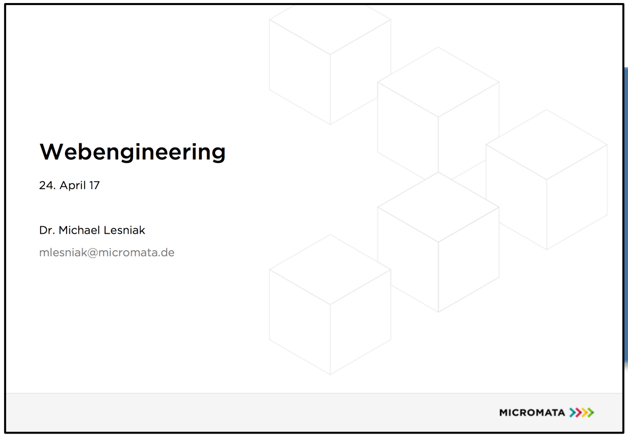
An dieser Stelle könen Sie **anonymes** Feedback zur Veranstaltung abgeben. Bitte beachten Sie, dass keine Kontaktmöglichkeit von unserer Seite besteht. Falls Sie eine Antwort wünschen, geben Sie bitte Ihre E-Mailadresse mit ein.

Vielen Dank für das Feedback.

Too hard?
Too easy?
Too fast?
Too slow?
Too ...?

https://lecture-feedback.herokuapp.com/

Motivation and goals



Webengineering

24. April 17

Dr. Michael Lesniak

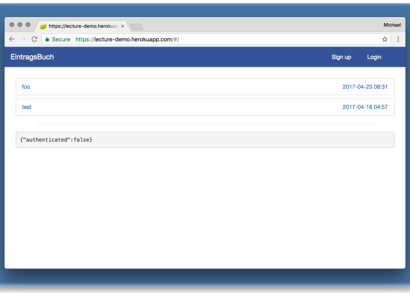
mlesniak@micromata.de

MICROMATA

- Real world knowledge
- Best practices
- Learning to …

- Reference project
  - full-stack
  - deployed
  - code online (improved)

Topics

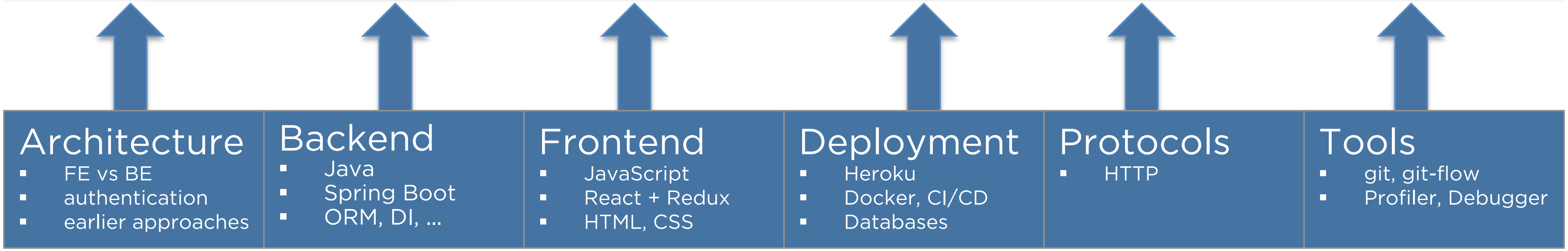

https://lecture-demo.herokuap
Michael
Secure
https://lecture-demo.herokuapp.com/#/
EintragsBuch
Sign up
Login

foo	2017-04-23 08:31
test	2017-04-18 04:57

```
{"authenticated":false}
```

Web application

- Frontend runs in the browser
- Backend runs on a server
- User has to be online to access and use it



Architecture

- FE vs BE
- authentication
- earlier approaches

Backend

- Java
- Spring Boot
- ORM, DI, …

Frontend

- JavaScript
- React + Redux
- HTML, CSS

Deployment

- Heroku
- Docker, CI/CD
- Databases

Protocols

- HTTP

Tools

- git, git-flow
- Profiler, Debugger

Lecture goals:
to learn, research, experiment, evaluate, …

Opinions!?

- There is more than one way to solve a problem
- Solutions are subjective
- Trade-offs

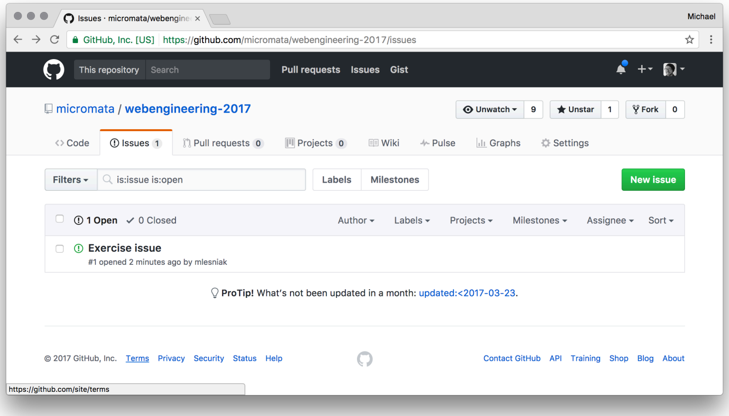
Ideas,
not truths

Given enough time, every framework, concept, and approach is *beep*.

Your lecturer might even be wrong…

Communication

- General communication (questions, remarks, …) over



Exercise issue

#1 opened 2 minutes ago by mlesniak

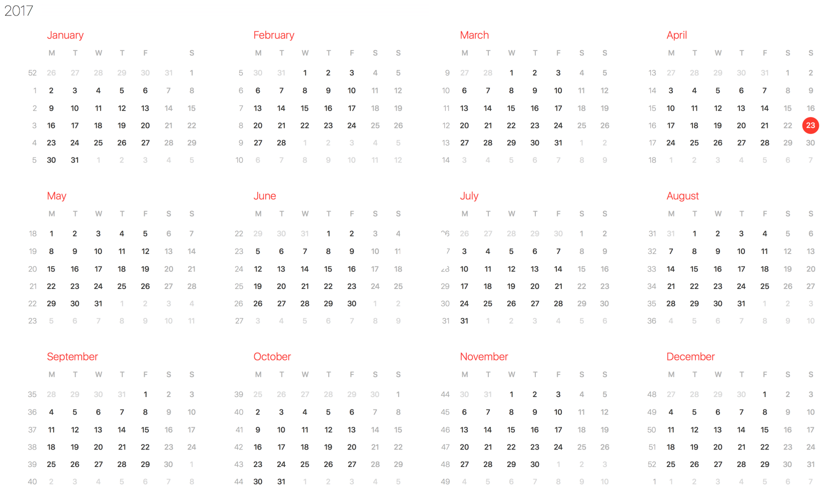
ProTip! What's not been updated in a month: updated:<2017-03-23.

https://github.com/micromata/webengineering-2017

- Personal correspondence
  - Email (mlesniak@micromata.de)
  - Feedback (https://lecture-feedback.herokuapp.com)

Requirement for passing this lecture

- **Programming project**
- No teams
- Project details around 2017-06-15
- You‘ll have time until 2017-09-…
- Project of last lecture: Twitter clone



2017

January

	M	T	W	T	F		S
52	26	27	28	29	30	31	1
1	2	3	4	5	6	7	8
2	9	10	11	12	13	14	15
3	16	17	18	19	20	21	22
4	23	24	25	26	27	28	29
5	30	31	1	2	3	4	5

February

	M	T	W	T	F	S	S
5	30	31	1	2	3	4	5
6	6	7	8	9	10	11	12
7	13	14	15	16	17	18	19
8	20	21	22	23	24	25	26
9	27	28	1	2	3	4	5
10	6	7	8	9	10	11	12

March

	M	T	W	T	F	S	S
9	27	28	1	2	3	4	5
10	6	7	8	9	10	11	12
11	13	14	15	16	17	18	19
12	20	21	22	23	24	25	26
13	27	28	29	30	31	1	2
14	3	4	5	6	7	8	9

April

	M	T	W	T	F	S	S
13	27	28	29	30	31	1	2
14	3	4	5	6	7	8	9
15	10	11	12	13	14	15	16
16	17	18	19	20	21	22	23
17	24	25	26	27	28	29	30
18	1	2	3	4	5	6	7

May

	M	T	W	T	F	S	S
18	1	2	3	4	5	6	7
19	8	9	10	11	12	13	14
20	15	16	17	18	19	20	21
21	22	23	24	25	26	27	28
22	29	30	31	1	2	3	4
23	5	6	7	8	9	10	11

June

	M	T	W	T	F	S	S
22	29	30	31	1	2	3	4
23	5	6	7	8	9	10	11
24	12	13	14	15	16	17	18
25	19	20	21	22	23	24	25
26	26	27	28	29	30	1	2
27	3	4	5	6	7	8	9

July

	M	T	W	T	F	S	S
26	26	27	28	29	30	1	2
27	3	4	5	6	7	8	9
28	10	11	12	13	14	15	16
29	17	18	19	20	21	22	23
30	24	25	26	27	28	29	30
31	31	1	2	3	4	5	6

August

	M	T	W	T	F	S	S
31	31	1	2	3	4	5	6
32	7	8	9	10	11	12	13
33	14	15	16	17	18	19	20
34	21	22	23	24	25	26	27
35	28	29	30	31	1	2	3
36	4	5	6	7	8	9	10

September

	M	T	W	T	F	S	S
35	28	29	30	31	1	2	3
36	4	5	6	7	8	9	10
37	11	12	13	14	15	16	17
38	18	19	20	21	22	23	24
39	25	26	27	28	29	30	1
40	2	3	4	5	6	7	8

October

	M	T	W	T	F	S	S
39	25	26	27	28	29	30	1
40	2	3	4	5	6	7	8
41	9	10	11	12	13	14	15
42	16	17	18	19	20	21	22
43	23	24	25	26	27	28	29
44	30	31	1	2	3	4	5

November

	M	T	W	T	F	S	S
44	30	31	1	2	3	4	5
45	6	7	8	9	10	11	12
46	13	14	15	16	17	18	19
47	20	21	22	23	24	25	26
48	27	28	29	30	1	2	3
49	4	5	6	7	8	9	10

December

	M	T	W	T	F	S	S
48	27	28	29	30	1	2	3
49	4	5	6	7	8	9	10
50	11	12	13	14	15	16	17
51	18	19	20	21	22	23	24
52	25	26	27	28	29	30	31
1	1	2	3	4	5	6	7

I‘m still open for a project idea

Roadmap 2017-04-24

- Organizational issues
- Q & A
- Best practices
- Review: exercise, problems and solutions

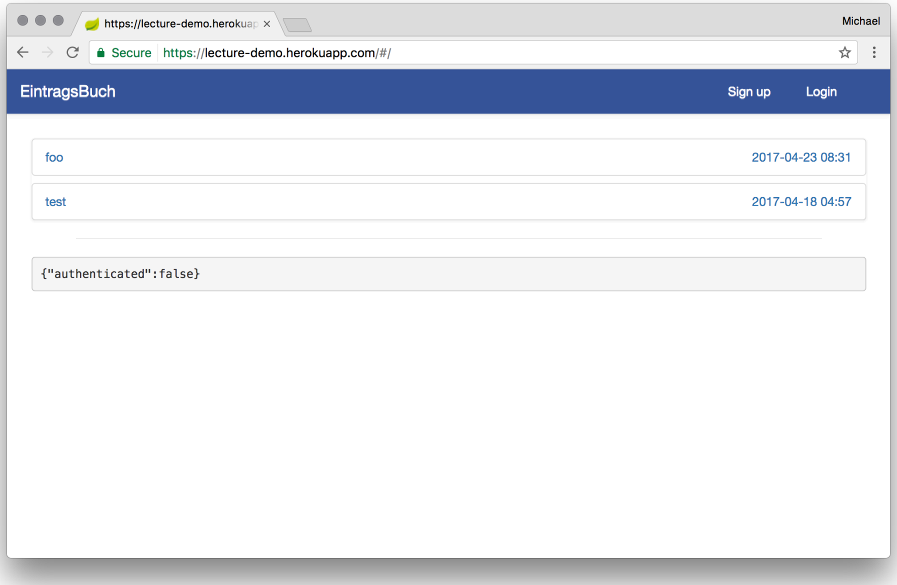
- Demo: Reference application
- First steps
  - Architecture
  - Code walkthrough
  - Deployment

Overview

- Exercises

Reference application

- Functional
  - Simple forum
  - Topics
  - Comments
  - Users
- Technical
  - Modern backend
  - SPA as frontend
  - Authentication
  - Deployment into cloud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Michael
Secure https://lecture-demo.herokuapp.com/#/
EintragsBuch
Sign up
Login

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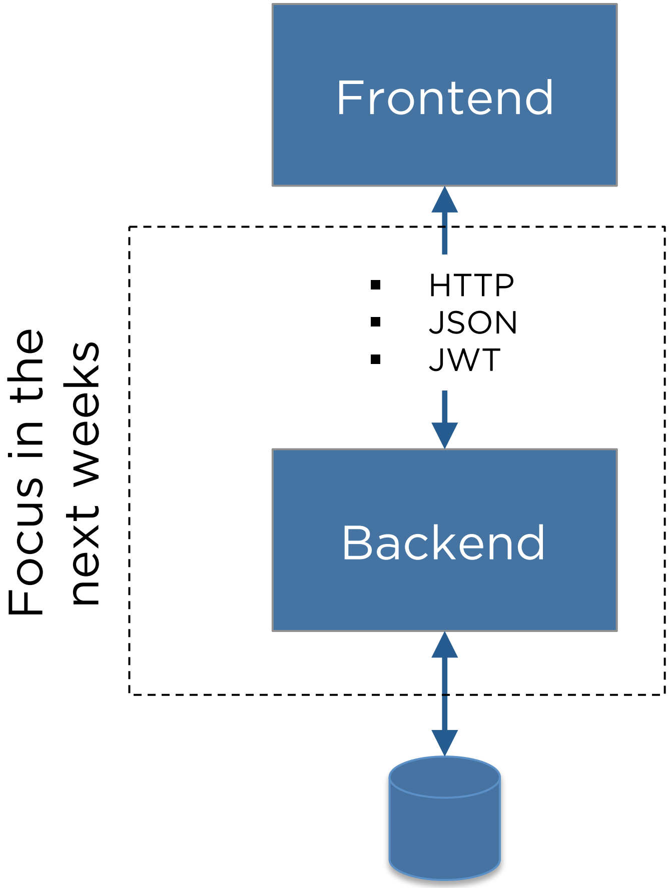
test 2017-04-18 04:57

```
{"authenticated":false}
```

https://lecture-demo.herokuapp.com

Work in progress – simply a scribble to show where we want to go.

Architecture



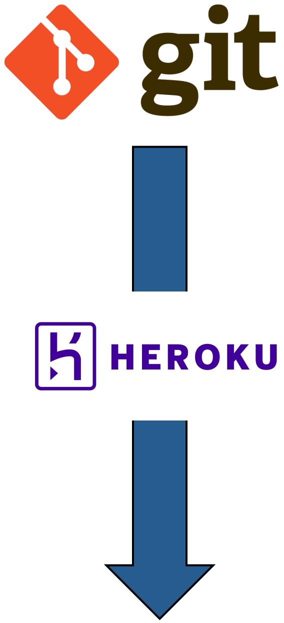
- User interface
- User experience

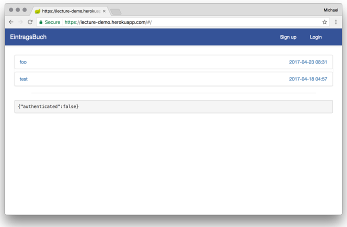
- Technical
- Functional
- Validation
- Persistence
- …

Deployment with Heroku

- Your application should be reachable online.
- Immense number of technological solutions

- Heroku
  - PaaS
  - Multiple add-ons (Database, Email, …)
  - **Deployment over git**
  - Build application from source
  - Scalable
  - Free

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Sign up
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```
{"authenticated":false}
```

Disclaimer: I do not receive any money for using heroku, it just works for this lecture.

Exercises

Exercise: Import code

- Create a local directory and import the current source code from

  https://github.com/micromata/webengineering-2017

- Install your preferred tool chain to work with Java code
- Start the application and check that everything works as shown

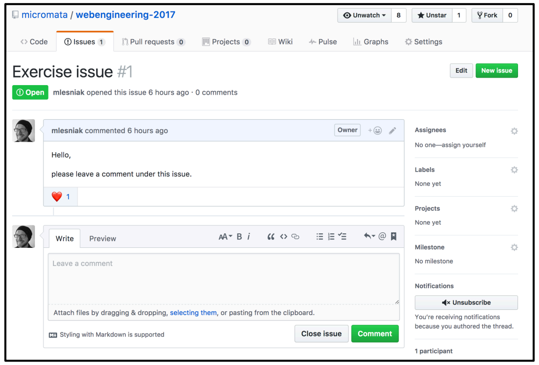
- Remark: It might be a good idea to become more familiar with command line tooling.

Exercise: GitHub

- Create an account on GitHub – or use your exisiting one.
- Write a short answer to

  https://github.com/micromata/webengineering-2017/issues/1

  with your favourite movie (in german or english) and a short explanation why I should watch it.
- Star and watch the repository to receive updates



Exercise issue #1

Open mlesniak opened this issue 6 hours ago · 0 comments

mlesniak commented 6 hours ago

Hello,

please leave a comment under this issue.

❤️ 1

Leave a comment

Attach files by dragging & dropping, selecting them, or pasting from the clipboard.

Styling with Markdown is supported

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Notifications

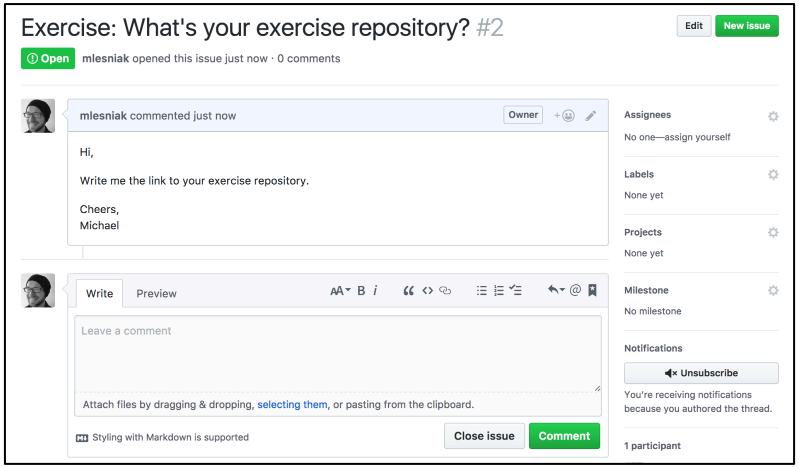
You're receiving notifications because you authored the thread.

1 participant

Exercise: GitHub >> Your own project

- Create a repository on GitHub to store your exercise solutions.
- Push your local code to the repository
- Write the link to the repository to

https://github.com/micromata/webengineering-2017/issues/2



Exercise: What's your exercise repository? #2

Open mlesniak opened this issue just now · 0 comments

mlesniak commented just now

Hi,

Write me the link to your exercise repository.

Cheers,
Michael

Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

Milestone: No milestone

Notifications: You're receiving notifications because you authored the thread.

1 participant

Edit
New issue
Owner
Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting them, or pasting from the clipboard.
Styling with Markdown is supported
Close issue
Comment
Unsubscribe

Exercise: HTTP

- What is HTTP?
- How can you see what data is transfered between your browser and the server?
- What types of HTTP verbs exist?
- What HTTP status groups exist?

Exercise: Improve post data structure

- Use a POJO instead of a simple String to represent posts.
- Add time of creation to each post
- Check that the time is returned in the post list

Exercise: Improve adding new posts

- Is there a better HTTP verb (approach) for adding new posts?
- Implement it in the application.
- Test it with Postman or your preferred other tool to send HTTP requests.

- Hint

```
@RequestMapping(value = "/post/add", method = ...?)
```

Exercise: Retrieve a single post

- Think about retrieving a single post.
- Why would you need it?
- What kind of information would you need to specify a single post?
  - How would your Post POJO change?
  - How would your URL schema change?
- Implement the corresponding functionality

- Hint `org.springframework.web.bind.annotation.PathVariable`

Exercise: Delete posts

- Add functionality to delete a post.
- What HTTP verb would you use?
- Implement it.
- Test it.

Exercise: Deploy to heroku

- Create an account on http://www.heroku.com
- Follow the documentation to push and deploy your code to heroku
- Post a link at https://github.com/micromata/webengineering-2017/issues/3

This is a tough exercise since
I did not provide any help to step 2.