

JS Testing

Thomas Peikert

Inhalt

- Worum geht's?
- Warum Testen?
- Die goldenen Regeln
 - 1. ?
 - 2. ?
- Beispiele

Worum geht's?

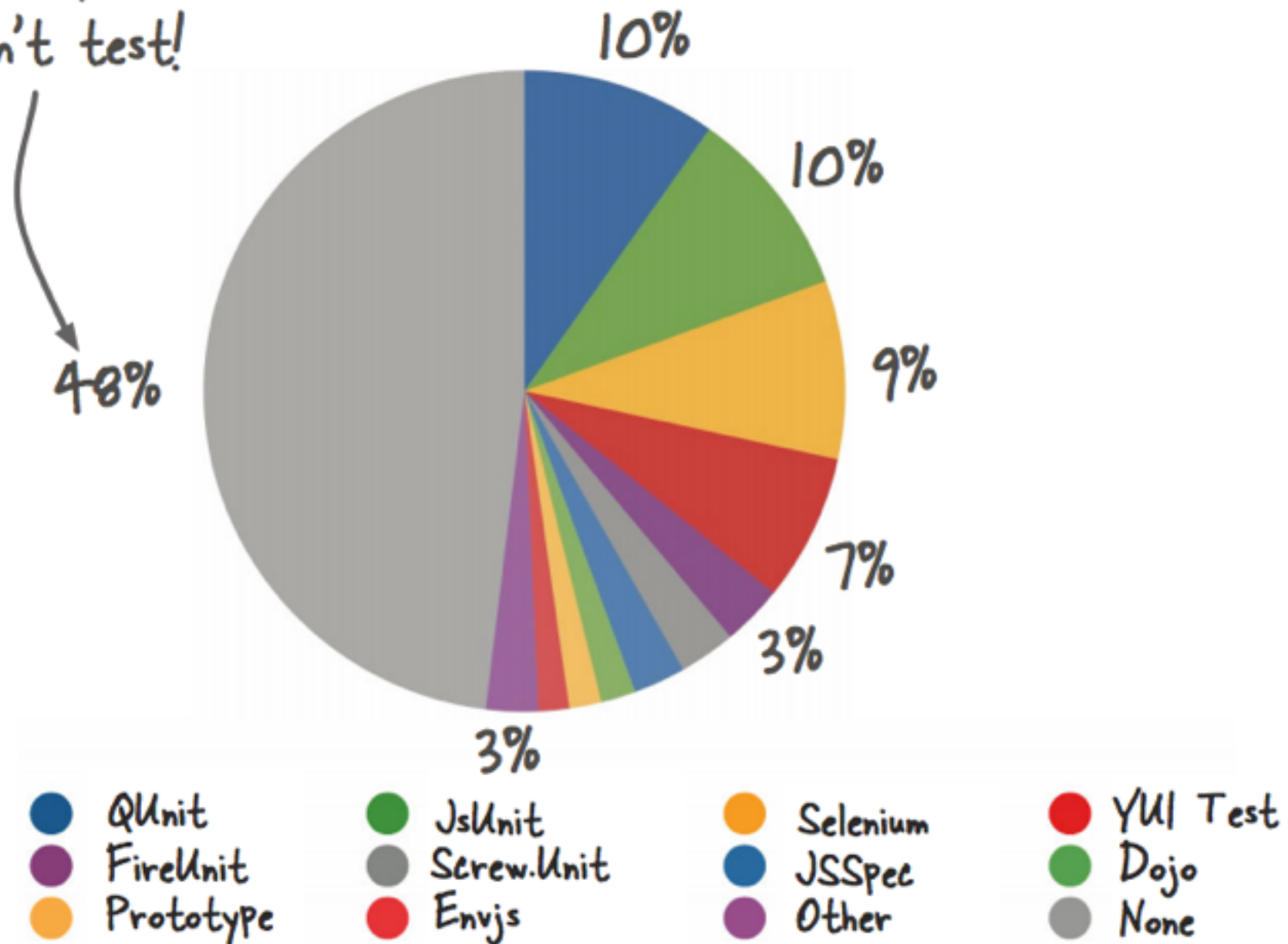
- Testen von client-side JS
 - DOM Manipulation
- Warum?
- Wie?

Warum Testen?

- siehe SPROG, OOP, SoftwareEngineering, SoftwareTestmethoden...
- Frontend Script Nutzung steigt (Angular, Backbone)

Warum noch?

Almost half of
JavaScript devs
don't test!



Die goldenen Regeln

1. Benutze ein Testframework
2. Schreibe Testbaren Code

Testing Frameworks

- SuitTest, DOH, LBRTW UT, JSUnit, Enhance JS, QUnit, Unit.js, RhUnit, J3Unit, Mocha, intern, JSNUnit, YUI Test, JSSPec, UnitTesting, JSpec, Jasmine, screw-unitit, Tape, Test.Simple, Test.More, TestCase, TestIt, jsUnitTest, JSTest, jsUnity, JasUnit, FireUnit, Js-test-drover, Js-test-runner, Sinon.js, SOAtest, NodeUnit, Tyrrtle, wru, Buser.JS, Lighttest, Chai, JSUS
- Quelle: http://en.wikipedia.org/wiki/List_of_unit_testing_frameworks#JavaScript => client-side only

Testing Frameworks

- SuitTest, DOH, LBRTW UT, **JSUnit**, Enhance JS, **QUnit**, Unit.js, RhUnit, J3Unit, Mocha, intern, JSNUnit, **YUI Test**, JSSPec, UnitTesting, JSpec, Jasmine, screw-unitit, Tape, Test.Simple, Test.More, TestCase, TestIt, jsUnitTest, JSTest, jsUnity, JasUnit, FireUnit, Js-test-drover, Js-test-runner, Sinon.js, SOAtest, NodeUnit, Tyrrtle, wru, Buser.JS, Lighttest, Chai, JSUS
- Quelle: http://en.wikipedia.org/wiki/List_of_unit_testing_frameworks#JavaScript => client-side only

Testing Frameworks (II)

- PhantomJS

- CasperJS

- Selenium



UITests

- JSUnit

- YUI Test

- QUnit (für jQuery entwickelt)



UnitTests

DEMO

PhantomJS

```
# register account
PASS Title is ok
PASS register page was found
PASS register and redirect to dashboard successful
PASS logout (successful logout link);
PASS 4 tests executed in 105.057s, 4 passed, 0 failed, 0 dubious, 0 skipped.
```

```
# register account
PASS Title is ok
PASS register page was found
FAIL /dashboard\$/ did not load in 5000ms
#   type: uncaughtError
#   file: jsTestingCasper.js
#   error: /dashboard\$/ did not load in 5000ms

#   stack: not provided
FAIL 3 tests executed in 6.012s, 2 passed, 1 failed, 0 dubious, 0 skipped.
```

UI Testing

- + Gesamtesten meiner Anwendung
- - Instandhaltungskosten

Gute Tests

- Wiederverwendbarkeit
- Simplizität
- Unabhängigkeit

Testbarer Code

```
466 //Changes Button and Todoh-Text to Unclear-Status (Button is on ok and Text is not in <del></del>)
467 function changeStateToUnclear(output, child) {
468     if (output['state'] == true) {
469         var todo_item = child.parent().parent().parent();
470
471         todo_item.fadeOut(function () {
472             todo_item.remove();
473
474             // show assignment marker
475             todo_item.find('.assignee-marker').show();
476
477             //Get due_date from span of todoh
478             var due_date = todo_item.find('.due-date');
479             due_date = due_date.attr('data-date');
480             due_date = new Date(due_date);
481
482             //Get current date
483             var currentDate = new Date();
484             currentDate.setHours(1, 0, 0);
485
486             //comparing due_date with current date to choose a color for todoh
487             if (currentDate.getDate() === due_date.getDate() &&
488                 currentDate.getMonth() === due_date.getMonth() &&
489                 currentDate.getFullYear() === due_date.getFullYear()
490             ) {
491                 todo_item.addClass("panel panel-warning");
492                 $('#todo_today_box').prepend(todo_item);
493             } else if (currentDate > due_date) {
494                 todo_item.addClass("panel panel-danger");
495                 $('#todo_overdue_box').prepend(todo_item);
496             } else {
497                 $('#todo_rest_box').prepend(todo_item);
498             }
499
500             var panelHeader = todo_item.first();
501             // close open togglebox and change icon
502             closeToggleBox(panelHeader);
503
504             child.removeClass('fa fa-fw fa-refresh fa-lg');
505             child.addClass('fa fa-fw fa-square-o fa-lg');
506
507             todo_item.fadeTo('default', 1);
```


//Changes Button and Todo-Text to Unclear-Status (Button is on ok and Text is not in)

```
466 function changeStateToUnclear(output, child) {
467     if (output['state'] == true) {
468         var todo_item = child.parent().parent().parent();
469
470         todo_item.fadeOut(function () {
471             todo_item.remove();
472
473             // show assignment marker
474             todo_item.find('.assignee-marker').show();
475
476             //Get due_date from span of todo
477             var due_date = todo_item.find('.due-date');
478             due_date = due_date.attr('data-date');
479             due_date = new Date(due_date);
480
481             //Get current date
482             var currentDate = new Date();
483             currentDate.setHours(1, 0, 0);
484
485             //comparing due_date with current date to choose a color for todo
486             if (currentDate.getDate() === due_date.getDate() &&
487                 currentDate.getMonth() === due_date.getMonth() &&
488                 currentDate.getFullYear() === due_date.getFullYear()
489             ) {
490                 todo_item.addClass("panel panel-warning");
491                 $('#todo_today_box').prepend(todo_item);
492             } else if (currentDate > due_date) {
493                 todo_item.addClass("panel panel-danger");
494                 $('#todo_overdue_box').prepend(todo_item);
495             } else {
496                 $('#todo_rest_box').prepend(todo_item);
497             }
498
499             var panelHeader = todo_item.first();
500             // close open togglebox and change icon
501             closeToggleBox(panelHeader);
502
503             child.removeClass('fa fa-fw fa-refresh fa-lg');
504             child.addClass('fa fa-fw fa-square-o fa-lg');
505
506             todo_item.fadeTo('default', 1);
507
```



```
520  /**
521   * compares current date with other date
522   * @param other date to compare it with
523   * @returns {string} ["today"|"older"|"younger"]
524   * date is today
525   * date is "younger" than today
526   * date is "older" than today
527  */
528  var dateComparator = function(other) {
529      //Get current date
530      var currentDate = new Date();
531      currentDate.setHours(1, 0, 0);
532
533      if (currentDate.getDate() === other.getDate() &&
534          currentDate.getMonth() === other.getMonth() &&
535          currentDate.getFullYear() === other.getFullYear()
536      ) {
537          return "today";
538      } else if (currentDate > other) {
539          return "younger";
540      } else {
541          return "older"
542      }
543  };
```

Refactored date examples

☐ Hide passed tests ☐ Check for Globals ☐ No try-catch

Filter:

Go

**QUnit 1.18.0; Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_2)
AppleWebKit/600.3.18 (KHTML, like Gecko) Version/8.0.3 Safari/600.3.18**

Tests completed in 7 milliseconds.
3 assertions of 4 passed, 1 failed.

1. **dateComparator test (1, 3, 4)** Rerun

3 ms

- 1. okay @ 1 ms
- 2. okay @ 1 ms
- 3. okay @ 1 ms
- 4. failed @ 1 ms

Expected: "younger"

Result: "older"

Diff: "youngolder"

Source: file:///Users/thomas/Dropbox/Documents/Uni/6.%20Semester/Tests/testId=39cea672:22:17

```
523  /**
524   * appends a newly uncleared to do
525   * @param todo_item item to move in DOM
526   */
527  var appendUnclearedTodo = function(todo_item) {
528      //Get due_date from span of todo
529      var dueDate = todo_item.find('.due-date');
530      dueDate = dueDate.attr('data-date');
531      dueDate = new Date(dueDate);
532
533      //Get current date
534      var currentDate = new Date();
535      currentDate.setHours(1, 0, 0);
536
537      var todoType = dateComparator(dueDate);
538
539      if(todoType == "today") {
540          todo_item.addClass("panel panel-warning");
541          $('#todo_today_box').prepend(todo_item);
542      }
543      else if (todoType == "younger") {
544          todo_item.addClass("panel panel-danger");
545          $('#todo_overdue_box').prepend(todo_item);
546      }
547      else if (todoType == "older"){
548          $('#todo_rest_box').prepend(todo_item);
549      }
550  };
```


Refactored date examples

☐ Hide passed tests ☐ Check for Globals ☐ No try-catch

Filter:

Go

QUnit 1.18.0; Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_2) AppleWebKit/600.3.18 (KHTML, like Gecko) Version/8.0.3 Safari/600.3.18

Tests completed in 4 milliseconds.
8 assertions of 10 passed, 2 failed.

1. todo mover (2, 8, 10) Rerun

3 ms

1. okay

@ 0 ms

2. okay

@ 1 ms

3. okay

@ 1 ms

4. okay

@ 1 ms

5. okay

@ 1 ms

6. okay

@ 1 ms

7. okay

@ 1 ms

8. failed

@ 1 ms

Expected: <div id="younger" class="panel panel-default" style="margin: 7px; opacity: 0.5; border: 1px solid #ccc; padding: 5px; width: 100%; height: 100px; text-align: center; vertical-align: middle; font-size: 1.2em; font-weight: bold; color: #333;">Younger</div>

Result: undefined

Diff: <div id="younger" class="panel panel-default" style="margin: 7px; opacity: 0.5; border: 1px solid #ccc; padding: 5px; width: 100%; height: 100px; text-align: center; vertical-align: middle; font-size: 1.2em; font-weight: bold; color: #333;">Younger</div>ed

Source: file:///Users/thomas/Dropbox/Documents/Uni/6.%20Semester/InfSem/Code/048f7b83:37:17

9. failed

@ 3 ms

Expected: 1

Result: 0

Diff: 10

Source: file:///Users/thomas/Dropbox/Documents/Uni/6.%20Semester/InfSem/Code/048f7b83:38:17

10. okay

@ 3 ms