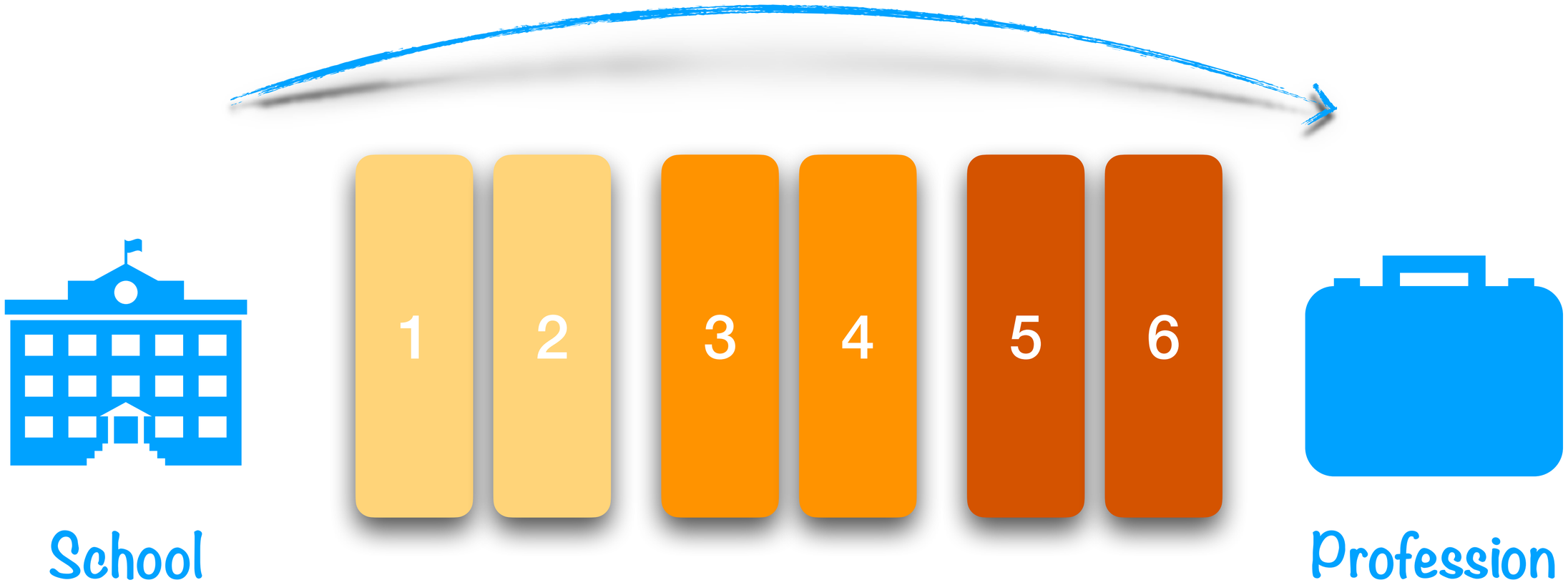
Web Programming

Prof. D. König

Overview



Relations

Theoretische Informatik

Mathematische Grundlagen d.I.

OOP1 & 2

Web Engineering

Web Frameworks

Funktionale Programmierung

Algorithmen & Datenstrukturen

Design Patterns

Web Modules

Workshop Web *

Web Clients

Web Programming

Web Frameworks

Web Engineering

Paradigms

Scripting

Object-Oriented Programming

Functional Programming

Continuing Concerns

Computer Science perspective

Cross-technology

Web for fun and profit

Didactics

Refresher, Q&A, Lecture Topic

Live-Coding, Exercises

Quiz

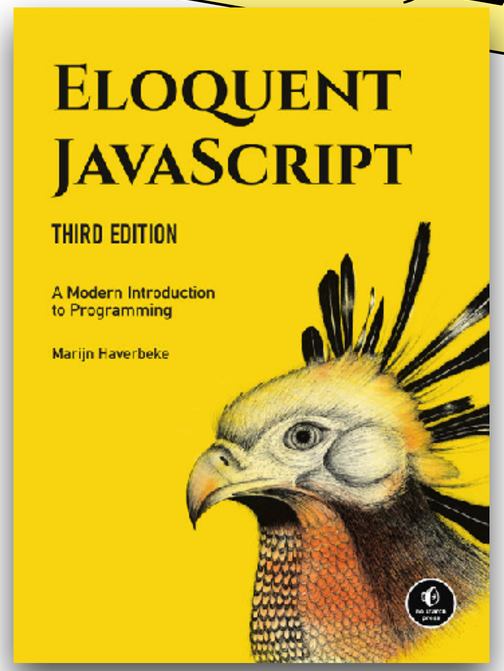
Recommended Reading

We will use JavaScript2015, ES6

Script/Textbook

Eloquent JavaScript

You don't know JS



Grading

Continuous Assessment Grade bases on acquired experience & continued effort

Quiz: collecting points

http://86.119.37.112:9090

Matrikel Nr & key

Plan: 11 points per week
Passing threshold: 60%


H. König.
1895.

Extra Points

max. 10 extra points

for self-made toolbox

Storybook (initial)

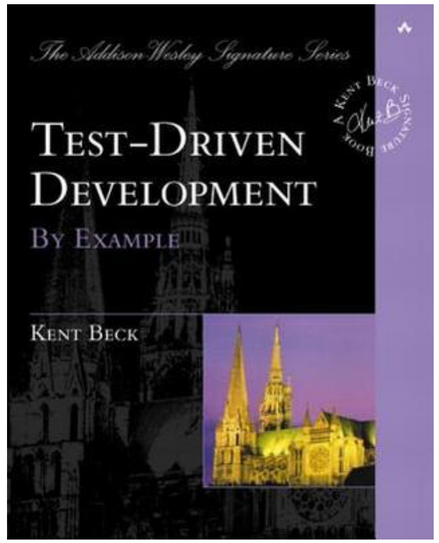
```
 1 Drehbuch, Intro, Functions
 2 Scientific foundations
 3 Algebraic Data Types, Snake
 4 Applied Science
 5 Scripting, PWA, Plotter, Excel
 6 Objects
 7 Classes
 8 Moves, User Interfaces
 9 UI Engineering
10 Async Programming
11 Data Flow, Excel improved
12 Modules
13 Transpilers, TS, PS, Elm
14 Crazy JavaScript
 * [Consolidation as needed]
```

Language Acquisition

Validate assumptions

Capture knowledge

in code as a **unit test**



Approach

You only understood,
what you can build yourself

=> no dependencies

Live Coding

https://github.com/WebEngineering-FHNW/webpr-hs-20

JavaScript functions

function keyword
named functions
function references
calling functions
too many, too few arguments
when to return, missing returns
statements vs. expressions

Lambda expressions

=> syntax
high-order functions
returning functions
nested lambda expressions
calling curried functions/lambdas
( ) vs { }

Canvas

```
const canvas  = document.getElementById("canvas");
const context = canvas.getContext("2d");

context.fillStyle = "black";
context.fillRect(0, 0, canvas.width, canvas.height);
```

Key events

```
const rightArrow = 39;
const leftArrow  = 37;
window.onkeydown = evt => {
    (evt.keyCode === rightArrow) ? … : … ;
};
```

Game loop

```
setInterval( () => {
    nextBoard();
    display(context);
}, 1000 / 5);
```

Practice

Programming the Snake game

week1: replace /* fill here */ until tests are ok

Homework

watch Gabriel Lebec (~1:40)

Fundamentals of Lambda Calculus & Functional Programming in JavaScript, Parts I and II.

https://www.youtube.com/watch?v=3VQ382QG-y4

Collect first points

http://86.119.37.112:9090

Matrikel Nummer & key