Web Programming

Week 2

Prof. D. König

Retrospective

JS Goodie

What we did

Catching up with the snake game

Questions

Agenda

Improving the game

Core topic: JavaScript Scopes

Lambda Calculus: Brain training

Quiz

Practice

Completing Snake

Improving the tests

Simulate motion & gravity (ball)

Live Coding Log

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

JavaScript Scopes

global	window (in Browser)
function	no matter where defined, variables are local to the enclosing function (lambda)

JavaScript Variables

in scope after first use

x	= ...	mutable, global scope
var x	= ...	mutable, "hoisted" scope
let x	= ...	mutable, local scope
const x	= ...	immutable*, local scope

IIFE

immediately invoked function expression

```
function  foo() {···};  foo()

(function  foo() {···}) ()

(function() {···}) ()

( () => {···}) ()
```

Lambda Kalkül

α alpha: Parameter umbenennen

β beta: Argument einsetzen

η eta: Parameter kürzen

Alpha Translation

```
const id = x => x

const id = y => y
```

Beta Reduktion

```
( f => x => f (x)) (id) (1)
```

```
(          x => id (x))        (1)

(                id (1))
```

```
( x => x) (1)

1
```

Eta Reduktion

```
x => y => plus (x) (y)
```

```
x =>          plus (x)

              plus
```

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