

## Informatik für Mathematiker und Physiker HS15

## Exercise Sheet 3

Submission deadline: 15:15 - Tuesday 6th October, 2015

**Assignment 1 – Skript-Aufgaben 32-33 (4 points)**

- (i) `x != 3 < 2 || y && -3 <= 4 - 2 * 3`
- (ii) `z > 1 && ! x != 2 - 2 == 1 && y`
- (iii) `3 * z > z || 1 / x != 0 && 3 + 4 >= 7`

- a) Parenthesize the above expressions according to operator precedences and associativities.
- b) Evaluate the expressions step-by-step, assuming that `x`, `y`, and `z` are all of type `int` with `x==0`, `y==1`, and `z==2`.

**Assignment 2 – Skript-Aufgabe 48 (4 points)**

Write a program `cross_sum.cpp` that inputs a natural number `n` (including 0) and outputs the sum of the (decimal) digits of `n`.

**Judge Examples**(Explanation: [http://lec.inf.ethz.ch/ifmp/2015/judge\\_boxes.html](http://lec.inf.ethz.ch/ifmp/2015/judge_boxes.html))

```
Cross sum of n =? 0
Cross sum of 0 is: 0
```

```
Cross sum of n =? 8
Cross sum of 8 is: 8
```

```
Cross sum of n =? 86400
Cross sum of 86400 is: 18
```

**Submission:** <https://challenge.inf.ethz.ch/team/websubmit.php?cid=5&problem=MP15032>

## Assignment 3 – Skript-Aufgabe 47 (4 points)

Write a program `dec2bin.cpp` that inputs a natural number  $n$  (including 0) and outputs the binary digits of  $n$  in *reverse* order.

### Judge Examples

(Explanation: [http://lec.inf.ethz.ch/ifmp/2015/judge\\_boxes.html](http://lec.inf.ethz.ch/ifmp/2015/judge_boxes.html))

Number n =? **2**

Reverse binary representation is: **01**

Number n =? **11**

Reverse binary representation is: **1101**

Number n =? **0**

Reverse binary representation is: **0**

**Submission:** <https://challenge.inf.ethz.ch/team/websubmit.php?cid=5&problem=MP15033>

## Challenge - Skript-Aufgabe 36 (8 points)

(Submission by email.)