

## Assessment

Assignment can be used to improve your grade

- ▶ If you obtain a bonus your grade will improve according to the following function

$$f(x) = \begin{cases} \frac{1}{10} \text{round} \left( 10 \left( \frac{\text{round}(3x)-1}{3} \right) \right) & 1 < x \leq 4 \\ x & \text{otw.} \end{cases}$$

- ▶ It will improve by 0.3 or 0.4, respectively.

Examples:

- ▶ 3.3 → 3.0
- ▶ 2.0 → 1.7
- ▶ 3.7 → 3.3
- ▶ 1.0 → 1.0
- ▶ > 4.0 no improvement



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### Requirements for Bonus

- ▶ 50% of the points are achieved on submissions 1–7,
- ▶ 50% of the points are achieved on submissions 8–13,
- ▶ each group member has written at least 4 solutions.



## 1 Contents

- ▶ Foundations
  - ▶ Machine models
  - ▶ Efficiency measures
  - ▶ Asymptotic notation
  - ▶ Recursion
- ▶ Higher Data Structures
  - ▶ Search trees
  - ▶ Hashing
  - ▶ Priority queues
  - ▶ Union/Find data structures
- ▶ Cuts/Flows
- ▶ Matchings



## 2 Literatur

- ▶ Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman:  
*The design and analysis of computer algorithms*,  
Addison-Wesley Publishing Company: Reading (MA), 1974
- ▶ Thomas H. Cormen, Charles E. Leiserson, Ron L. Rivest,  
Clifford Stein:  
*Introduction to algorithms*,  
McGraw-Hill, 1990
- ▶ Michael T. Goodrich, Roberto Tamassia:  
*Algorithm design: Foundations, analysis, and internet examples*,  
John Wiley & Sons, 2002



## 2 Literatur

-  Volker Heun:  
*Grundlegende Algorithmen: Einführung in den Entwurf und die Analyse effizienter Algorithmen,*  
2. Auflage, Vieweg, 2003
-  Jon Kleinberg, Eva Tardos:  
*Algorithm Design,*  
Addison-Wesley, 2005
-  Donald E. Knuth:  
*The art of computer programming. Vol. 1: Fundamental Algorithms,*  
3. Auflage, Addison-Wesley Publishing Company: Reading (MA), 1997



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-  Donald E. Knuth:  
*The art of computer programming. Vol. 3: Sorting and Searching,*  
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*Combinatorial Optimization: Algorithms and Complexity,*  
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Spektrum Akademischer Verlag, 2001
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