Data Structures and Algorithms 2

INF.05123UF Data Structures and Algorithms 2:

- Prerequisite: Data Structures and Algorithms 1
- First class: Thursday, November 24^{th}, 2022, 11:15, i13
- Flipped Classroom: slides and videos online (TC)
- Discussion sessions in presence in i13
  Wednesday starting at 09:15, Thursday starting at 11:15
- Additional material: TeachCenter (web page, TUbe ...)
- Discord server to communicate with TAs, see TC for details. Please respect that TAs have a life, too.
- email to lecturers only via da2_all@ist.tugraz.at

Grading

- There will be 2 partial exams (Teilklausuren) and 2 homework assignments during the term
- Each partial exam counts 35%, each homework assignment 15%
- Grading key:

Grade	Percent
Sehr gut (1)	87.51% to 100% (and above)
Gut (2)	75.01% to 87.50%
Befriedigend (3)	62.51% to 75.00%
Genügend (4)	50.01% to 62.50%

Partial exams

- The two partial exams will be held during the regular lecture time on Thursday 11:15-12:45.
- Depending on the situation, partial exams are either in presence or online (via TC).
- Dates: 2022-12-15; 2023-01-26
- In case you are sick, you need a doctor's confirmation (Arztbestätigung) which you provide once you are healthy again. A replacement exam is only possible with this confirmation.

Homework assignments

- Join a group for a teaching assistant (TA) via TC
- Presentation of homework assignments during lecture
- Question hours with your TAs via Discord and with lecturers during lecture
- Homeworks have to be handed in via TeachCenter
- Presentation and discussion of sample solutions: in groups in presence with your TA
- Inspection hour: with your TA
- Timing details: see TeachCenter

Discussion Sessions

- Discussion sessions are the main venue to interact with the lecturers.
- They are intended for discussion on the video lectures, and presentation and discussion of homework assignments, and any other question concerning this course.
- Wednesday starting at 09:15, Thursday starting at 11:15
- In presence in lecture hall i13
- Participation highly recommended

What you should already know ...

- Asymptotic notations:
  - What are $\mathcal{O}$- Ω- and Θ-terms?
- Logarithmic and Exponential functions:
  - Converting between logarithms with different bases (e.g. how to you compute the binary logarithm or a logarithm with base 3 on a calculator?)
  - Which function growth fastest:
    $f_1(n) = 4^{n/2}$, $f_2(n) = 2^n$, oder $f_3(n) = e^{n \ln 2}$?
- Proof methods:
  - by induction
  - by contradiction

A few basic hints ...

- It is ok if you discuss in groups about a homework assignment, but everybody has to hand in their own solution (you have to formulate and write it on your own, in your own style and words).
- The assignments will be available on the homepage. Please write the solution in a readable form (both, handwritten and writing with computer is fine!)
- Please argue all your statements and provide the reasoning behind your algorithms/conclusions/etc.
- If you are asked to provide intermediate steps, then please do so and provide all intermediate steps.

A few basic hints ...

- A listing is **no** algorithm.
- A verbale description of lines of code is **no** explanation of what an algorithm does.
- The important task is to understand and reason, what an algorithm does and why (!) it does it, not to learn a listing by heart.
- Correctness does not follow from a single example (and also not from several hundred examples).
- Keyword dropping does not give 'less' points, it will give you zero points.

A few basic hints ...

- This lecture is a VU (lecture with permanent examination) and according to the study law, attendance is mandatory. However, the material of the course will be available online.
- Participation in discussion sessions is highly recommended, not participating is at your own responsibility.
- Recall that partial exams will take place during the lecture time.