COMP-254 Data Structures and Algorithms

Course Overview

Course Leader

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The importance of Data Structures and Algorithms

- **Algorithms** are the building block for any software application.
- **Data Structures** organize data for efficiency, easy maintenance, and fast access.
- Knowledge of data structures and algorithms is used to test candidates in software engineering jobs interviews to **evaluate their problem solving skills**.

Important topics

1. **Fundamental Data Structures**
2. **Algorithm Analysis**
3. **Recursion**
4. **ADT Data Structures (Stacks, Queues, Lists, Trees, Maps, Hash Tables)**
5. **Sorting and Selection**

- **See details in Course outline**

Programming Language

- A Java primer in week 1.
- Lectures in Java starting in week 2.
- For lab assignments and tests you may use Java or Python.

Evaluation

- 7 Lab Assignments – 50%
- 2 Hands-On tests and MC – 50%

Evaluation

- Submit Assignments **on time**
- **No second chance** if you copy the assignment from other people

The textbook and other materials

- **Required**:
- Data Structures and Algorithms in Java, 6th ed., Goodrich, Tamassia& Goldwasser, ISBN-13: 978-1118771334, Publisher: Wiley; 6 edition, 2014.
- **Optional**:
  - Data Structures and Algorithms in Python, Goodrich, Tamassia& Goldwasser, Publisher: Wiley (March 22 2013), ISBN-13: 978-1118290279
- Java and Python documentation
- Lecture Slides
- Class Examples
- Textbook examples

Rules

- MUST be in synchronous session on time
- Have IDE ready
- Have Lectures slides ready
- Have class examples downloaded from D2L ready for use

Honesty Code

- Always refer to ACM Code of Ethics and Professional Conduct.
- No Cheating
- No Lying
- No plagiarism
- Otherwise: very serious consequences

Collaboration

- **Assignment discussions: encouraged**
  - **However:**
    - **Implement your own solutions and understand it fully – I will ask you to explain the code.**
- **May use book(s), Lecture slides, Internet)**
  - **However:**
    - **The use of the above items is just for consultation – NEVER COPY from them.**
- **NEVER lend/borrow solutions**

Assignments

- You may be asked to justify your solutions during demonstration
- Unless announced otherwise:
  - 24 hours late – 80% deduction

Questions

- Use the discussion board for posting questions.