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August 28, 2021

1 ETE 2324: Data Structures and Algorithms

1.1 Course Contents

- **Introduction to Data Structures and Algorithms**
  - Reading:
    - PythonDS- Chapter 1
  - Notebook:Introduction
  - Lectures: Slides, PDF, HTML Latex
- **The Analysis of Algorithms**
  - Reading:
    - [Goodrich- Chapter 3]
    - PythonDS-Chapter 3
  - Notebook: Complexity Analysis
  - Lectures: Slides, PDF HTML Latex
  - Extra slides: CS161_at_Staford_Slides
- **Arrays and Sequences**
- **Recursion**
  - Fibonacci numbers
  - Master Theorem
- **Sorting and Searching Algorithms**
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    - Binary Search
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    - Bubble sort
    - Quick sort
    - Merge Sort
- **Stacks, Queues and related Algorithms**
- **Linked Lists and related Algorithms**
- **Trees and Tree Algorithms**
- **Graph and Graph Algorithms**

1.2 Textbooks

- [**PythnDS**] Problem Solving with Algorithms and Data Structures using Python
- [**Goodrich**] Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser. **Data Structures and Algorithms in Python** Wiley (2013)

1.3 Reference Books

- [**Cormen**] Cormen, Thomas, Charles Leiserson, Ronald Rivest, and Clifford Stein. **Introduction to Algorithms**. 3rd ed. MIT Press, 2009. ISBN: 9780262033848.

1.4 Environment Setup:

- Python 3 and Jupyter Installation - Python 3 Installation & Setup Guide - How to install python and jupyter

1.5 Python Tutorials

- Part 1: Slides, Notebook, [HTML]python/(python_p1.html)
- Part 2: Slides,Notebook, HTML
- Part 3: Slides,Notebook, HTML
- List in Python: Notebook, HTML

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