

CSC 017 - (CS) Fundamentals of Computer Science III: Advanced Data Structures and Object-Oriented Programming

Hofstra University, Spring 2025

Instructor: Zonghua Gu

Lectures

Date	Lecture Notes	Useful Links
W1	Lecture 0-course overview, PPTX , PDF Lecture 1-2-classes and objects in java, PPTX , PDF Lecture 2 Quiz , ANS	Java Hello World Program , Java Tutorial , Java Programming Examples Object Oriented Programming (OOPs) Concept in Java , 30 OOPs Interview Questions
W2	Lecture 3-inheritance and polymorphism, PPTX , PDF Lecture 3 Quiz , ANS	Inheritance in Java , Interfaces in Java
W3	Lecture 4-string in java, PPTX , PDF Lecture 4 Quiz , ANS	Strings in Java , Reverse a string in Java , Java - Regular Expressions
W4	Lecture 5-algorithm performance analysis, PPTX , PDF Lecture 5 Quiz , ANS	
	Lecture 6-ADTs linked lists, PPTX , PDF Lecture 6 Quiz , ANS	UW Lecture 02: Intro to ADTs
W5	Lecture 7-hash table, PPTX , PDF Lecture 7-hash table exercises, PPTX , Solution, PPTX Lecture 7 Quiz , ANS	UW Lecture 08: Hash Collision Resolutions
W6	Lecture 8-binary search tree, PPTX , PDF Lecture 8-binary search tree exercises, PPTX , Solution, PPTX Lecture 8 Quiz , ANS	
W7	Lecture 9-self balancing trees, PPTX , PDF Lecture 9-self balancing trees exercises, PPTX , Solution PPTX Lecture 9 Quiz , ANS Midterm Exam 2024 Midterm Exam 2025 Paper , Answer Key (Wed. Mar 26, in class)	UW Lecture 09: AVL Trees UW Lecture 10: Self Balancing Trees AVL Tree visualization Red/Black Tree visualization
W8	Lecture 10-2-3 Trees B Trees, PPTX , PDF Lecture 10-2-3 Trees B Trees Exercises ANS, PPTX , PDF Lecture 10 Quiz , ANS	B Tree visualization
W9	Lecture 11-heaps, PPTX , PDF Lecture 11-heaps Exercises ANS, PPTX , PDF Lecture 11 Quiz , ANS	UW Lecture 11: Intro to Heaps UW Lecture 12: Heap Implementation

	Lecture 12-graphs, PPTX , PDF Lecture 12-graphs Exercises, PPTX , PDF , ANS, PPTX , PDF Lecture 12 Quiz , ANS	UW Lecture 14: Graph Traversals Graph Data Structure Graph Algorithms Oggi AI (YouTube)
	Lecture 13-shortest paths, PPTX , PDF Lecture 13-shortest paths Exercises, PPTX , PDF , ANS, PPTX , PDF Lecture 13 Quiz , ANS	UW Lecture 15: Shortest Path
	Lecture 14-minimum spanning trees, PPTX , PDF Lecture 14 Exercises ANS, PPTX , PDF Lecture 14 Quiz , ANS	UW Lecture 16: Minimum Spanning Trees
	Lecture 15-sorting algorithms, PPTX , PDF Lecture 15 Exercises ANS, PPTX , PDF Lecture 15 Quiz , ANS	UW Lecture 19: Introduction to Sorting UW Lecture 20: More Sorting Algorithms
	Final Exam Sample Questions, PPTX , PDF ANS, PPTX , PDF	
	Final Exam Wednesday, 5/14, 8-10 a.m	

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- * Slides subject to change. Please download the latest version after class.
 - * Lectures: SIC 125 MW 9:40-11:05 AM Labs: SIC 206 M 8:30-9:25 AM
 - * Office hours: Tue 13:00 – 17:00, SIC 219.
 - * [UW CSE 373 Winter 24 Lectures](#)
 - * [Discord channel](#)

Lab Sections

Assign Date	Assignment	Due Date
W1	Lab1 Warmup with OOP in Java Useful links: Getting Started with Java in VS Code , Java Program for Closest Prime Number , Programiz online Java compiler	Fri, 02/28
W4	Lab2 Use Flesch Score to measure readability , BasicDocument.java , Document.java	Wed 04/11
W8	Lab3 Stock Analyzer , Lab3 Starter code , myStock.java Refs: HashSet in Java , TreeSet in Java	Wed 05/07

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