

CS61B Lec 1

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May 19, 2025

Notes on Course

- You need IntelliJ (because it automatically and continuously detects syntax errors)
- Hash tables, binary search trees, quick sort, graphs, Dijkstra's algorithm are topics; relevant to job market
- Asymptotic analysis
- Resizing arrays
- Isometry between self-balancing 2-3 trees and self-balancing red-black trees
- Graph Theory
- Polynomial vs. Non-polynomial
 - **Is every problem whose solution can be quickly verified (in polynomial time) also quickly solvable (in polynomial time)?**
- B to B+ threshold is 65% on exams, 95% on everything else.
- HW01 for Java basics
- Lab1 for compiling and running code on machines

Java Basics, The Moral

- You need to declare what ‘x’ is, *by specifying* the data type (e.g., **int**, **String**)
- You can specify its data type in the variable assignment or above the variable assignment.

- You can't assign the bound variable to another data type, even when specifying the data type you want to change it to.
 - Compared to mutating variables in Python, where type checks are performed during execution.
 - Java variable types can never change.

Compilation vs. Interpretation

- Compilation and interpretation are two separate steps.
- Java will look at code and, if data types don't match, it doesn't even execute due to the compiler (i.e., static typing).
 - `.class` is type checked → distributed code is safer
 - `.class files` are simpler for the machine to execute; distributed code is faster
 - Protects your intellectual property
- Pros & Cons of Static Typing
 - Easy to catch certain types of errors
 - More efficient run time
 - Code takes more syntax to define
 - E.g., you need to define larger functions to handle comparison of data types