

Lecture 1 - January 7

Syllabus

Introduction to the Course

Solving Problems via Data Structures

Course Learning Outcomes (CLOs)

API. + precond. postcond. inv.

CLO1 Instantiate a range of standard abstract data types (ADT) as data structures.

CLO2 Implement these data structures and associated operations and check that they satisfy the properties of the ADT.

CLO3 Apply best practice software engineering principles in the design of new data structures.

CLO4 Demonstrate the ability to reason about data structures using contracts, assertions, and invariants.

CLO5 Analyse the asymptotic run times of standard operations for a broad range of common data structures.

CLO6 Select the most appropriate data structures for novel applications.

→ JUnit testing (regression)

→ make decisions among alternative DS.

→ ① correctness ② efficiency (running time)

Sorting

1. Insertion Sort
2. Selection Sort
3. Merge Sort
4. Quick Sort
5. Heap Sort

nested
loops

recursively.

balanced binary search tree

Written Test

~ section-specific

~ eClass (in-person)

~ multiple choice qs. (one or multiple correct ans.)

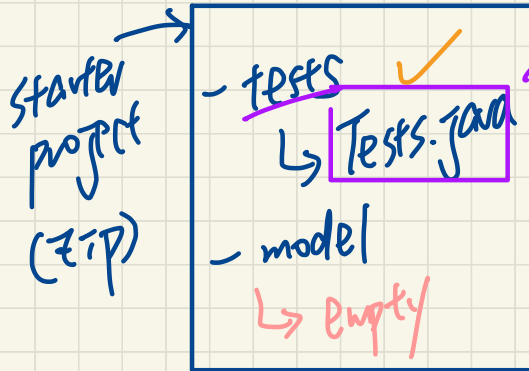
Exam

- in-person

- 3 hours

- mostly written questions.

Programming Tests



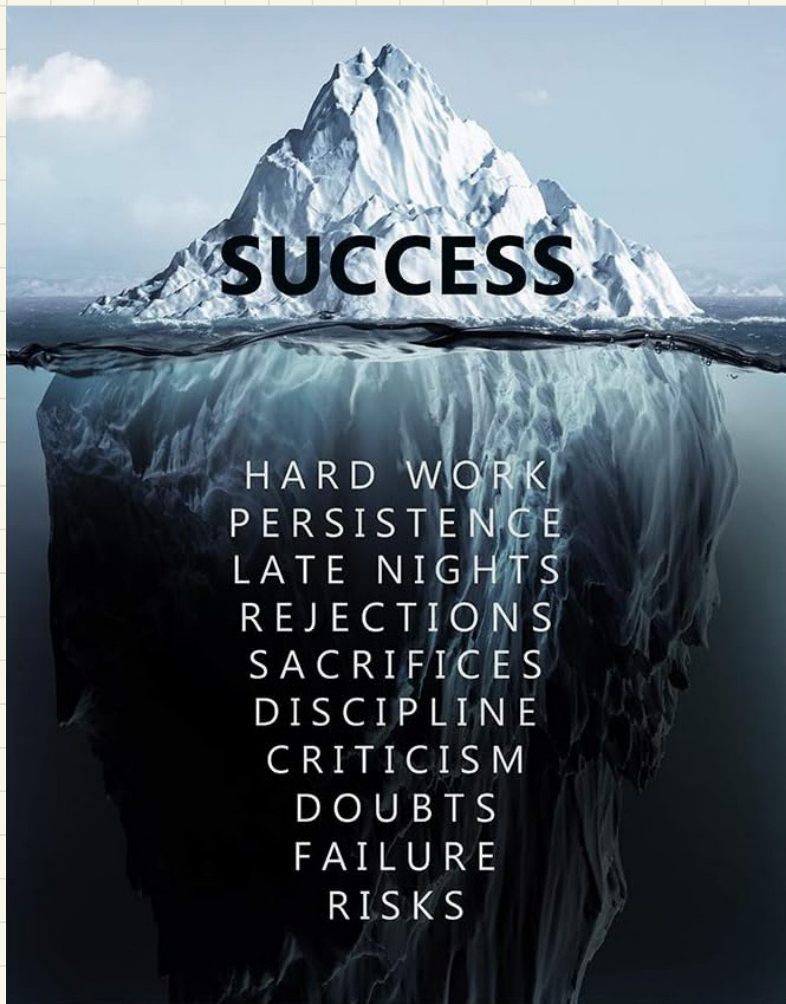
1. example usages of methods

2. meant to be incomplete

↳ you're expected:

(1) not to make your code work only for the starter

(2) write additional tests. tests.



General Tips about Success

Source: <https://a.co/d/aQ13fR1>