

# Lecture 1 - January 7

## Syllabus

## Introduction to the Course

## *Solving Problems via Data Structures*

# Course Learning Outcomes (CLOs)

API

**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.

→ make decisions among alternative DSs.

Notes

## Written Test

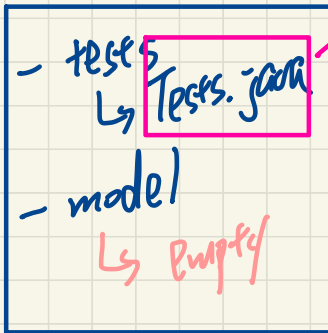
- ~ Section specific
- ~ eClass (in-person)
- ~ multiple choice questions (one or more correct answers)

## Exam

- in-person
- 3 hours
- mostly written questions.

## Programming Tests

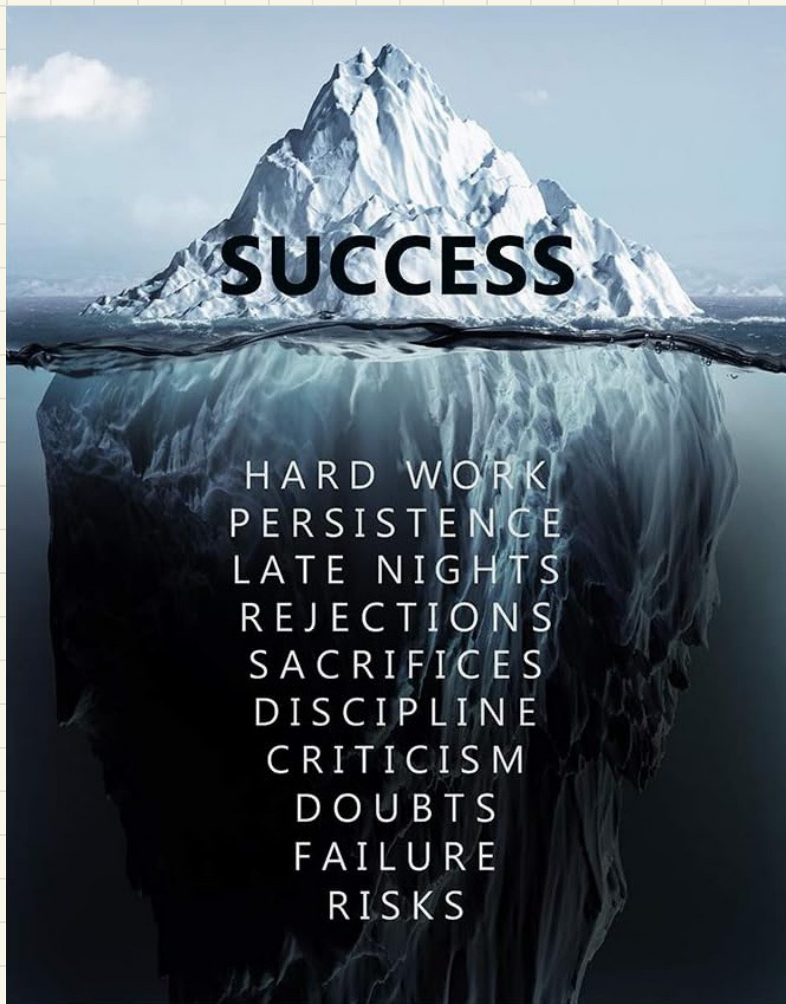
starter  
project



1. example usages of methods
2. meant to be incomplete

↳ you're expected:

- (1) not to make your code work only for starter tests.
- (2) write additional tests



## General Tips about Success

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

# A Searching Problem

```
ResidentRecord find(int sin) {  
    for(int i = 0; i < database.length; i++) {  
        if(database[i].sin == sin) {  
            ↗ return database[i];  
        }  
    }  
}
```

