

# Preface

Im just kinda taking notes and taking the slides from a yt vid so i can maybe remember stuff / copy stuff for later

also to partially increase my typing speed without looking at my keyboard and idk maybe get better at typing given i dont use the standerd asdf jkl; hand position

rather i do shift+awr jop' layout and use alot of range for my index fingers and spread them out its not optimal but this is realy all i need coz im a gamer lmfao

also [] is my ring finger and all numbers are my ring fingers wish i had an ergo keyboard lol

[https://www.youtube.com/watch?v=RBSGKIAvoiM&ab\\_channel=freeCodeCamp.org](https://www.youtube.com/watch?v=RBSGKIAvoiM&ab_channel=freeCodeCamp.org)

Example page, and literal first 6 minutes of the video

---

## Why Data Structures?

- They are essential Ingredients in creeating fast and powerfull algorithms.
  - they help to manage and organize data.
  - they make code cleaner and easier to understand. (even if it lowers efficiency)
- 

## Abstract Data Types VS. Data Structures

### Abstract data type

An abstract data type (ADT) is an abstraction of a data structure which provides only the interface to which a data structure must adhere to which a data structure must adhere to.

the interface does not give any specific details about how something should be implemented or in what programming language.

### Examples

Abstraction (ADT)	Implementation (DS)
List	Dinamic Array Linked List
Queue	Linked List based Queue Array based Queue Stack based Queue

Map	Tree Map Hash Map / Hash Table
Vehicle	Golf Cart Bicycle Smart Car

# Complexity Analysis

As programmers, we often find ourselves asking the same two questions over and over again:

- 1. How much time does this algorithm need to finish?
  - 1. if it takes the length of the universe to complete its useless
- 2. How much space does this algorithm need for its computation?
  - 1. likewise if it takes the entire bit size of internet its also useless