# Big-Oh notation

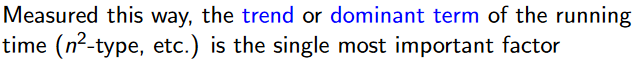
A white background with black text

Description automatically generated

A computer program with text

Description automatically generated with medium confidence







A screenshot of a math problem

Description automatically generated

A white paper with black text

Description automatically generatedA black and white math equation

Description automatically generated

A close up of words

Description automatically generated







A white background with black text

Description automatically generated

A close up of text

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a math problem

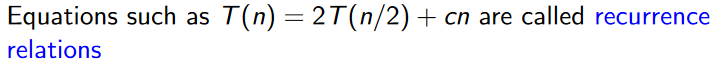
Description automatically generated

A graph of a function

Description automatically generated with medium confidence

A math equations with numbers

Description automatically generated with medium confidence



A white background with black text

Description automatically generated

# Searching Algorithms

## A screenshot of a computer code Description automatically generatedLinear Search

A white paper with black text

Description automatically generated

## Binary search

A white paper with black text

Description automatically generated



# Sorting Algorithms

## Selection Sort

A white background with black text

Description automatically generated

A white screen with black text

Description automatically generated

## A white background with black text Description automatically generatedInsertion Sort



A math equations on a white background

Description automatically generated

A white background with black text

Description automatically generated

## A white background with black text Description automatically generatedMergesort

A black text on a white background

Description automatically generated

A diagram of a computer code

Description automatically generatedA diagram of a computer code

Description automatically generatedA diagram of a computer code

Description automatically generatedA diagram of a computer code

Description automatically generatedA diagram of a number

Description automatically generatedA diagram of a number

Description automatically generatedA diagram of a computer code

Description automatically generated

Merging

A diagram of a sequence

Description automatically generatedA white background with black text

Description automatically generated

Sorting Tree

A white screen with black text

Description automatically generated

A white text with black text

Description automatically generatedA white text with black and blue text

Description automatically generated

## Quicksort

A white text with blue and purple text

Description automatically generated

A close up of a text

Description automatically generatedDivide step

A white background with black text

Description automatically generatedA white background with black text

Description automatically generatedA white background with black text

Description automatically generated





A math equations on a white background

Description automatically generated

A white text with blue and black text

Description automatically generated

A computer screen shot of a computer code

Description automatically generatedPartition step

A white background with black text

Description automatically generated

A diagram of steps and numbers

Description automatically generated with medium confidence

A diagram of a number

Description automatically generated with medium confidence

# Data Structures

## ArrayList

A white paper with black text and numbers

Description automatically generated



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Description automatically generated

A white background with black text

Description automatically generated

A diagram of a circular buffer

Description automatically generated



A math equation with numbers and lines

Description automatically generated with medium confidence

## A diagram of a number and a circle Description automatically generated with medium confidenceLinked Lists

A computer code with black text

Description automatically generated

A close-up of a text

Description automatically generated

A white background with black text

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A white background with black text

Description automatically generated

A white background with black text

Description automatically generated

## A screenshot of a computer code Description automatically generatedTrees

A close-up of text

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A computer code with black text

Description automatically generatedA screen shot of a computer code

Description automatically generated

Binary Search Trees

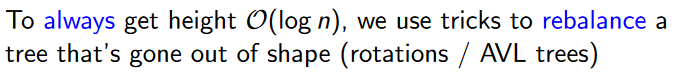
A close up of words

Description automatically generatedA computer screen shot of text

Description automatically generated





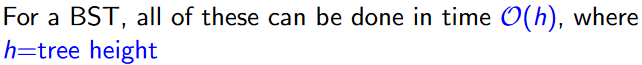




A close-up of black text

Description automatically generatedA screenshot of a computer code

Description automatically generated



A screenshot of a computer code

Description automatically generated

#### Deletion of a node





A close up of text

Description automatically generatedA screenshot of a computer code

Description automatically generated

#### A white text with black text Description automatically generatedSelf-balancing BSTs

A math equations on a white background

Description automatically generated

##### AVL Trees

After insertion / deletion of a node

Backtrack, checking the heights of nodes

If node.height is 2

If node.left.height >= 1

Right rotate node

Else left rotate node.left and then right rotate node

Else if node.height is -2

A black and white text

Description automatically generated If node.right.height <= 0

Left rotate node

Else right rotate node.right and then left rotate node

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When rotating right around a node, drop left node pointer and hook it onto left subtrees right node, with the left node now being the parent.

When rotating left around a node, drop right pointer and hook it onto right subtrees left node, with the right node now being the parent.

## ADTs

A close up of a text

Description automatically generated

A close up of words

Description automatically generated

A white text with black text

Description automatically generatedStack

A close up of a text

Description automatically generated

A white background with black text

Description automatically generated

Queue

A white background with black text

Description automatically generated

A close up of text

Description automatically generated

A white background with black text

Description automatically generated

#### Double-ended queue

A screenshot of a computer program

Description automatically generated

#### A white background with black text Description automatically generatedA white text with black text Description automatically generatedPriority Queue

A screenshot of a computer program

Description automatically generated

A close up of a text

Description automatically generated

A white background with black text

Description automatically generated

A close-up of a white background

Description automatically generated

A close-up of a computer code

Description automatically generated

##### A close up of words Description automatically generatedA white background with black text Description automatically generatedBinary Heaps

A group of black text

Description automatically generated

A white background with black text

Description automatically generated

A close up of a white background

Description automatically generated



A white text with black text

Description automatically generatedA close-up of a computer code

Description automatically generated

A white background with black text

Description automatically generated

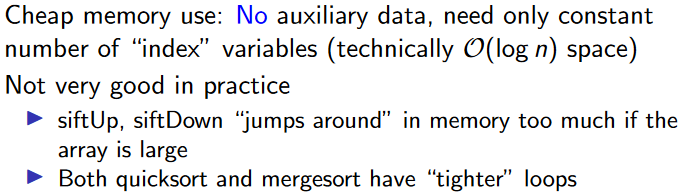


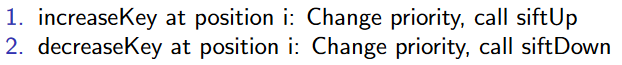
A black text on a white background

Description automatically generated

A white text with black text

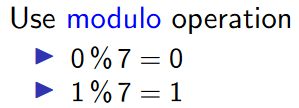
Description automatically generated





A close up of text

Description automatically generated



Hash tables



A screenshot of a computer

Description automatically generated

A white background with black text

Description automatically generated

A white background with black text

Description automatically generatedA screenshot of a computer code

Description automatically generated

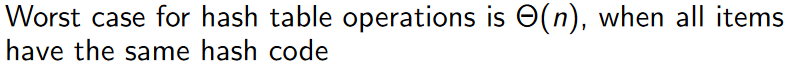
A red and white rectangle with black text

Description automatically generated



A white text with blue and black text

Description automatically generated





A white background with black text

Description automatically generated



A black and white text with red and blue text

Description automatically generated

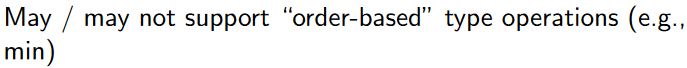
Set

A white text with black text

Description automatically generated with medium confidenceA black text on a white background

Description automatically generatedA black text on a white background

Description automatically generated



A black text on a white background

Description automatically generatedA black text on a white background

Description automatically generated

A black text on a white background

Description automatically generated

A close up of words

Description automatically generatedMap

A black text on a white background

Description automatically generated

A white background with black text

Description automatically generated

A close up of a sign

Description automatically generated

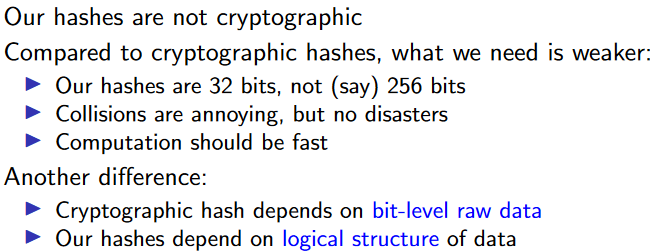
A close up of a sign

Description automatically generated

# Hash functions

A close up of a text

Description automatically generated







A black text on a white background

Description automatically generated

# Dynamic programming

A white background with black text

Description automatically generatedA white background with black text and numbers

Description automatically generated

A close-up of a white background

Description automatically generated

A screenshot of a white background

Description automatically generatedA math equations and formulas

Description automatically generated with medium confidence

A white background with black text

Description automatically generated

A screenshot of a computer

Description automatically generated

A close up of text

Description automatically generated

A number grid with numbers

Description automatically generated with medium confidence

# A white text with black text Description automatically generatedString Matching

A diagram of a diagram

Description automatically generated

A white paper with black text

Description automatically generated



A white background with black text

Description automatically generated



A white background with black text

Description automatically generated

A computer code with black text

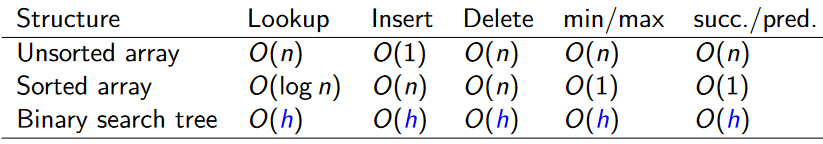
Description automatically generated



# A screenshot of a computer Description automatically generatedComplexity Tables

A table with text and numbers

Description automatically generated with medium confidence



# A hexagon with lines and circles Description automatically generatedA diagram of a graph Description automatically generatedGraphs

A close-up of a logo

Description automatically generatedA star with numbers and lines

Description automatically generatedA close up of black text

Description automatically generated

A white paper with black text

Description automatically generated



A close-up of a text

Description automatically generated

A close-up of a text

Description automatically generated

A diagram of a number

Description automatically generated with medium confidenceA white background with black text

Description automatically generatedA diagram of a number

Description automatically generated with medium confidenceA white background with black and blue text

Description automatically generatedA white background with black text

Description automatically generated

A math equations on a white background

Description automatically generated



A screenshot of a math problem

Description automatically generated

A math equations and numbers

Description automatically generated with medium confidence

## Graph traversal

A white background with black text

Description automatically generated

A screenshot of a computer

Description automatically generated



A white background with black text

Description automatically generated

A white background with black and blue text

Description automatically generated

A close-up of a white background

Description automatically generated



A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

A screenshot of a math problem

Description automatically generated

A blue and white sign with black text

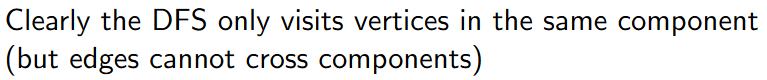
Description automatically generated

A white paper with black text and blue text

Description automatically generated

A close-up of words

Description automatically generated



A diagram of a tree with red lines and arrows

Description automatically generatedA screenshot of a computer code

Description automatically generated

A screenshot of a computer code

Description automatically generated

A close up of text

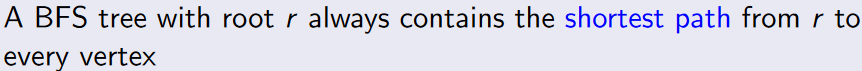
Description automatically generated

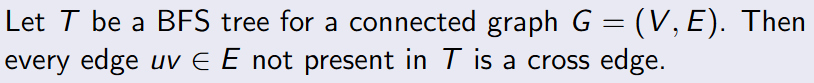


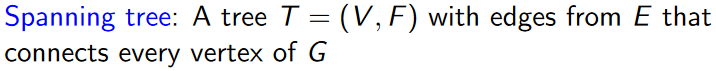


A close-up of a sign

Description automatically generated







A black and white text

Description automatically generated

A screenshot of a computer screen

Description automatically generated

A close up of black text

Description automatically generated

A white background with black text and numbers

Description automatically generated



A screenshot of a computer code

Description automatically generated

A screenshot of a computer program

Description automatically generated

A white background with black text

Description automatically generated

A close-up of a text

Description automatically generated

A black text on a white background

Description automatically generated

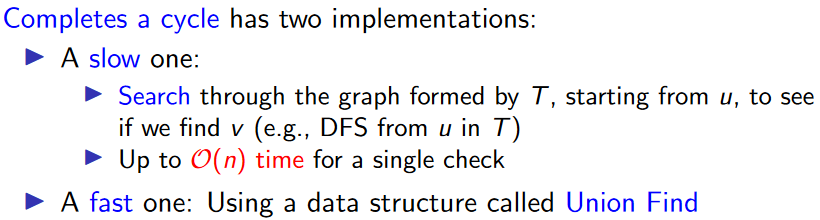
A screenshot of a computer program

Description automatically generated



A white background with black text and numbers

Description automatically generated



A white paper with black text and black text

Description automatically generated

A close-up of a text

Description automatically generated

A black and blue text

Description automatically generated



A group of circles with letters and numbers

Description automatically generated

A diagram of a group of circles and a group of dots

Description automatically generated with medium confidence

A screenshot of a computer program

Description automatically generated

A diagram of a group of circles and a group of dots

Description automatically generated with medium confidence

A black text on a white background

Description automatically generatedA white paper with black text

Description automatically generated



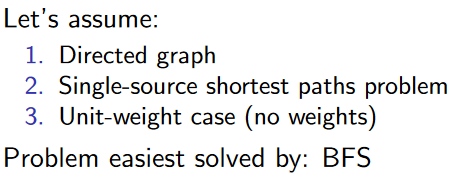
A close up of a word

Description automatically generated

A white background with black text

Description automatically generatedA screenshot of a computer program

Description automatically generated



A white background with blue text

Description automatically generated

A black text on a white background

Description automatically generated

A close-up of a white background

Description automatically generated

A screenshot of a computer screen

Description automatically generated

A black text on a white background

Description automatically generated

A screenshot of a computer program

Description automatically generated

A diagram of a graph

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated

A close-up of a white background

Description automatically generated

A white background with black text

Description automatically generated

A diagram of a diagram of a diagram

Description automatically generated

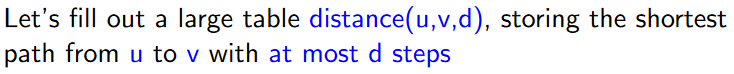
A close up of a text

Description automatically generated

A screenshot of a computer

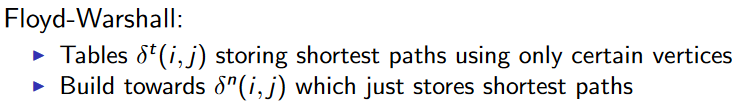
Description automatically generatedA white background with black text

Description automatically generated



A black text on a white background

Description automatically generated



A white paper with black text

Description automatically generated

A screenshot of a computer

Description automatically generated

A white background with black text

Description automatically generated

A math equations and numbers

Description automatically generated with medium confidence

A table of mathematical equations

Description automatically generated

A group of numbers and symbols

Description automatically generated

A white text with blue text and numbers

Description automatically generated with medium confidence

A diagram of a network

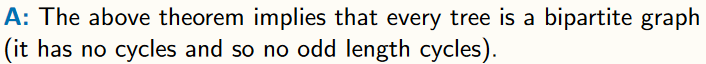
Description automatically generatedA screenshot of a computer

Description automatically generated

A blue and white screen with black text

Description automatically generated





A screenshot of a computer

Description automatically generated

A diagram of a graph

Description automatically generated

A diagram of a graph

Description automatically generated



## A white background with black text Description automatically generatedGreedy Algorithms

A white text with blue and green text

Description automatically generated

A white background with text

Description automatically generated