Algorithms Checklist

Progress: 31/314 (9.9%)

A comprehensive collection of algorithm implementations

Backtracking   (20%)

- ☐ all combination of size k
- ☑ graph coloring
- ☐ hamiltonian cycle
- ☐ knight tour
- ☐ n queens
- ☑ parentheses generator
- ☐ permutations
- ☐ rat in a maze
- ☐ subset sum
- ☐ sudoku

Big Integer   (33.3%)

- ☑ fast factorial
- ☐ multiply
- ☐ poly1305

Bit Manipulation   (50%)

- ☑ counting bits
- ☑ highest set bit
- ☐ n bits gray code
- ☐ sum of two integers

Ciphers   (23.8%)

- ☐ aes
- ☑ baconian cipher
- ☐ base64
- ☐ blake2b
- ☑ caesar
- ☐ chacha
- ☐ diffie hellman
- ☐ hashing traits
- ☐ kerninghan
- ☑ morse code
- ☐ polybius
- ☐ RAIL fence
- ☑ rot13
- ☐ salsa
- ☐ sha256
- ☐ sha3
- ☐ tea
- ☐ theoretical rot13
- ☐ transposition
- ☐ vigenere
- ☑ xor

Compression   (50%)

- ☑ move to front
- ☐ run length encoding

Conversions   (20%)

- ☑ binary to decimal
- ☑ binary to hexadecimal
- ☐ decimal to binary
- ☐ decimal to hexadecimal
- ☐ hexadecimal to binary
- ☐ hexadecimal to decimal
- ☐ length conversion
- ☐ octal to binary
- ☐ octal to decimal
- ☐ rgb cmyk conversion

Data Structures   (5%)

- ☐ avl tree
- ☐ binary search tree
- ☐ b tree
- ☐ fenwick tree
- ☐ floyds algorithm
- ☐ graph
- ☐ hash table
- ☐ heap
- ☐ lazy segment tree
- ☐ linked list
- ☐ queue
- ☐ range minimum query
- ☐ rb tree
- ☐ segment tree recursive
- ☐ segment tree
- ☑ stack using singly linked list
- ☐ treap
- ☐ trie

- ☐ union find
- ☐ veb tree

Probabilistic
- ☐ bloom filter
- ☐ count min sketch

Dynamic Programming   (5%)

- ☐ coin change
- ☐ egg dropping
- ☑ fibonacci
- ☐ fractional knapsack
- ☐ is subsequence
- ☐ knapsack
- ☐ longest common subsequence
- ☐ longest common substring
- ☐ longest continuous increasing subsequence
- ☐ longest increasing subsequence
- ☐ matrix chain multiply
- ☐ maximal square
- ☐ maximum subarray
- ☐ minimum cost path
- ☐ optimal bst
- ☐ rod cutting
- ☐ snail
- ☐ subset generation
- ☐ trapped rainwater
- ☐ word break

Financial   (100%)

- ☑ present value

General   (11.1%)

- ☐ convex hull
- ☐ fisher yates shuffle
- ☐ genetic
- ☐ hanoi
- ☐ huffman encoding
- ☐ kadane algorithm
- ☐ kmeans
- ☐ mex
- ☑ two sum

Permutation
- ☐ heap
- ☐ naive
- ☐ steinhaus johnson trotter

Geometry   (0%)

- ☐ closest points
- ☐ graham scan
- ☐ jarvis scan
- ☐ point
- ☐ polygon points
- ☐ ramer douglas peucker
- ☐ segment

Graph   (0%)

- ☐ astar
- ☐ bellman ford
- ☐ bipartite matching
- ☐ breadth first search
- ☐ centroid decomposition
- ☐ decremental connectivity
- ☐ depth first search
- ☐ depth first search tic tac toe
- ☐ detect cycle
- ☐ dijkstra
- ☐ dinic maxflow
- ☐ disjoint set union
- ☐ eulerian path
- ☐ floyd warshall
- ☐ ford fulkerson
- ☐ graph enumeration
- ☐ heavy light decomposition
- ☐ kosaraju
- ☐ lee breadth first search
- ☐ lowest common ancestor
- ☐ minimum spanning tree
- ☐ prim
- ☐ strongly connected components
- ☐ tarjans ssc
- ☐ topological sort
- ☐ two satisfiability

Greedy   (0%)

- ☐ job sequencing
- ☐ stable matching

Machine Learning   (25%)

- ☐ cholesky
- ☐ k means
- ☑ linear regression
- ☐ logistic regression

Loss Function

- ☐ average margin ranking loss
- ☐ hinge loss
- ☐ huber loss
- ☐ kl divergence loss
- ☑ mean absolute error loss
- ☑ mean squared error loss
- ☐ negative log likelihood

Optimization

- ☐ adam
- ☐ gradient descent

Math (8.4%)

- ☑ abs
- ☑ aliquot sum
- ☐ amicable numbers
- ☐ area of polygon
- ☐ area under curve
- ☐ armstrong number
- ☑ average
- ☐ baby step giant step
- ☐ bell numbers
- ☐ binary exponentiation
- ☐ binomial coefficient
- ☐ catalan numbers
- ☐ ceil
- ☐ chinese remainder theorem
- ☐ collatz sequence
- ☐ combinations
- ☐ cross entropy loss
- ☐ decimal to fraction
- ☑ doomsday
- ☐ elliptic curve
- ☐ euclidean distance
- ☐ exponential linear unit
- ☐ extended euclidean algorithm
- ☐ factorial
- ☐ factors
- ☐ faster perfect numbers
- ☐ fast fourier transform
- ☐ fast power
- ☐ field
- ☐ frizzy number
- ☐ gaussian elimination
- ☐ gaussian error linear unit
- ☐ gcd of n numbers
- ☐ geometric series
- ☐ greatest common divisor
- ☐ huber loss
- ☐ infix to postfix
- ☐ interest
- ☐ interpolation
- ☐ interquartile range
- ☐ karatsuba multiplication
- ☐ lcm of n numbers
- ☐ leaky relu
- ☐ least square approx
- ☐ linear sieve
- ☐ logarithm
- ☐ lucas series
- ☐ matrix ops
- ☐ mersenne primes
- ☐ miller rabin

- ☐ modular exponential
- ☐ newton raphson
- ☐ nthprime
- ☐ pascal triangle
- ☐ perfect cube
- ☐ perfect numbers
- ☑ perfect square
- ☐ pollard rho
- ☐ postfix evaluation
- ☐ prime check
- ☐ prime factors
- ☐ prime numbers
- ☐ quadratic residue
- ☐ random
- ☐ relu
- ☑ sieve of eratosthenes
- ☐ sigmoid
- ☐ signum
- ☐ simpsons integration
- ☐ softmax
- ☐ sprague grundy theorem
- ☐ square pyramidal numbers
- ☑ square root
- ☐ sum of digits
- ☐ sum of geometric progression
- ☐ sum of harmonic series
- ☐ sylvester sequence
- ☐ tanh
- ☐ trapezoidal integration
- ☐ trial division
- ☐ trig functions
- ☐ vector cross product
- ☐ zellers congruence algorithm

Navigation (0%)

- ☐ bearing
- ☐ haversine

Number Theory (0%)

- ☐ compute totient
- ☐ euler totient
- ☐ kth factor

Searching (13.3%)

- ☐ binary search recursive
- ☑ binary search
- ☐ exponential search
- ☐ fibonacci search
- ☐ interpolation search

- ☐ jump search
- ☐ kth smallest heap
- ☑ linear search
- ☐ moore voting
- ☐ quick select
- ☐ saddleback search
- ☐ ternary search min max recursive
- ☐ ternary search min max
- ☐ ternary search recursive
- ☐ ternary search

Sorting (5.9%)

- ☐ bead sort
- ☐ binary insertion sort
- ☐ bingo sort
- ☐ bitonic sort
- ☑ bogo sort
- ☑ bubble sort
- ☐ bucket sort
- ☐ cocktail shaker sort
- ☐ comb sort
- ☐ counting sort
- ☐ cycle sort
- ☐ dutch national flag sort
- ☐ exchange sort
- ☐ gnome sort
- ☐ heap sort
- ☐ insertion sort
- ☐ intro sort
- ☐ merge sort
- ☐ odd even sort
- ☐ pancake sort
- ☐ patience sort
- ☐ pigeonhole sort
- ☐ quick sort 3 ways
- ☐ quick sort
- ☐ radix sort
- ☐ selection sort
- ☐ shell sort
- ☐ sleep sort
- ☐ sort utils
- ☐ stooge sort
- ☐ tim sort
- ☐ tree sort
- ☐ wave sort
- ☐ wiggle sort

String (0%)

- ☐ aho corasick
- ☐ anagram

- ☐ autocomplete using trie
- ☐ boyer moore search
- ☐ burrows wheeler transform
- ☐ duval algorithm
- ☐ hamming distance
- ☐ isogram
- ☐ isomorphism
- ☐ jaro winkler distance
- ☐ knuth morris pratt
- ☐ levenshtein distance
- ☐ lipogram
- ☐ manacher
- ☐ palindrome
- ☐ pangram
- ☐ rabin karp
- ☐ reverse
- ☐ run length encoding
- ☐ shortest palindrome
- ☐ suffix array manber myers
- ☐ suffix array
- ☐ suffix tree
- ☐ z algorithm