SPOJ QUESTIONS LIST

List compiled by Anmol Deep (IT 2k14)

Beginners can start from the below questions on spoj and then move towards more difficult problems. Please try to solve these questions yourself without referring to the solution.

ADDREV EC CONB CRDS ACPC11B

CODCHESS

FASHION

Before moving to the list, solve these basic adhoc questions for best results.

ARMY

ESYRCRTN

FCTRL

FCTRL2

IEEEBGAM

PHT

SPCQ

SPCU

MAY99 2

MAY99 3

ENIGMATH

CEQU

MKEQUAL

SNGPG

SAMER08F

WILLITST

MOHIB

HANGOVER

CANDY

CANDY3

NSTEPS

SILVER

KURUK14

NITK06

After solving the above questions you can solve below questions.

Contents:-

- 1.> ADHOC
- 2.> MATH
- 3.> Binary Search
- 4.> C++ STL & DATA STRUCTURES
- 5.> Sliding Window/Two Pointers
- 5.> DFS/BFS + Traversal on 2 D Grid
- 6.> DSU
- 7.> BACKTRACKING

About This:-

This is a very comprehensive list, solving this will get about 90% of your preparation done. Questions in each set are sorted according to their difficulty, but

you can always try the next question if you get stuck. Everything from Math to DFS/BFS is very important, I recommend solving all question in these topics as they

are mostly of easy or medium difficulty and will teach you a LOT of things. ADHOC is tougher compared to the last set, but there are plenty of alternatives. Nevertheless, these will definitely improve implementation skills. There are some basic questions on DSU. There is a section on backtracking which will cover Josephus

algorithm.

The next set of questions will cover basic Dynamic Programming, MST, SCC, Shortest Path algorithms, more problems on binary search, data structures, graph theory, dsu AND string algorithms like KMP.

All the best!

Somewhat tougher than the last implementation questions. Some may take lot of time but worth the effort.

ADHOC:-

BUSYMAN

GERGOVIA

KNJIGE

CUBARTWK

VAPI01

SNGMSG

PWRARR

MAIN12A

PQUEUE

CATM

UOFTAB

JAVAC

PALIN

QUE1

Math:-

DOL

MOHIB

ABSP1

QUADAREA

GIRLSNBS

EBOXES

Learn Modular Exponentiation & Modulo Inverse (Very Important Topics, Used In Lots Of Problems, However Could Not Remember Most Of Them)

ZSUM

RIVALS

ADST01

Learn Euclidean GCD

SPEED

STREETR

CEQU

GCD2

Learn Optimized Sieve

TDPRIMES

TDKPRIMES

CUBEFR

MCUR98

HARSHAD

Learn Horner's method

POLEVAL

Learn Euler's Totient Function

ETF

STARSBC

FACT0

Binary Search:-

HACKRNDM

EKO

MAIN8_C

EGYPIZZA

NOTATRI

AGGRCOW

CISTFILL

CURDPROD

Do read Topcoder Tutorial on binary search before attempting these questions. They cover all the possible edge cases.

C++ STL and Basic Data Structures(Stack, Queue etc):-

RPLE

STPAR

ANARC09A **** (Tagged under DP, alternative solution exists)

FACEFRND

MRECAMAN

MAJOR

PRO

RKS

SBANK

HOMO

ASCDFIB

BOI7SEQ ****Optional. Hardest in this set.

Sliding Window/ Two Pointers:-

ALIEN

ARRAYSUB

HOTELS

BOI7SOU

DFS/BFS:-

CAM5

BUGLIFE

NAKANJ

PPATH

ELEVTRBL

PT07Y

PT07Z

PYRA

AKBAR

DFS/BFS on 2D grid:-

ABCPATH

BITMAP

UCV2013H

DSU:-

SOCNETC

FRNDCIRC

LOSTNSURVIVED

FOXLINGS

BACKTRACKING:-

Learn Josephus

DANGER

WTK

POCRI

NG0FRCTN ****Perhaps hardest among all these questions. Optional.

CONTENTS

- 1.> Dynamic Programming
- 2.> Graph Algorithms(SCC+Topological Sort+Articulation Points+Lowest Common Ancestor+DFS/BFS)
- 3.> MST & Dijkstra
- 4.> DSU
- 5.> KMP/String Algorithms
- 6.> Segment Tree/Binary Index Tree
- 7.> Greedy/Adhoc/Math/Binary Search

This list is somewhat less comprehensive as questions from such algorithms are hard to find and even harder to solve. It is still a great collection for getting started on SPOJ. The section in DP contains some classic techniques which need to be studied beforehand.

Dynamic Programming:

- 1.> FARIDA
- 2.> ALIEN2
- 3.> DCEPC501
- 4.> ACPC10D
- 5.> ACODE
- 6.> WACHOVIA (Knapsack)
- 7.> TRT
- 8.> TWENDS
- 9.> NFURY
- 10.> NY10E
- 11.> MAXWOODS (Min Cost Path)
- 12.> ELIS (Longest Increasing Subsequence)
- 13.> EDIST (Edit Distance)
- 14.> EDIT
- 15.> MAY99_4 (Binomial Coefficient)
- 16.> GOO
- 17.> CRSCNTRY (Longest Common Subsequence)
- 18.> AIBOHP
- 19.> MMAXPER
- 20.> MCOINS

21.> COINS 22.> PARTY 23.> PIGBANK 24.> MINVEST 25.> SCUBADIV 26> RPLB 27.> NOCHANGE 28.> FPOLICE 29.> CHOCOLA 30.> BAT3 31.> ALTSEQ 32.> SMILEY1807 33.> PHIDIAS 34.> BABTWR 35.> RENT 36.> ORDSUM23 37.> CZ PROB1 38.> UOFTAE 39.> PPBRJB 40.> ROCK 41.> SAFECRAC 42.> SAMER08C 43.> MAIN72 (Subset Sum) 44.> MAIN113 45.> PERMUT1 46.> PT07X (Vertex Cover) 47.> LPIS 48.> MKBUDGET 49.> PERMUT1 50.> LOVEBIRDS 51.> TEMPTISL 52.> PRUBALL (Egg Dropping Puzzle) (Matrix Chain Multiplication) 53.> MIXTURES 54.> LISA 55.> CODERE3 (Longest Bitonic Subsequence)

This does not cover all dp topics from geeksforgeeks such as the cutting rod problem, box stacking problem etc, but will still provide a good foundation on dynamic programming.

All the best!

56.> MARTIAN 57.> DSUBSEQ 58.> BVAAN

GRAPH ALGORITHMS:-

ADVANCED DFS/BFS AND MISC GRAPH THEORY:-

- 1.> MLASERP
- 2.> ESJAIL
- 3.> ESCJAILA
- 4.> ONEZERO
- 5.> MOHIBTREE
- 6.> CFPARTY
- 7.> ANARC08G
- 8.> PARADOX
- 9.> HERDING

MST/DIJKSTRA & SHORTEST PATHS:-

- 1.> SHPATH
- 2.> ULM09
- 3.> BLINNET
- 4.> BENEFACT
- 5.> CHICAGO
- 6.> IITWPC4I
- 7.> MARYBMW
- 8.> INCARDS
- 9.> TRAFFICN
- 10.> SAMER08A
- 11.> KOICOST

SCC (Lowest Common Ancestor + Topological Sort + Articulation Points):-

- 1.> TOUR
- 2.> BOTTOM
- 3.> CAPCITY
- 4.> WEBISL
- 5.> LCA
- 6.> SUBMERGE (ARTICULATION POINTS)
- 8.> PFDEP
- 9.> EC_P

DSU:-

- 1.> BTCODE G
- 2.> CORNET
- 3.> LOSTNSURVIVED
- 4.> FOXLINGS (CO-ORDINATE COMPRESSION)

KMP/STRING ALGORITHMS:-

NHAY

FILRTEST

TESSER

EPALIN

SEGMENT TREE/BINARY INDEXED TREE:-

- 1.> AKVQLD03
- 2.> ANDROUND
- 3.> INVCNT
- 4.> HORRIBLE (Lazy Propagation)
- 5.> LITE
- 6.> MULTQ3
- 7.> RMID
- 8.> RPLN
- 9.> RATINGS
- 10.> DCEPC206
- 11.> INCSEQ

MORE PROBLEMS ON GREEDY/MATH/BINARY SEARCH:-

- 1.> ABCDEF
- 2.> SUBS
- 3.> SUBSUMS (MEET IN THE MIDDLE)
- 4.> NR2
- 5.> ARRANGE
- 6.> SECTORS
- 7.> POTIONS
- 8.> GCDEX
- 9.> IITKWPCN