



HOME CONTESTS GYM PROBLEMSET RATING FAQ CROC 2012 BAYAN 2012/13 CROC-MBTU 2012 Search by tag...

HARTA BLOG TEAMS SUBMISSIONS TALKS CONTESTS

Harta's blog

Dynamic Programming Type

By Harta, 3 years ago, 🗮, 🖉

Dynamic Programming (DP):

1. Classic Dynamic Programming

a. LCS

Problem: 1. SAMER08D

b. LIS

Problem: 1. Beautiful People

- 2. MDOLLS
- 3. MSTICK
- 4. MCARDS
- c. Edit Distance
- d. Matrix Chain Multiplication

Problem: 1. Mixtures

e. Knapsack

Problem: 1. Scubadiv

- 2. Advance DP
- a. DP k-th lexicographical string

Problem: 1. z-01 paths

- 2. z-board
- 3. Linear Garden (IOI 2008)
- b. DP tree

Problem: 1. z-sumpaths

- 2. River (IOI 2005)
- 3. z-company
- 4. Greedy Hydra (CNOI 2002)
- 5. VOCV
- 6. PT07F
- 7. PT07X
- 8. nagibni
- c. DP+ BIT/segment tree

Problem: 1. Salesman (IOI 2009)

- 2. explosion
- 3. intervali
- 4. RENT
- 5. INCSEQ
- 6. INCDSEQ
- d. DP+ convex hull

Problem: 1. Batch Scheduling (IOI 2002)

2. NKLEAVES

→ Pay attention

Before contest Codeforces Round #163 (Div. 2)

21.27.36

→ Top rated

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3	rng_58	2809	
4	peter50216	2713	
5	WJMZBMR	2701	
6	dzhulgakov	2659	
7	Egor	2630	
8	yeputons	2558	
9	ivan.mete sky	2556	
10	RAVEman	2545	
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3	Ripatti	145
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10	Petr	137
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Hand l e:	
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→ Recent actions

Panchjanya → <u>Raung System</u>
thefourtheye → <u>SPOJ — 181 — SCUBADIV</u> <u>— WA</u>

IITian → <u>Help.general guidance</u> ©



Dynamic Programming Type - Codeforces 3. Harbingers (CEOI 2009) 4. Commando (APIO 2010) e. DP pre-processing Problem: 1. Oil (APIO 2009) 2. Garden (IOI 2005) 3. Pyramid (IOI 2006) f. DP bitmask Problem: 1. Reklame 2. Chess 3. Bond 4. TRSTAGE 5. HIST2 6. LAZYCOWS a. Problem 1: Grid (BOI 2008) h. DP matrix multiplication/ DP using recurrence Problem 1. SEQ 2. SPP 3. z-funkcija 4. mit-indiv09-words 5. Reading (Balkan 2009) 6. Super Climber 7. z-mario i. DP+ trie Problem 1. MORSE j. DP+geometry Problem 1. MPOLY 2. CVXPOLY 3. MTRIAREA k. DP + Binary Search Problem 1. Game (IOI 2008, Practice session) I. DP + Knuth Optimization Problem 1. Breaking Strings Other Problems in SPOJ can be found here by pt1989 Thanks to pt1989 Here are problems in acm.sgu.ru 269, 273, 304, 317, 356, 396, 445, 447, 458, 489, 494 Thanks to natalia

rumi13 → Registration for Ural Championship © rng 58 → Codeforces Round #162 Tutorial Sereja → TopCoder SRM 567 💭 rng_58 → Codeforces Round #162 © Egor → CHelper 3.3 © LashaBukhnikashvili → USACO 2013 Jan. Contest © sourabh912 → SPOJ-HELPBOB 🐑 diego_v1 → USACO Contest Weighted Results © MaximShipko → <u>Updating Trainings</u> © DoctorLai → Newbie's mistakes 💭 anup.kalbalia ightarrow Invitation to the January 2013 Cook-off on CodeChef 🐑 professorbrill \rightarrow BFS on 0-1 graph \bigcirc selfcompiler → DP problem 💭 kuruk2013 → Online Programming Contest Kurukshetra 2013 M mp007 → Custom Test problem Nerevar → Codeforces Round #154 (Div. 2) and Codeforces Round #155 (Div. 2) HolkinPV → Codeforces Round #161 (Div. $cegprakash \rightarrow \underline{K! \ Online \ Programming}$ Contest 69 osmanuss → COCI Contest #4 \ \(\hat{\rightarrow} \) dtalamas24 → Why Codeforces website stops working quite frequently? $\textbf{MikeMirzayanov} \rightarrow \underline{Codeforces\ Testing}$ Round #5 🐑 MikeMirzayanov → Frequently Asked Ouestions ©

 $\underline{\text{Detailed}} \rightarrow$

trening

+4 🔻

Reference:

1. Topcoder 2. Codechef





Write comment?

<u> 57</u>

▲ 0 ▼ 3 years ago, # |

<u>Harta</u>

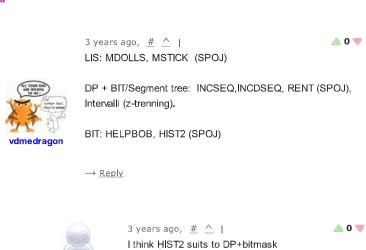
2/9 codeforces.com/blog/entry/325

3 years ago















w0rm

w0rm

Harta

spcoder

3 years ago, <u>#</u> |

Reply

awesome ,thanks man

<u>^</u> 0 🐺

more problems: http://www.topcoder.com/tc?

module = Problem Archive &sr=&er=&sc=&sd=&class=&cat=Dynamic+Programming &div1l=&div2l=&mind1s=&mind2s=&maxd1s=&maxd2s=&wr=Archive &sr=&er=&sc=&sd=&cat=Dynamic+Programming &div1l=&div2l=&mind1s=&mind2s=&maxd1s=&maxd2s=&wr=Archive &sr=&er=&sc=&sd=&cat=Dynamic+Programming &div1l=&div2l=&mind1s=&mind2s=&maxd1s

🛕 O 🕎 3 years ago, # | Thanks.

codeforces.com/blog/entry/325 4/9





i was solving problem of cutting sticks frm UVA.....i used some method tht was wasting lot of memory...i came to read tht this problem is exactly similar to the matrix chain multiplication problem bt i cant figure out the similarity between the two....can anyone help....the approach i used was to have all 1<<n subsets as the "states" of DP...obviously its space requirement is tooo high...

thnx in advance.....

3 years ago, #



3 years ago, <u>#</u> |

△ 0 ▼

Great!

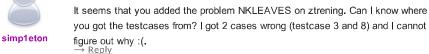
something about graph theory ?



3 years ago, # |

🛕 O 🕎

Hi,





3 years ago, # ^ | I have sent you a message. <u></u> 0 🐺

Harta







some DP problems from

acm.sgu.ru: 269, 273, 304, 317, 356, 396, 445, 447, 458, 489, 494



 \rightarrow Reply



3 years ago, # ^ | Thank you so much:)

<u></u> 0 ▼

Harta



3 years ago, # | I Love DP:) Thanks for it

🛕 O 🕎

ridowan007

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Reply
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🛕 O 🐺

can someone suggest some game problems solved using DP? thx - Danly



3 years ago, # |

7 KEDIY



Try this one. It is a problem that I came across in the past. Sorry, I forgot the website and don't have the testcases:(, but I know the algorithm though XD.

You have a N bowling pins (1<=N<=1000) arranged in a line. The pins are represented as a string of 1s and 0s. 1 means the pin is still standing and 0 means the pin has been knocked down. Player A and B take turns to play this game, with player A moving first.



In each of their turns, A or B chooses to knock down up to K (1<=K<=N) consecutive standing pins down. A player can only knock down exactly one consecutive block of standing pins during his turn. He must also knock down at least 1 pin. The player who cannot make a move loses.

Given N,K, and the initial starting configuration of the pins, determine who will win under optimal play. If A will win, output the resulting configuration of the pins after A has made his move. If there are multiple moves A can make, output the move that will result in a lexicographically smallest resulting formation.

Note: You do require a bit of game theory before you can solve this problem. \rightarrow Reply



3 years ago, <u>#</u> <u>↑</u> |



ow.. thx for the problem, I just notice that someone had replied xD \rightarrow Reply



3 years ago, $\underline{\#}$ | thanks $\rightarrow \underline{\text{Reply}}$



mostafa_elabady

3 years ago, <u>#</u> |



hi,



I am facing problems with the chess problem listed above. Can anyone suggest some hints to solving the problem.

bhardwajjayesh7

P.S: I am a newbie in DP $\rightarrow \frac{\text{Reply}}{}$



3 years ago, # \triangle | since M is small (M<=10) you can use bitmask. 0->no king

1->there is a king

dp[i][state] where state means the state of the kings in row-i you can add dp[i][state1] with dp[i-1][state2] if kings in state2 can't attack kings in state1. $\xrightarrow{}$ Reply

3 years ago, # |
DP + Binary Search



🛕 0 🐺

codeforces.com/blog/entry/325 6/9



(Game, IOI 2008, Practice session)



EmadWilliam

codeforces.com/blog/entry/325 7/9



23 months ago, # ^ |



Do you mean the O(n*logn) algorithm? Or is there something easier? → Reply



fataluk1

Q.

2 years ago, # | Anyone got a clue on how to approach The Greedy Hydra problem? It seems tough : \to Reply



2 years ago, # ^ |

📤 O 🕎

If the number of colours >= 3, you can always colour the edges in such a way that no fruits are eaten. Just alternate the colouring.

If the number of colours == 2, then you write the N^3 dp. \rightarrow Reply



23 months ago, # |

← Rev.4

🔺 O 💚

Very useful content.

Thanks!

I will mention my update whenver i solve any problem from above.

1. c. Edit Distance - Done Source Code

How to tackle array sizedeclaring dp[2000][2000] gives seg. fault? Tutorial on Edit Distance





4 weeks ago, # $^{\wedge}$ |

🔺 0 🐺

the problem will be solved if you increase the size to 3000, same happened with me too.



Just take a global static int of size 3000.

 \rightarrow Reply



scofield23

21 month(s) ago, # |
can u tell the level of difficulty too..
→ Reply



🛕 0 🕎

18 months ago, <u>#</u> |

Hi



iscsi

Can anybody help me what is the problem with my solution for the mixtures problem? (I've got WA)

(Ive checked spoj forum and my solution is correct those test case.. :() $\xrightarrow{\text{Reply}}$



18 months ago, # ^ |

<u></u> +1 ₩

Seems it won't even pass example input. There can be multiple input in single file - you read only first one.

codeforces.com/blog/entry/325



Thank you, it's a shame :(I was careless sry.. $\xrightarrow{\text{Reply}}$



15 months ago, # $^{\wedge}$ |
That was my bug too, Hi 5 ! LOL :D \rightarrow Reply



EssamMNaggar



11 months ago, # \triangle | Also mine. :) $\rightarrow \text{Reply}$

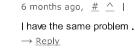


f.nasim



17 months ago, # | \blacktriangle 0 \blacktriangledown Is there something wrong with z-trening!!!! please provide some alternative(judge) for the z-trening problems in above list













▲ 0 ▼

sergio3010



For editDistance problem in above for which you haven't added any problem, you can add this problem :

ron2794

 $\label{eq:http://www.spoj.com/problems/EDIST/} $$ \to $$ \frac{\text{Reply}}{}$ $$$

4 weeks ago, # |

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