



# הוראת סייבר:

## איך לחשוב; מה נורא; ודרך האתגר הטוב הרע והמכוער

אי כנס סייבר 15 ליולי 2016



עודד מרגלית, מרכז המצוינות לאבטחת סייבר, יבמ באר שבע



# המכוער: הקלות הבלתי נסבלת של התקפות סייבר

- הנדסה חברתית

- [www.youtube.com/watch?v=lc7scxvKQOo](http://www.youtube.com/watch?v=lc7scxvKQOo)

- [www.darkreading.com/service/d/d-f](http://www.darkreading.com/service/d/d-f)

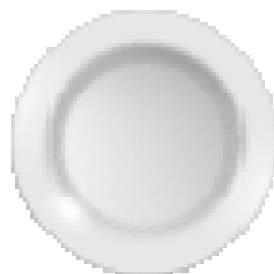
- 5/28/2015 03

- [www.livehacker.com](http://www.livehacker.com)

- May 12, 2015



## המסוכן (נורא)



- תפוס את הדגל

- "דע את האויב"

- חרב פיפיות

- כייף!

- אבל

- מסוכן!

- אז כיצד פותרים את הדילמה?

## הטוב – חשוב מחוץ לקופסא

- **IEEE Xtreme 2009**

- `#!/bin/csh`

- `# Make sure we are using only the input digits and allowed operators`

- `tr -d '+\-* /()' < input | diff input -`

- `if ($? == 1) exit 1`

- `# Make sure no two digits are left without an operator between them`

- `grep '[0-9][0-9]' output`

- `if ($? == 0) exit 1`

- `# Once we passed the preconditions above, Score according to number of exercises solved correctly`

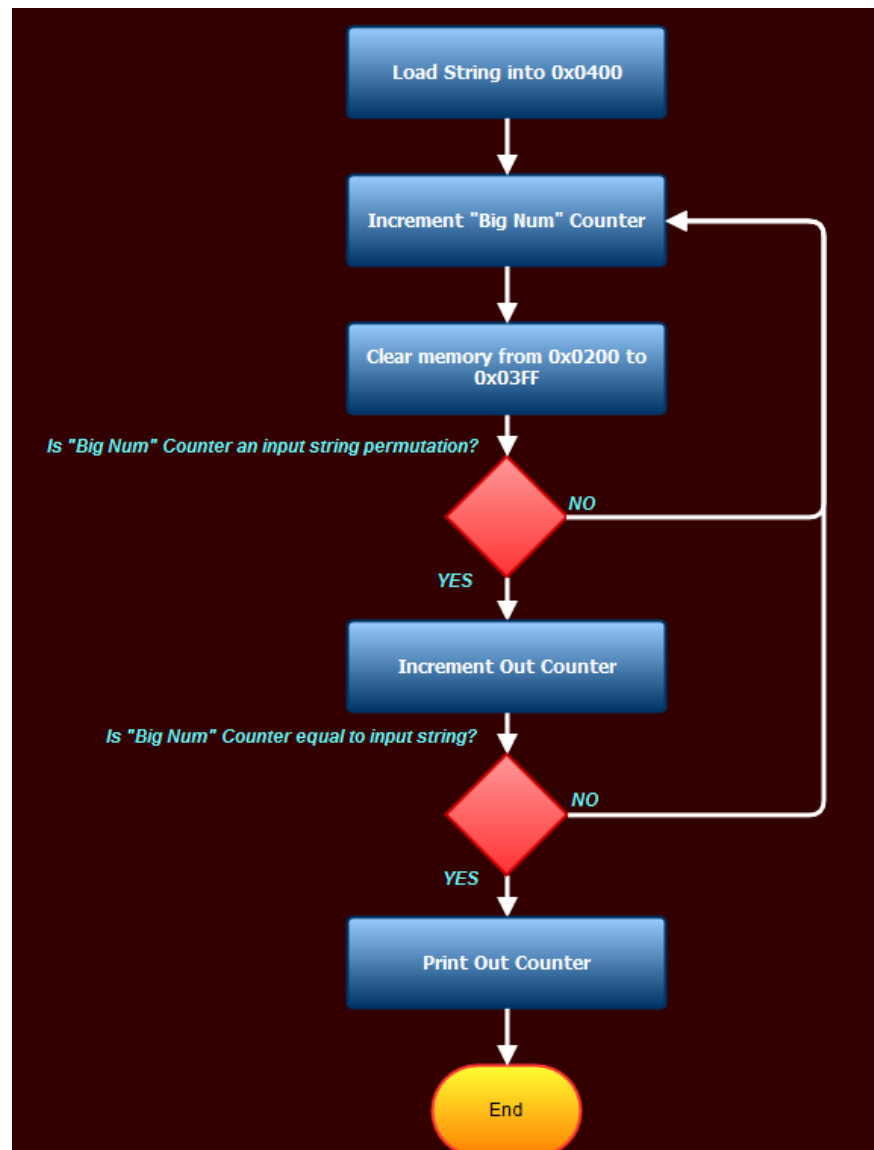
- `sed 's/$/-99.99999999/' output | bc -l | grep -c '^.00000'`

- How do you get to 100 from 5750004?

# אתגרים לא פליליים

- IEEEXtreme 2014

BF 00 04 BE C0 00 56 31 C9 B4  
00 CD 16 3C 2E AA E0 F7 F7 D1  
29 D2 89 CD 5B 53 FE 07 75 03  
43 EB F9 BF 00 02 89 F9 89 F8  
F3 AA 89 FE AC 89 C3 FE 07 80  
FB 2E 75 F6 FE 0F 5E 56 89 E9  
AC 89 C3 FE 0F 7C D5 E2 F7 42  
5E 56 89 E9 F3 A6 75 CA 5D 92  
D4 0A E8 00 00 86 C4 04 30 CD  
29 C3



# מחומרה ועד אלגוריתמים מתמטיים

## • IEEEExtreme 2015

— `I=10*[]; B=50*[0]; M=256*[0]`

`def f(I):`

```
B[49]=B[39];B[48]=B[38];B[47]=B[37];B[46]=B[36];B[45]=B[35];B[44]=B[34];B[43]=B[33];B[42]=B[32];B[41]=B[31];B[40]=B[30];
B[39]=B[29];B[38]=B[28];B[37]=B[27];B[36]=B[26];B[35]=B[25];B[34]=B[24];B[33]=B[23];B[32]=B[22];B[31]=B[21];B[30]=B[20];
B[29]=B[19];B[28]=B[18];B[27]=B[17];B[26]=B[16];B[25]=B[15];B[24]=B[14];B[23]=B[13];B[22]=B[12];B[21]=B[11];B[20]=B[10];
B[19]=B[ 9];B[18]=B[ 8];B[17]=B[ 7];B[16]=B[ 6];B[15]=B[ 5];B[14]=B[ 4];B[13]=B[ 3];B[12]=B[ 2];B[11]=B[ 1];B[10]=B[ 0];
B[ 9]=I[ 9];B[ 8]=I[ 8];B[ 7]=I[ 7];B[ 6]=I[ 6];B[ 5]=I[ 5];B[ 4]=I[ 4];B[ 3]=I[ 3];B[ 2]=I[ 2];B[ 1]=I[ 1];B[ 0]=I[ 0];
x1=I[0]|I[1];x2=x1|I[2];x3=x2|I[3];x4=x3|I[4];x5=x4|I[5];x6=x5|I[6];x7=x6|I[7];x8=x7|I[8];x9=x8|I[9];
y1=(not x9)|(I[0]&I[1]);y2=y1|(x1&I[2]);y3=y2|(x2&I[3]);y4=y3|(x3&I[4]);y5=y4|(x4&I[5]);y6=y5|(x5&I[6]);y7=y6|(x6&I[7]);y8=y7|(x7&I[8]);y9=y8|(x8&I[9]);
c0=B[0]|B[10]|B[20]|B[30]|B[40];c1=B[1]|B[11]|B[21]|B[31]|B[41];c2=B[2]|B[12]|B[22]|B[32]|B[42];c3=B[3]|B[13]|B[23]|B[33]|B[43];
c4=B[4]|B[14]|B[24]|B[34]|B[44];c5=B[5]|B[15]|B[25]|B[35]|B[45];c6=B[6]|B[16]|B[26]|B[36]|B[46];c7=B[7]|B[17]|B[27]|B[37]|B[47];
c8=B[8]|B[18]|B[28]|B[38]|B[48];c9=B[9]|B[19]|B[29]|B[39]|B[49];c10=not (c0 | c1);c11=c0^c1;c12=c0&c1;
c20=(c10&(not c2));c21=(c10&c2)|(c11&(not c2));c22=(c11&c2)|(c12&(not c2));c23=(c12&c2);
c30=(c20&(not c3));c31=(c20&c3)|(c21&(not c3));c32=(c21&c3)|(c22&(not c3));c33=(c22&c3)|(c23&(not c3));c34=(c23&c3);
c40=(c30&(not c4));c41=(c30&c4)|(c31&(not c4));c42=(c31&c4)|(c32&(not c4));c43=(c32&c4)|(c33&(not c4));c44=(c33&c4)|(c34&(not c4));c45=(c34&c4);
c51=(c40&c5)|(c41&(not c5));c52=(c41&c5)|(c42&(not c5));c53=(c42&c5)|(c43&(not c5));c54=(c43&c5)|(c44&(not c5));c55=(c44&c5)|(c45&(not c5));
c62=(c51&c6)|(c52&(not c6));c63=(c52&c6)|(c53&(not c6));c64=(c53&c6)|(c54&(not c6));c65=(c54&c6)|(c55&(not c6));
c73=(c62&c7)|(c63&(not c7));c74=(c63&c7)|(c64&(not c7));c75=(c64&c7)|(c65&(not c7));
c84=(c73&c8)|(c74&(not c8));c85=(c74&c8)|(c75&(not c8));
c95=(c84&c9)|(c85&(not c9));
e=(not c95)|y9;
a=10*[0]
a[0]=e|(((not c0)&(not c1)&(not c2)&(not c3)&(not c4))|(c0&c1&c2&c3&c4))^c0^c1^c2^c3^c4^c3&((c0^c8)&c1&c2&c4)^((c0^c1)&c2&c5)^c1&c4&c7)&c8));
a[1]=e|(((not c0)&(not c1)&(c2)&(not c5)&(c6))|(c0&c1&(not c2)&(not c6))&c5))^c0^c1^c2^c5^c6^c4&((c0&c1&(c2&c3)^c5&c6))^((c1&c7)^c6&c9)&c3&c8));
a[2]=e|(((not c0)&(not c1)&(c3)&(not c5)&(not c7))|(c0&c1&(not c3)&c5&c7))^c0^c1^c3^c5^c7^c0&c1&c2&(c3^c4)&c5)^((c3^c4)&c5&c7&c8&c9));
a[3]=e|((c3&c5)^c3&c6)^c3&c8)^c3&c9)^c5&c6)^c5&c8)^c5&c9)^c6&c8)^c6&c9)^c8|c9)^c3^c5^c6^c8^c9^c0&c1&c3&c6&c9));
a[4]=e|((c2&c5)^c2&c7)^c2&c8)^c2&c9)^c5&c7)^c5&c8)^c5&c9)^c7&c8)^c7|c9)^c8&c9)^c2^c5^c7^((c0&c5&c6)^c1&c3&c4)&c7&c8));
a[5]=e|((c0&c1)^c0^c2^c4^c6^c7^c0&c1&c2&c3&c4)^((c0&(c3&c5)^c2&c4))^c1&c4&c6)&c7&c8)^c3&c4&c6&(c2&c9)^c5&c7));
a[6]=e|c0^c1^c3^c4^c7^c0&c1&c2&c4&c9)^c0&(c1&c4)^c3&c8)&c5&c7)^(((c0^c1)&c5)^c0&c4)&c2)^c1&(c2^c7)&c4)&c6&c8));
a[7]=e|c2^c3^c4^c0&(c2&c3)^c2&c3&c7)&c4&c8)^(((c0^c1)&c3&c5)^((c0^c1)&c4^c5)&c6)&c7&c8));
M[sum([a[i]<i for i in range(8)])]=1
```

`output=int(input())`

`for i in range(output):`

`f([ord(c)&1 for c in input()])`

`output = 1000*sum(M)-output`

`print(output)`

לא צריך ללמד שפת סף (אסמבלי)



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