UIL Computer Science Competition

District 1 2016

JUDGES PACKET - CONFIDENTIAL

I. Instructions

1. The attached printouts of the judge test data are provided for the reference of the contest director and programming judges. Additional copies may be made if needed for this purpose.

2. This packet must remain CONFIDENTIAL. Additional copies may be made and returned to schools when other confidential contest material is returned.

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Problem #1
60 Points

1. Madison

Test Input File: madison.dat

```
A+B 11
A*B 10
A+B*C 101
A^B 01
!(A+B) 10
!A+!B 00
(!A*B)^(B+C) 001
A^B+C 101
A+B^C 010
(A+B)^(B+C) 110
(A+B)*!(A+B) 011
A*B+!C 000
(A+B)^(A+C)*(!A+C) 111
```

Test Output To Screen

```
true
false
true
true
false
true
true
true
false
false
true
false
```

Problem #2
60 Points

2. Nicholas

Test Input File: nicholas.dat
```
2 1 11 10
2 2 11 10
2 3 11 10
3 1 111 001 001
4 2 0100 0010 0001 1000
4 1 0110 0010 1001 1000
3 3 011 001 000
3 2 111 011 001
4 1 0100 0011 0001 1100
4 3 0110 0111 1001 1100
3 2 111 111 111
5 3 11011 00101 10000 00101 11000
5 1 11011 00101 10000 00101 11000
5 2 01010 10011 01000 10100 10010
5 3 01000 00000 01000 11101 10000
```

Test Output To Screen
```
3
5
8
5
4
6
0
10
6
49
27
65
11
21
1
```

Problem #3
60 Points

3. Oksana

Test Input File: None

Test Output To Screen
```
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
*  *  *  *  *  *  *  *
```

Problem #4
60 Points

4. Patricio

Test Input File: patricio.dat
```
10
z = x^3 + 50x + t^2 + x^2y + x^y + xyt
5.0 5.0 10
z = x^2 + y^2 + t^2
10.0 10.0 100
z = ((x^y)^t)^x
1.0 1.0 10
z = -x - 2y - t
1.0 2.0 5
z = -5x^2 + 4x + -5y^2 + 4y + -5t^2 + 4t
2.0 2.0 10
z = (x + 2) * (-2x + 5) - y^4 + 2y - t^2 + 7t
5.0 1.0 19
z = (x + 2y) * (4t - x) * (7.6y + t)
4.3 0.5 63
z = x + y - t
7.0 0.5 15
z = x/(y/t)
0.5 0.5 10
z = (x + y)^t - t^2 + t
3.0 3.0 25
```

Test Output To Screen
```
Patricio should launch at x=5.0 and y=5.0 at t=10 at a height of 3975.0.
Patricio should launch at x=10.0 and y=10.0 at t=100 at a height of 10200.0.
Patricio should launch at x=0.0 and y=0.0 at t=0 at a height of 1.0.
Patricio should launch at x=0.0 and y=0.0 at t=0 at a height of 0.0.
Patricio should launch at x=0.4 and y=0.4 at t=0 at a height of 1.6.
Patricio should launch at x=0.2 and y=0.8 at t=3 at a height of 23.3.
Patricio should launch at x=4.2 and y=0.5 at t=63 at a height of 86075.8.
Patricio should launch at x=7.0 and y=0.5 at t=0 at a height of 7.5.
Patricio should launch at x=0.5 and y=0.1 at t=10 at a height of 50.0.
Patricio should launch at x=2.9 and y=2.9 at t=25 at a height of
12181473901262774000.0.
```
(continuation of output from previous line)

Problem #5
60 Points

5. Rishabh

Test Input File: rishabh.dat
```
B5 EVEN
B5 ODD
CF EVEN
F EVEN
ABC ODD
F ODD
22 EVEN
2A EVEN
0 ODD
AAAAAAA ODD
1 ODD
12EF EVEN
2020 ODD
FFFFF EVEN
ABCDEF ODD
123456789ABCDEF EVEN
```

Test Output To Screen
```
0010
1101
0100
111
11101
000
1011
0010
111
110100
000
00000
01101
01111
01011
1110011
```

Problem #6
60 Points

6. Susan

Test Input File: susan.dat
```
ONE FLEW EAST, ONE FLEW WEST, ONE FLEW OVER THE CUCKOO'S NEST [ ]10
ONE IF BY LAND, TWO IF BY SEA [AN]3
METHINKS HE DOTH PROTEST TOO MUCH [O+]2
WHOSE WOODS THESE ARE I THINK I KNOW [AEIOU+]4
HIS HOUSE IS IN THE VILLAGE THOUGH [.]0
HIS HOUSE IS IN THE VILLAGE THOUGH [H]3
HIS HOUSE IS IN THE VILLAGE THOUGH [L+]0
HE WILL NOT SEE ME STOPPING HERE [P]2
TO WATCH HIS WOODS FILL UP WITH SNOW [W]3
```

Test Output To Screen
```
CUCKOO'S
D, TWO IF BY SE
TEST T
DS TH
HIS HOUSE IS IN THE VILLAGE THOUGH
E VILLAGE T
HIS HOUSE IS IN THE VI
ING HERE
ITH SNO
```

Problem #7
60 Points

7. Tomas

Test Input File: tomas.dat
```
1
3
5
7
9
10
20
30
40
50
```

Test Output To Screen
```
1
1
5
17
57
105
46499
20603361
9129195487
4045078385041
```

Problem #8
60 Points

8. Violeta

Test Input File: violeta.dat
```
8
abkjlkdfja123456789987654321fewrwefdsfds
aaaaaaaaaaaaaaaaaaaaaaaaabbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb
a
beautyandthebeastisagoodfilmthequickbrownfoxjumpedoverthelazydoggodyzalehtrev
odepmujxofnworbkciuqehtthicketofthebeast(continuation of previous line)
racardriversarereallycool
abc123321123321123332111233321112333321123321213cba
carrotcake
ilikepipalindrome121emordnilap
```

Test Output To Screen
```
123456789987654321
bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb
a
thequickbrownfoxjumpedoverthelazydoggodyzalehtrevodepmujxofnworbkciuqeht
racar
3332111233321112333
rr
palindrome121emordnilap
```

Problem #9
60 Points

9. Walter

Test Input File: walter.dat
```
4 4 .009
5 7 .013
5 7 .2
10 12 .4
20 20 40
10 12 30
5 8 .011
4 6 .016
5 6 .016
7 10 .18
8.5 11 .36
10 20 30
6.125 11 .25
6.125 12 .25
3.5 5 .016
3.5 5 .017
3 5 .016
```

Test Output To Screen
```
SMALL POST CARD
LARGE POST CARD
SMALL ENVELOPE
LARGE ENVELOPE
UNMAILABLE
LARGE PACKAGE
LARGE POST CARD
SMALL POST CARD
LARGE POST CARD
UNMAILABLE
LARGE ENVELOPE
LARGE PACKAGE
SMALL ENVELOPE
LARGE ENVELOPE
SMALL POST CARD
SMALL ENVELOPE
UNMAILABLE
```

Problem #10
60 Points

10. Ximena

Test Input File: ximena.dat
```
XIMENA
VIOLETA
ABE
MADISON
WALTER
NICHOLAS
OKSANA
PATRICIO
RISHABH
JO
MADAM
MADDAM
RUMPLESTILTSKIN
WILHAMENADELCO
```

Test Output To Screen
```
MIXXIMENAANE
VIOOIVATELLETA
AAEBBE
MADDAMNOSIISON
LAWWALTERRET
HCINNICHOLASSALO
SKOOKSANAANA
RTAPPATRICIOOICI
RISSIRHBAHHABH
JJOO
MAAMMADDAM
DAMMADDAMMAD
RUMPLESSELPMURNIKSTLITTILTSKIN
EMAHLIWWILHAMENADELCOOCLEDAN
```

Problem #11
60 Points

11. Yash

Test Input File: yash.dat
```
10
50
100
127
128
129
500
1000
5000
10000
```

Test Output To Screen
```
1 4 10 40 100
1 6 50 300 2,500
1 7 100 700 10,000
1 7 127 889 16,129
1 8 128 1,024 16,384
1 8 129 1,032 16,641
1 9 500 4,500 250,000
1 10 1,000 10,000 1,000,000
1 13 5,000 65,000 25,000,000
1 14 10,000 140,000 100,000,000
```

Problem #12
60 Points

12. Zhenya

Test Input File: zhenya.dat
```
10
0 0 2 2 1 1 2 2 -1 -1 3 3
1 1 300 0 0 0 1 3 10 10 14 44829
0 0 10 10 2 2 5 5 4 4 1 1
0 0 1 1 2 2 1 4 4 1 1 6 6 1 1 8 8 1 1 10 10 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 10 10 1 1
0 0 10 10 2 2 5 5 4 4 1 1
-1000000 -1000000 100000 100000000 -10000 1000000 1000 100000
0 0 1 1 1 1 0 0
```
 (the following lines are all a part of the final data set)
```
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1
```

Test Output To Screen
```
ALL STACKED
NOT STACKED
ALL STACKED
NOT STACKED
ALL STACKED
NOT STACKED
ALL STACKED
NOT STACKED
ALL STACKED
ALL STACKED
```