UIL Computer Science Competition

State 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.

II. Table of Contents

Note: For all floating output values, a tolerance of ±1 in the final significant digit is acceptable.

1. Abigail

Program Name: Abigail.java   **Input File: abigail.dat**

Test Input File: abigail.dat
```
5 2 20
5 2 -20
0 3 9
3 4 -25
0 9 3
3 4 25
0 9 15
0 9 -15
0 1 15
0 1 25
0 1 18
0 1 40
0 3 -16
2 3 64
```

Test Output To Screen
```
5 4 5
5 4i 5
9 0 0
3 20i 0
0 9 3
23 0 0
0 9 15
0 9i 15
0 1 15
5 0 0
0 3 2
0 2 10
0 12i 0
26 0 0
```

Problem #2
60 Points

2. Benjamin

Program Name: Benjamin.java   **Input File: benjamin.dat**

Test Input File: benjamin.dat
```
5 3 7 6 1 9 8 7
S P
Q P(4)
Q L M(2)
S L(0) H(2)
S L M
Q P P P P(7)
S L(3) P H P L
S H(9) M(1)
Q P M(1) M(5)
S P M(6) M(5)
Q P(4) P H(3)
Q L(8) H L P P
```

Test Output To Screen
```
S [5, 3, 7, 6, 1, 9, 8]
Q [5, 3, 7, 6, 1, 9, 8, 7, 4]
Q [5, 3, 7, 6, 2, 9, 8, 7, 4]
S [5, 3, 7, 6, 0, 1, 9, 2, 8]
S [5, 3, 7, 1, 9, 2, 8]
Q [6, 2, 9, 8, 7, 4, 7]
S [5, 3, 7, 3]
S [5, 3, 1, 7, 9, 3]
Q [2, 9, 8, 5, 1, 7, 4, 7]
S [5, 3, 6, 5, 1, 7, 9]
Q [9, 3, 8, 5, 1, 7, 4, 7, 4]
Q [5, 8, 7, 4, 7, 4]
```

3. Carlos

Program Name: Carlos.java   **Input File: carlos.dat**

Test Input File: carlos.dat
```
32 18 6 44 19 7 22 21 23 38
1 34 14 13 27 26 29 39 42 52
8 21 36 51 48 28 30 33 35 39
4 43 30 23 36 20 3 17 29 45
2 40 3 41 17 43 31 44 45 46
11 3 24 5 50 7 36 9 40 12
6 2 19 3 32 4 10 5 23 1
2 40 30 28 3 16 41 4 17 31
27 7 52 22 25 21 50 23 10 38
```

Test Output To Screen
```
THREE OF A KIND - PAIR - PLAYER A WINS
FULL HOUSE - FOUR OF A KIND - PLAYER B WINS
PAIR - DUD HAND - PLAYER A WINS
TWO PAIRS - PAIR - PLAYER A WINS
STRAIGHT - FLUSH - PLAYER B WINS
THREE OF A KIND - FLUSH - PLAYER B WINS
FULL HOUSE - FLUSH - PLAYER A WINS
TWO PAIRS - STRAIGHT - PLAYER B WINS
STRAIGHT - DUD HAND - PLAYER A WINS
```

Problem #4
60 Points

4. Dara

Program Name: Dara.java   Input File: dara.dat

Test Input File: dara.dat
```
8
X
X^5
5X^4
3X^3 - 5X + 8
X^2 + 13
X^2 - 6X + 10
-3X^4 + 5X^2
X^4 + X^3 + X^2 + X
10X^5 + 9X^4 + 8X^3 - 7X^2 - 6X + 10
```

Test Output To Screen
```
0 : 0
1 : 0
5X^4 : 20X^3
20X^3 : 60X^2
9X^2 - 5 : 18X
2X : 2
2X - 6 : 2
-12X^3 + 10X : -36X^2 + 10
4X^3 + 3X^2 + 2X + 1 : 12X^2 + 6X + 2
50X^4 + 36X^3 + 24X^2 - 14X - 6 : 200X^3 + 108X^2 + 48X - 14
```

Problem #5
60 Points

5. Emiliano

Program Name: Emiliano.java   **Input File: emiliano.dat**

Test Input File: emiliano.dat
```
4
2
no
yes
1
yesno
3
car
Bar
STAR
5
barcar
CARSTAR
BarStar
Starsnbars
nobarcar
1
newt
5
bartender
shoplifting
kahfi
collide
newt
6
a
aa
aaa
aaaa
aaaaa
aaaaaa
10
a
aa
aaa
aaaa
aaaaa
aaaaaa
aaaaaaa
aaaaaaaa
aaaaaaaaa
aaaaaaaaaa
```
…
….. too large to display ……
…

Test Output To Screen
```
1
3
0
33
3
61562
1
3
3
2
```

Problem #6
60 Points

6. Fujita

Program Name: Fujita.java   Input File: fujita.dat

Test Input File: fujita.dat
```
1000 2
3671 4
9182736453 5
98765 10
72615 3
2635481 9
9182736453 5
9223372036854775807 6
```

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

* * * * * *

* * * * * * * * * * * * * *

* * * * *

* * * * * * * * * * *

* * * * * * *

* * * * * * * * * * * * * *

* * * * * * * * * * * * * * * * * * * * * * *
```

Problem #7
60 Points

7. Guadalupe

<p align="center">Program Name: Guadalupe.java   Input File: guadalupe.dat</p>

Test Input File: guadalupe.dat
```
10
4
AMELIA 1:20 1:25 2:35 2:50
JOSE 2:30 2:35
JUAN 2:34 2:38
JESUS 2:37 2:40
4
NOLAN 1:20 1:25 2:35 2:50 23:50 23:59
DULCE 2:30 2:45
DESERAY 2:34 2:38
PEDRO 2:37 2:40
5
SHARON 8:30 8:50
IRFAN 8:45 9:10
STEPHANIE 9:00 9:23
KARIBU 9:20 9:30
MURICA 9:29 9:50
1
A 23:58 23:59
3
A 8:20 9:20 9:30 10:30 13:40 13:50
B 9:20 9:29 10:30 12:00 13:50 14:00
C 7:50 8:19 12:00 13:39 14:00 14:03
6
A 8:30 9:30
B 8:40 9:20
C 8:50 9:10
D 8:55 9:05
E 8:57 9:03
F 9:00 9:01
6
A 9:45 10:00 13:40 13:57
B 12:00 12:03 18:40 18:50
C 17:40 17:50
D 12:01 12:10
E 9:50 9:55 13:33 13:42
F 8:50 9:00 13:55 13:59
4
A 0:00 23:59
B 0:00 12:00
C 12:00 18:00
D 18:00 23:59
20
A 12:30 14:30 14:30 17:30 17:45 18:34
B 0:01 0:02 0:03 0:04 0:05 0:06
C 1:10 2:30 12:20 12:21
D 13:45 13:46 13:47 13:48
E 11:42 12:21 12:56 13:04 17:33 17:49
```

```
F 6:58 7:12 8:23 8:42 8:59 9:46
G 12:17 13:04 14:01 14:00
H 15:30 15:51
I 12:01 12:02
J 17:56 18:00
AA 0:01 0:02 1:01 1:02 2:01 2:02 3:01 3:02 4:01 4:02 5:01 5:02 6:01 6:02 7:01
7:02 8:01 8:02
BB 10:01 10:02 11:01 11:02 12:01 12:02 13:01 13:02 14:01 14:02 15:01 15:02
16:01 16:02 17:01 17:02 18:01 18:02
CC 10:11 10:12 11:11 11:12 12:11 12:12 13:11 13:12 14:11 14:12 15:11 15:12
16:11 16:12 17:11 17:12 18:11 18:12
DD 20:11 20:12 21:11 21:12 22:11 22:12 23:11 23:12
EE 12:12 12:14 12:15 12:16
FF 0:01 4:10
GG 9:50 10:30 11:30 14:00 15:39 17:00
HH 4:14 4:15 16:20 16:21
II 9:08 9:10 9:11 9:15 19:13 19:54
JJ 4:30 4:31 12:31 12:45 18:59 20:20
3
A 0:01 0:02 1:01 1:02 2:01 2:02 3:01 3:02 4:01 4:02 5:01 5:02 6:01 6:02 7:01
7:02 8:01 8:02 9:01 9:02 10:01 10:02 11:01 11:02 12:01 12:02 13:01 13:02
14:01 14:02 15:01 15:02 16:01 16:02 17:01 17:02 18:01 18:02
B 10:11 10:12 11:11 11:12 12:11 12:12 13:11 13:12 14:11 14:12 15:11 15:12
16:11 16:12 17:11 17:12 18:11 18:12 20:11 20:12 21:11 21:12 22:11 22:12 23:11
23:12
C 23:14 23:15
```

Test Output To Screen
```
AMELIA has heard gossip from: AMELIA JESUS JOSE JUAN
JOSE has heard gossip from: JOSE JUAN
JUAN has heard gossip from: AMELIA JESUS JOSE JUAN
JESUS has heard gossip from: AMELIA JESUS JOSE JUAN

NOLAN has heard gossip from: DESERAY DULCE NOLAN PEDRO
DULCE has heard gossip from: DESERAY DULCE NOLAN PEDRO
DESERAY has heard gossip from: DESERAY DULCE NOLAN PEDRO
PEDRO has heard gossip from: DESERAY DULCE NOLAN PEDRO

SHARON has heard gossip from: IRFAN SHARON
IRFAN has heard gossip from: IRFAN SHARON STEPHANIE
STEPHANIE has heard gossip from: IRFAN KARIBU SHARON STEPHANIE
KARIBU has heard gossip from: IRFAN KARIBU MURICA SHARON STEPHANIE
MURICA has heard gossip from: IRFAN KARIBU MURICA SHARON STEPHANIE

A has heard gossip from: A

A has heard gossip from: A
B has heard gossip from: B
C has heard gossip from: C

A has heard gossip from: A B C D E F
B has heard gossip from: A B C D E F
C has heard gossip from: A B C D E F
D has heard gossip from: A B C D E F
```

```
E has heard gossip from: A B C D E F
F has heard gossip from: A B C D E F

A has heard gossip from: A E F
B has heard gossip from: B D
C has heard gossip from: C
D has heard gossip from: B D
E has heard gossip from: A E
F has heard gossip from: A E F

A has heard gossip from: A B C D
B has heard gossip from: A B
C has heard gossip from: A B C
D has heard gossip from: A B C D

A has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I J JJ
B has heard gossip from: AA B FF
C has heard gossip from: AA B BB C CC E EE FF G GG I
D has heard gossip from: A AA B BB C CC D E EE FF G GG I JJ
E has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I JJ
F has heard gossip from: AA B C F FF II
G has heard gossip from: A AA B BB C CC E EE FF G GG I JJ
H has heard gossip from: A AA B BB C CC D E EE FF G GG H I JJ
I has heard gossip from: BB CC E GG I
J has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I J JJ
AA has heard gossip from: AA B C F FF
BB has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I J JJ
CC has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I J JJ
DD has heard gossip from: A AA B BB C CC DD E EE F FF G GG I II JJ
EE has heard gossip from: BB CC E EE GG I
FF has heard gossip from: AA B C FF
GG has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I JJ
HH has heard gossip from: A AA B BB C CC D E EE FF G GG H HH I JJ
II has heard gossip from: A AA B BB C CC E EE F FF G GG I II JJ
JJ has heard gossip from: A AA B BB C CC DD E EE F FF G GG I II JJ

A has heard gossip from: A
B has heard gossip from: B
C has heard gossip from: C
```

8. Heng

Program Name: Heng.java   **Input File: heng.dat**

Test Input File: heng.dat
```
098 5
F 3
AC 5
71C A
8E6B 6
3A 2
F7 5
15C E
0F 3
2C 3
06D B
06D 0B
3FF 1B
332 2
01B5 7
```

Test Output To Screen
```
01
0
11
000
01
0
10
010
0
1
100
100
0110
0
10
```

Problem #9
60 Points

9. Ignacio

Program Name: Ignacio.java   **Input File: ignacio.dat**

```
3  3  2
3  2  1
5  1  1
7  7  5
9  2  9
5  3  1
7  7  7
3  1  2
9  6  6
11  5  1
9  1  1
11  5  8
15  10  13
19  19  17
21  2  21
```

Test Output To Screen
```
1
3
11
10
25
4
28
9
42
19
37
99
151
148
187
```

Problem #10
60 Points

10. Jasmine

Program Name: Jasmine.java   **Input File: jasmine.dat**

Test Input File: jasmine.dat
```
Abigail
Benjamin
Carlos
Dara
Emiliano
Fujita
Guadalupe
Heng
Ignacio
jasmine
Kamalika
Luna
Rumpelstiltskin
Rosannarosanadana
```

Test Output To Screen
```
Ab ig ail ==> AILbaGI
Be nj amin ==> AMINebJN
Ca rl os ==> CAlrOS
D a ra ==> RAdA
Em il iano ==> IANOmeIL
Fu ji ta ==> FUijAT
Gua dal upe ==> GUAladEPU
H e ng ==> NGhE
Ig na cio ==> CIOgiAN
ja sm ine ==> INEajMS
Ka ma lika ==> LIKAakAM
L u na ==> NAlU
Rumpe lstil tskin ==> RUMPElitslIKNST
Rosan naros anadana ==> ANADANAnasorANORS
```

Problem #11
60 Points

11. Kamalika

Program Name: Kamalika.java   **Input File: kamalika.dat**

Test Input File: kamalika.dat
```
3 4
.3 .4
3 .4
.3 4
-3 4
-4 3
5 .2
2 .5
.1 .11
```

Test Output To Screen
```
|Dif -1.00|Div  0.75|Mod  3.00|Sum  7.00|Prd 12.00|B^A 64.00|A^B 81.00|
|Dif -0.10|Prd  0.12|Mod  0.30|A^B  0.62|Sum  0.70|Div  0.75|B^A  0.76|
|B^A  0.06|Mod  0.20|Prd  1.20|A^B  1.55|Dif  2.60|Sum  3.40|Div  7.50|
|Dif -3.70|A^B  0.01|Div  0.08|Mod  0.30|Prd  1.20|B^A  1.52|Sum  4.30|
|Prd-12.00|Dif -7.00|Mod -3.00|Div -0.75|B^A  0.02|Sum  1.00|A^B 81.00|
|A^B-64.00|Prd-12.00|Dif -7.00|Div -1.33|Sum -1.00|Mod -1.00|B^A  0.01|
|B^A  0.00|Mod  0.20|Prd  1.00|A^B  1.38|Dif  4.80|Sum  5.20|Div 25.00|
|Mod  0.00|B^A  0.25|Prd  1.00|A^B  1.41|Dif  1.50|Sum  2.50|Div  4.00|
|Dif -0.01|Prd  0.01|Mod  0.10|Sum  0.21|A^B  0.78|B^A  0.80|Div  0.91|
```

Problem #12
60 Points

12. Luna

Program Name: Luna.java   Input File: luna.dat

Test Input File: luna.dat
```
13
A B C
C B A
B A C
C A B
ALLEGORY BREAD CHARMANDER DANDELION ELEPHANT
MAYFLOWER HAIR RETINA ECLIPSE IGUANA QUACK RODEO OCTOBER SOUP
SALAMANDER URANUS TERRAIN
A C B
F C H A D G J
E F C D B A
F G B H C A D E
M H R E Q R O S N
M H T D F P W
```

Test Output To Screen
```
UNBALANCED AFTER C, NEED SINGLE LEFT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER A, NEED SINGLE RIGHT ROTATION AT ROOT TO REBALANCE.
TREE IS BALANCED.
UNBALANCED AFTER B, NEED DOUBLE RIGHT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER CHARMANDER, NEED SINGLE LEFT ROTATION AT ROOT TO REBALANCE.
TREE IS BALANCED.
UNBALANCED AFTER TERRAIN, NEED DOUBLE LEFT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER B, NEED DOUBLE LEFT ROTATION AT ROOT TO REBALANCE.
TREE IS BALANCED.
UNBALANCED AFTER A, NEED SINGLE RIGHT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER E, NEED DOUBLE RIGHT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER N, NEED DOUBLE LEFT ROTATION AT ROOT TO REBALANCE.
UNBALANCED AFTER F, NEED SINGLE RIGHT ROTATION AT ROOT TO REBALANCE.
```