University Interscholastic League

Computer Science Competition

2001 Regional Programming Set

Judges' Answers

I. General Notes

1. Unless the exact formatting is specifically part of the problem, an answer should NOT be judged wrong for minor formatting variations such as indent/no indent, extra/no blank lines, and so forth.

2. The answer is only correct if their program successfully runs ALL of the judge's data sets for a given problem.

3. Note that the input data file for each problem begins with the examples from the problems, and then goes on to more complex cases. The testing is (by definition) not exhaustive in any sense and it is of course possible that an incorrect program will pass all of the tests provided.

II. Point Values and Names of Problems

Number	Name	Point Value
Problem 1	Taxes, Taxes	5
Problem 2	Shuttle Displays	4
Problem 3	Numbers Game	5
Problem 4	Am I Close?	8
Problem 5	Your Move	7
Problem 6	Just the Fax	9
Problem 7	Too Many Acronyms	9
Problem 8	Airline Miles	3
Total		**50**

Taxes, Taxes

Program Name: taxes.cpp   **Input Data File: taxes.dat**

Input File
```
45674
12222
215426
73468
87251
10000000
0
83400
83401
```

Output to screen
```
$10334.28
$934.98
$77273.16
$20801.38
$25897.50
$4054702.50
$0.00
$24640.10
$24640.42
```

Shuttle Displays

Program Name: shuttle.cpp   **Input Data File: shuttle.dat**

Input File
```
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS
THE LAZY DOGS DID NOT SEE THE QUICK BROWN FOX
QUEEN JACKIE WAS VERY PERPLEXED WHEN THE COMPUTER FELLOW BEGAN COUNTING AT ZERO
OSCAR THE GROUCH ZIPPED QUICKLY THROUGH THE TRASH LOOKING FOR SOMETHING TO EAT
GEOLOGICAL SURVEY PREDICTED US OIL SUPPLY WILL BE DEPLETED IN TWENTY YEARS
THAT PREDICTION WAS MADE IN NINETEEN TWENTY TWO BY THE US GEOLOGICAL SURVEY
BOYZ TO MEN PLAYED FOR THE QUEEN IN THE BORING SUPERBOWL CJK VEXED THE GIANTS
```

Output to screen
```
Sentence is a candidate
Sentence is not a candidate
Sentence is a candidate
Sentence is not a candidate
Sentence is not a candidate
Sentence is not a candidate
Sentence is a candidate
```

Program Name: numbers.cpp   **Input Data File: numbers.dat**

Input file
```
06141965 07031969
05031944 06221943
10111999 10112000
02291996 02281997
12311999 01012001
11111999 12122001
09191966 02211968
```
Output to screen
```
3
1
26
0
30
23
12
```

Program Name: close.cpp   Input Data File: close.dat

Input File
```
72642 34701 12743 1603 4752 23595 12654
72643 34701 12743 1603 4752 23595 12654
973842 958432 128432 98437 3729 34921 19832
825322 483922 92583 181952 87291 2859 64006
28342 19428 8914 28458 2834 928 7201
83252 93821 3423 1349 92384 93842 64006
823822 34284 28248 293482 8423 439385 20000
823822 823822 28248 293482 8423 439385 20000
```
Output to screen
```
Checkbook reconciles
Cannot reconcile checkbook
Cannot reconcile checkbook
Checkbook reconciles
Checkbook reconciles
Cannot reconcile checkbook
Checkbook reconciles
Checkbook reconciles
```

Program Name: move.cpp   **Input Data File: move.dat**

Input File

```
0 N 3 D 0 N 4 H 5 H 6 C 0 N 1 S 13 D 7 D 11 C 10 H
1 S 0 N 2 C 8 D 11 D 0 N 7 C 9 S 12 H 3 H 5 S 9 C
0 N 0 N 0 N 0 N 9 S 10 H 4 H 2 C 7 C 8 S 12 S 1 D
1 D 0 N 0 N 0 N 9 S 10 H 4 H 2 C 7 C 8 S 12 S 9 C
1 D 0 N 3 H 0 N 4 S 10 H 4 H 2 C 11 H 8 S 11 D 5 H
1 D 0 N 5 H 0 N 4 S 10 H 0 N 2 C 10 S 8 S 11 D 3 C
1 H 0 N 0 N 0 N 7 C 0 N 9 C 11 S 11 C 10 C 13 S 6 D
1 H 0 N 0 N 0 N 7 C 13 S 9 C 11 S 11 C 10 C 3 H 6 D
```

Output to screen

```
Move to Stacks
No Valid Move
Move to Stacks
Move to Field
Move to Stacks
Move to Field
Move to Field
No Valid Move
```

Program Name: fax.cpp   **Input Data File: fax.dat**

Input File
```
20
LUCILLE_BALL 7245
JEANLUC_PICARD 2340
JAN_BRADY 7327
DEANA_TROI 2341
DATA_ANDROID 2320
WILLIAM_RIKER 2370
GOOFY_DRIVER 1646
DONALD_DUCK 934
PORKY_FRIEND 6453
WHARF_KLINGON 2356
WEASER_MANN 6069
MINNIE_MOUSE 3852
GEORGE_BUSH 1610
BEVERLY_CRUSHER 2344
ALFALFA_NADER 17
STIMEY_RASCAL 4583
DARLA_ROSE 9275
GEORDI_LAFORGE 2360
FROGGY_SINGER 23812
BUCK_WHEAT 582
13
WEASER_MANN
DEANA_TROI
GEORGE_BUSH
GOOFY_DRIVER
LUCILLE_BALL
DEANA_TROI
GEORGE_BUSH
DARLA_ROSE
DEANA_TROI
BUCK_WHEAT
GEORGE_BUSH
DATA_ANDROID
BUCK_WHEAT
```
Output to screen
```
BUCK_WHEAT
GEORGE_BUSH
GOOFY_DRIVER
DATA_ANDROID
DEANA_TROI
WEASER_MANN
LUCILLE_BALL
DARLA_ROSE
```

Program Name: acronym.cpp   **Input Data File: acronym.dat**

Input File
```
The SSF FSS system
must be purged with
N2 during a DMC.
Seepage past the N2
dispersal nozzle
allows a buildup of
O2 in the FSS feeder
lines.  When the SDT
detection system
issues a FSD CW to
FDIR, a command is
issued to the FSS
to disperse N2 to
the AR.  If the FSS
lines have not been
purged, the fire
will be fanned with
O2 instead of being
extinguished with N2
leading to a possible
LCV event.
I really enjoyed working on the SM
CSCI for
IBM
on the NASA
SSF.
```

Output to screen
```
The Space Station Freedom Fire Suppression System system
must be purged with
Nitrogen during a Daily Maintenance Cycle.
Seepage past the Nitrogen
dispersal nozzle
allows a buildup of
Oxygen in the Fire Suppression System feeder
lines.  When the Smoke/Fire, Rapid Depression, and Toxic Atmosphere
detection system
issues a Fire/Smoke Detected Caution and Warning to
Fault Detection, Isolation, and Recovery, a command is
issued to the Fire Suppression System
to disperse Nitrogen to
the Affected Region.  If the Fire Suppression System
lines have not been
purged, the fire
will be fanned with
Oxygen instead of being
extinguished with Nitrogen
leading to a possible
Loss of Crew and Vehicle event.
I really enjoyed working on the System Management
Computer Software Configuration Item for
International Business Machines Incorporated
on the National Aeronautics and Space Administration
Space Station Freedom.
```

Program Name: airline.cpp   Input Data File: airline.dat

Input File
```
23 44235
17 24342
1 342
120 53234
118 74853
42 64352
2 26434
352 73243
352 923842
```

Output to screen
```
Silver
Member
Member
Platinum
Gold
Gold
Silver
Platinum
Platinum
```