University Interscholastic League

Computer Science Competition

2000 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 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	Automatic Homework	8
Problem 2	A Messy Proposition	3
Problem 3	Basically It	3
Problem 4	Double Talk	7
Problem 5	Hoops Anyone?	6
Problem 6	Pseudo-Random Number Checker	3
Problem 7	Typing Ahead	6
Problem 8	Wagon Train	5
Total		**41**

Problem 1	Automatic Homework	8 Points

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

Input File

```
Louisiana Baton_Rouge 12.3 10.7
Mississippi Jackson 12.6 9.9
Texas Austin 9.7 10.8
Florida Tallahassee 15.2 10.7
Alabama Montgomery 14.3 10.1
South_Carolina Columbia 16.2 9.0
Georgia Atlanta 14.8 9.4
Tennessee Nashville 13.7 8.3
North_Carolina Raleigh 16.8 8.1
Virginia Richmond 17.0 7.3
West_Virginia Charleston 15.5 7.2
Kentucky Lexington 14.4 7.6
Arkansas Little_Rock 11.6 9.2
Maryland Annapolis 17.2 6.8
Delaware Dover 17.5 6.7
Ohio Columbus 15.0 6.5
```

Output to screen

```
Annapolis, Maryland to Dover, Delaware distance is 47.4
Richmond, Virginia to Annapolis, Maryland distance is 80.8
Richmond, Virginia to Dover, Delaware distance is 117.2
Raleigh, North_Carolina to Richmond, Virginia distance is 123.7
Baton_Rouge, Louisiana to Jackson, Mississippi distance is 128.2
```

Problem 2

A Messy Proposition

3 Points

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

Input File

```
1765
2808
952
4206
3102
3902
1292
3985
8324
1928
4426
397
3277
10000
1
6705
8540
3250
2090
3403
207
1569
3529
1052
```

Output to screen

```
Bid $1671
```

Problem 3	**Basically It**	3 Points

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

Input file

```
LET A = 5
LET B = 9
LET M = A + A
PRINT A
PRINT M
LET D = M + B
PRINT D
LET C = 1
LET L = 6
LET Z = 3
LET X = C + Z
LET Y = L + X
PRINT X
PRINT Y
LET P = 4
LET P = Y + L
PRINT P
LET K = A + B
LET K = K + M
LET K = K + D
LET K = K + C
LET K = K + L
LET K = K + Z
LET K = K + X
LET K = K + Y
PRINT K
```

Output to screen

```
5
10
19
4
10
16
67
```

Problem 4	Double Talk	7 Points

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

Input File

```
i have not been to tokyo
never have i not visited tripoli when touring africa
i haven't been to nottingham
we never haven't considered a person's age when interviewing them for a job
nottingham is a wonderful place in the summer
it is not the fight in the dog it is the dog in the fight
couldn't we find someone who has not been to never never land
nottingham is never going to be sunny
haven't you been to nottingham
can't we agree to not fight
```

Output to screen

```
never have i not visited tripoli when touring africa
we never haven't considered a person's age when interviewing them for a job
couldn't we find someone who has not been to never never land
can't we agree to not fight
```

Problem 5

Hoops Anyone?

6 Points

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

Input File

```
START
FG 45
FG 00
FG 34
FT 34
FG 21
3P 45
FG 23
QRTR
FT 45
FG 01
FG 45
FG 23
FG 23
3P 00
3P 45
FT 15
FT 23
FG 45
3P 45
3P 23
QRTR
3P 45
FG 21
3P 23
FG 34
FT 00
FT 23
3P 23
FT 00
FG 12
FG 03
FG 00
3P 23
FG 45
QRTR
FT 12
FG 34
FG 00
FT 15
FT 41
FT 15
FG 12
3P 12
FT 21
3P 12
END
```

Output to screen

```
PLAYER 1Q 2Q 3Q 4Q TOTAL
  00    2  3  4  2   11
  01    0  2  0  0    2
  03    0  0  2  0    2
  12    0  0  2  9   11
  15    0  1  0  2    3
  21    2  0  2  1    5
  23    2  8 10  0   20
  34    3  0  2  2    7
  41    0  0  0  1    1
  45    5 11  5  0   21
TEAM   14 25 27 17   83
```

Problem 6	**Pseudo-Random Number Checker**	3 Points

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

Input File

```
5 3
9 3
45 27
100 47
10000 1
1000 783
500 367
8432 2
3782 1777
```

Output to screen

```
base=5, increment=3, is a complete uniform distribution
base=9, increment=3, is not a complete uniform distribution
base=45, increment=27, is not a complete uniform distribution
base=100, increment=47, is a complete uniform distribution
base=10000, increment=1, is a complete uniform distribution
base=1000, increment=783, is a complete uniform distribution
base=500, increment=367, is a complete uniform distribution
base=8432, increment=2, is not a complete uniform distribution
base=3782, increment=1777, is a complete uniform distribution
```

Problem 7	Typing Ahead	6 Points

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

Input File

```
30
acropolis
admire
admirable
admiration
admonish
adorable
adore
adoring
afghanastan
aft
after
afterthought
afterwards
back
backbone
backward
bacon
bacorama
bacos
read
red
redo
regal
regalia
register
regular
regulate
regulation
reheat
zebra
regu
regali
ra
string
re
af
add
bac
baco
red
```

Output to screen

```
regular
regalia
ra
string
red
aft
add
back
bacon
red
```

Problem 8	Wagon Train	5 Points

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

Input File

```
10 10 8 4 6 5 8 10 10 12 5
5 20 20 20 20 20
5 22 22 22 22 22
10 3 7 5 3 12 12 12 19 12 5
25 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
12 7 9 12 14 7 8 12 9 15 4 11 21
15 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```

Output to screen

```
Journey is OK
Journey is OK
Journey is OK
Journey is not OK
Journey is OK
Journey is not OK
Journey is not OK
```