Computer Science Competition

2002 State 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	Mine Hunt	6
Problem 2	Scoring Machine	5
Problem 3	Barney!	5
Problem 4	What Does It Look Like?	4
Problem 5	What's Next?	5
Problem 6	What Time Is It?	4
Problem 7	How Hard Can It Be?	5
Problem 8	Do You Mine?	4
Problem 9	A Little Poker Anyone?	6
Problem 10	I Want a Recount!	6
Total		**50**

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

Input File

```
.....@.........@.....
....@..........@....
...@.....@@.....@...
..@.............@..
.@.............@.
@................@
@.....@@@@@@@.....@
@....@........@....@
@@@@@.........@@@@@
....................
...............@.@.@.
.@..........@......
...@.........@......
.........@@@.@......
.........@.@..@.....
...@.@...@@@...@....
.@...........@.....
...@.@.......@@@@@
.........@.........
.@.................
1 10
15 11
12 19
20 1
17 3
14 2
```

Output to screen

```
xxxxxx1......1xxxxxx
xxxxx21.1221.12xxxxx
xxxx21..1xx1..12xxxx
xxx21...1221...12xxx
xx21...........12xx
x31..1233333321..13x
x3..12xxxxxxxx21..3x
x5333xxxxxxxxxxx3335x
xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxx1x
112xxxxxxxxxxxxxxxxx
..1xxxxxxxxxxxxxxxxx
..1xxxxxxx8xxxxxxxxx
112xxxxxxxxxxxxxxxxx
xx3xxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx
1xxxxxxxxxxxxxxxxxxx
```

Input File
```
5 3 8 4 7 6
A 9 4
A 10 4
R 1 3
A 2 6
A 10 2
R 1 6
A 2 1
A 7 4
A 6 3
A 1 2
R 9 6
A 10 3
R 3 3
A 7 5
A 9 1
A 10 6
R 1 5
A 9 3
A 4 2
R 2 2
R 10 1
A 2 4
R 9 2
R 1 3
A 7 3
A 1 3
R 3 1
A 10 5
R 1 6
R 9 5
A 2 2
R 9 2
A 1 5
A 10 1
```
Output to screen
```
10 7 2 9 1 6 4
```

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

Input file
```
12
hey diddle diddle the cat and the fiddle
the cow jumped over the moon
the little dog laughed to see such sport
and the dish ran away with the spoon
when you wish upon a star
it does not matter who you are
when you wish upon a star
your dreams come true
oh do you know the muffin man
the muffin man the muffin man
oh do you know the muffin man
who lives in drury lane
little bo peep has lost her sheep
and cant find where to find them
leave them alone and theyll come home
wagging their tails behind them
mary had a little lamb
little lamb little lamb
mary had a little lamb
its fleece was white as snow
happy birthday to you
happy birthday to you
happy birthday dear baby
happy birthday to you
rain rain go away
come again another day
little susie
wants to play
twinkle twinkle little star
how i wonder what you are
up above the world so high
like a diamond in the sky
humpty dumpty sat on a wall
humpty dumpty had a great fall
all the kings horses and all the kings men
couldnt put humpty together again
the itsy bitsy spider
went up the water spout
down came the rain and
washed the spider out
this old man
he played one
he played knick knack
on my thumb
rudolph the red nosed reindeer
had a very shiny nose
and if you ever saw it
you would even say it glows
i love you
you love me
we are a happy
family
```

```
a bee cee dee e ef gee
aich i jay kay ell em en oh pea
cue arr ess tea you vee
double u ex why and zee
feliz cumpleanos a ti
feliz cumpleanos a ti
feliz cumpleanos mi amigo
felize cumpleanos a ti
old mother hubbard went to her cupboard
to find her poor doggie a bone
but when she got there the cupboard was bare
and so the poor doggie had none
```
Output to screen
```
this old man

rudolph the red nosed reindeer

twinkle twinkle little star

hey diddle diddle the cat and the fiddle
```

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

Input File
```
10  9  8  7  6  5
5  4  3  2  3  4
3  2  9  9  2  3
4  5  6  7  8  9
3  2  3  2  3  2
1  1  1  1  1  1
```

Output to screen
```
A
ABOP X
ABOPWX
ABOVWX
ABUVWX
GTUVWX
STUVWX
YT0V2X
YZ0123
456789
```

Input File
```
Mr. Consistency: Alvarez riding 21-game hitting streak

by Matthew Muench
April 11, 2002

Texas Tech shortstop Gera Alvarez smiled when he heard his name in the same
sentence as New York Yankee great Joe DiMaggio.

After all, the two have something in common - they can hit the ball, and they
can hit it with consistency.

What DiMaggio did for the Yankess in 1941 is what Alvarez is doing for the Red
Raider baseball team in 2002.

Alvarez is riding a 21-game hitting streak entering Raiders' three-game series at
the Kansas Jayhawks this weekend

What does that have to do with DiMaggio?

"Joltin Joe" hit safely in 56 consecutive games, a major league baseball record
some baseball critics say will never be broken.

"That had to be really tough," Alvarez said of DiMaggio's streak. "I will be
surprised if I go any longer. It would be nice to go (longer), but I can go
without it or go with it."

The streak began March 2 in a loss against Texas A&M following a 0-3
performance at the plate the previous day.

Alvarez said baseball is about slumps or streaks. He'll take the latter one.

"I started off slow, but lately something just clicked for me," the senior
from San Diego, Calif., said. "I have just been hitting lately and getting
on base. That's all I want to do."

Since his hitting barrage began, Alvarez has increased his batting average from
.222 to .329. He is hitting .429 during his hit streak and has 33 hits in the last
23 games along with six home runs and 24 RBI.

Tech coach Larry Hays credits Alvarez's consistent hitting because of his
mental toughness.

"He has got in a hot streak, and when you get a guy that talented on a hot
streak, everything works for him," Hays said. "He has been just a big key for
us offensively."

Tech center fielder Scooter Jordan said Alvarez has been Tech's offensive
catalyst in the past weeks.

"He has been carrying us the past couple of weeks," Jordan said. "He has been
phenomenal, and he is playing out of his mind."

Jordan hits in front of Alvarez in the lineup and said that gives him extra
incentive to get on base.
```

"With a guy swinging the bat like that, you just want to get on the bag for
him so he can drive you in," Jordan said.

Tech's record for longest hitting streak is 29 games set in 1997 by Keith
Ginter, a pro player in the Houston Astros' organization this season.

Jaime Tom160s Aguilar/Photography Editor
Texas Tech shortstop Gera Alvarez gives the Dan Law Field a curtain call
after hitting a solo home run Sunday against Kansas State. The senior from
San Diego, Calif., has 33 hits along with six home runs and 24 RBI the last
23 games.

"Ginter had one of those unbelievable years where he hit the entire year," Hays
said. "It would be nice when the year is over for us to look back and say Gera is
the same caliber."

The Big 12 record is 31 games set by James Blair of Baylor whose streak lasted 31
games.

Is Alvarez eyeing the record books? No way, he said.

He has more important things to worry about - his team.

"I don't care what is going on (with the record book)," he said. "I just want
to have fun and help my team win."

Tech fans like to call him Gera "Suave" in relation to the song "Rico Suave."

"I don't know where they got that (nickname)," he said. "But it pumps me up
(to get hits)."

Maybe soon, fans will start calling him Gera DiMaggio
Output to screen
1: t h
2: h e
3: i n
4: r e
5: a n

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

Input File
```
07/01/2002 18:54:19
04/08/2002 19:27:43
12/31/2002 23:59:59
01/01/2002 01:00:00
09/19/2002 18:30:27
06/14/2002 00:00:00
01/01/2002 00:00:00
```
Output to screen
```
07/01/2002 18:54:19 => 15706459
04/08/2002 19:27:43 => 8450863
12/31/2002 23:59:59 => 31535999
01/01/2002 01:00:00 => 3600
09/19/2002 18:30:27 => 22617027
06/14/2002 00:00:00 => 14169600
01/01/2002 00:00:00 => 0
```

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

Input File
```
29T7K422
J6K598K9
T16J8T11
T39QK36J
J5434758
5Q41Q8Q7
2736
94J4TT13
4K63T3Q9
7KQ25156
52J791Q8
K4T7Q263
9J178KJ8
6528
Q9T2J53K
T2J7182K
67446398
18755393
1921Q45T
48K66KJQ
7QTJ
K18694TQ
6J4QJ796
2T345256
879Q8914
KJ3853TK
11252J7T
Q73K
Q32J74J7
Q644883T
QK9T596K
59T78533
6114QTK8
157JK12J
2692
87814Q42
4Q296195
QT6K83Q1
J3TT9K75
T3JJ718K
9J2K6736
5245
```
Output to screen
```
111
89
116
71
59
102
```

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

Input File

```
DDDDCDDDDUUUCCCCDDDDDDDDIDDDDDSDDDDSSSDDDDDDDSDDDN
DDDDDDCCCDDDDDDUDDDDDDDDDDSSDDDDSSSDDDDDDNNNNNDDDDD
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
DDDDNNNNNNDDNNNNDDNNNNNNDDDDDDNNNDDDDDSDDNNDDDDDDD
DDPPDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDI
DDDDDDDDNNDNNNDDDDSSSSSDDDDDDDDDDDDDDDDDDDDDDDDDDDD
DDDDDDNDDDDDPDDDDDDUDDDDDDDDDIDDDDSDDDDPDDDDDDDDDDD
SSSSSSSSSDDDDNNNNNNNNNDDDDDDDDDDDDDDDDDDDDDDDDDDDD
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
```

Output to screen

```
Begin Mining
Further Sampling
Do Not Mine
Further Sampling
Further Sampling
Further Sampling -or- Do Not Mine
Begin Mining
Further Sampling -or- Begin Mining
Begin Mining
```

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

Input File
```
9D 6H 5S 7C 8C
4D 4H 8H 9H 4S
2C 3C 4C 5C AC
7H QD JD 7S QS
AD KD QD JD 9S
QD QS KH QC QH
8D AH 7D 6D AD
2D 3D 3H 2H 2C
AD KD QD JD TD
```
Output to screen
```
9D 6H 5S 7C 8C Straight
4D 4H 8H 9H 4S Three of a Kind
2C 3C 4C 5C AC Flush
7H QD JD 7S QS Two Pair
AD KD QD JD 9S High Card
QD QS KH QC QH Four of a Kind
8D AH 7D 6D AD One Pair
2D 3D 3H 2H 2C Full House
AD KD QD JD TD Straight Flush
```

I Want a Recount!

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

Input File
```
52
3S KC AH 2D 9D 3D TD 4C 9C 5S AS 2C 9S 7D 3H KD QD 6D AC 2S 5D KH 8C QH JH \
JS 7C 5C 7H 6C QC 7S TS 5H 2H 4H 6S 6H 8S 8D 4S KS 8H 4D 9H TC 3C TH AD QS \
JC JD
51
TC 9D KH 4H 4C 9C 9H KS 3H 4S 8S 5C AC JD 4D 8H TS JS KD TH 9S 7D 6D 8D AC \
QD 2D 3S 2C TD AH 2S 2H JH KC AD 3H QS 5H 7C JC 6S 5S 8H 7H 7S 5D AS 6C 3C \
8H
53
KD TD 7C 2H 3D 9S 7H TS KC JS 2D AH 7S 8D 3C 6H JC 2S 5C 2C QH QD QC 3S QS \
7D AS JH KS 4C 4D 8S 6C 9D AC 6D 4S 3H 9H 6S 9C 8H JD 8C 5S TC 5H 4H TH KH \
5D AD 7S
50
5H 4C QC JC AD KS 3H AS QS TC QD 7H JH 7C 9D 5C 6H 9S 3D 7D 2S 4S 8C KD 8S \
6D 8D KC 3C JD 7S 6C AC TS 5D TD 8H JS 2D 4H 9H 5S AH 3S 6S 2C 2H 4D QH KH
46
AD QC 7D 8D 9D 6C 7S 2D 3H 4H 9S 6S 8C 4D 7D 9D 2D 3H 2H JD JS JH JC QH KD \
4S 8D 4H QS KS KH QC AS AD AH QC 8D 7D 7S 7C 5C 6C 5S 5D 5H 6H
```
Output to screen
```
Missing: None
Duplicates: None

Missing: 6H QH 3D 8C QC
Duplicates: 3H 8H AC

Missing: None
Duplicates: 7S

Missing: TH 9C
Duplicates: None

Missing: 7H 8H 9H TH 2S 3S 8S TS 3D 6D TD QD AC 2C 3C 4C 9C TC KC
Duplicates: 3H 4H 7S AD 2D 7D 8D 9D 6C QC
```