

A+ Computer Science

January 2013 –Packet 1

Computer Science Competition

Hands-On Programming Set

JUDGE PACKET

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Problem 1	Almost Prime
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Problem 5	Crossword Clues
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Problem 11	Bubble Pop 1
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0. DryRun

Program Name: DryRun.java

Input File: dryrun.dat

Example: Input file

```
8
history
algebra
chemistry
physics
computer science
you
me
everyone
```

Output to screen:

```
I like history.
I like algebra.
I like chemistry.
I like physics.
I like computer science.
I like you.
I like me.
I like everyone.
```

1. Almost Prime

Program Name: AlmostPrime.java Input File: almostprime.dat

Example Input File

```
1
2
3
7
40
```

Output to screen:

```
4
9
25
289
29929
```

2. KoolAid

Program Name: KoolAid.java

Input File: koolaid.dat

Example Input File

```
8
1
2
3
4
20
99
30
31
```

Output to screen:

```
1 small
1 medium
1 medium 1 small
1 large
5 large
24 large 1 medium 1 small
7 large 1 medium
7 large 1 medium 1 small
```

3. Foreign Shoes

Program Name: ForeignShoes.java

Input File: foreignshoes.dat

Example Input File

```
5
Women UK 7
Men US 10
Men UK 10
Women US 9
Women UK 3
```

Output to screen:

```
Women US 9
Men UK 9
Men US 11
Women UK 7
Women US 5
```

4. Taxation

Program Name: Taxation.java

Input File: taxation.dat

Example Input File

```
16
2.99
T 3.99
25.20
T 25.00
19.00
T 19.99
5.00
6.00
T 7.00
T 8.00
T 79.98
99.23
T 55.55
10.12
T 19.99
T 80.00
```

Output to screen:

```
The total is $491.75
```

5. Crossword Clues

Program Name: CrosswordClues.java

Input File: crosswordclues.dat

Example Input file

```
as at aft and ant apps amble ample apple applet
be bean beat bend bump bunt bust butte battle before
ebb end eon east ends ever eves either esters eastern
fen fro fun fend fern from font fuzz fonts front
gin gun gut gins guns gust guts gusty gutsy goner
hat hit hot hut hats hits host huts horses hotter
pen pin pun port post pots punt porter potter punter
sap sip sop saps sips sops soot sort scoot skirt
tap tip top taps tips tops toot tort trips troop
zap zen zip zit zaps zips zits zebra zebras zipper
a*
z*
z**
a**le
f*n*
***t
s***
**b
***z
****z
```

Output to screen:

```
as at
NO MATCH
zap zen zip zit
amble ample apple
fend font
beat bunt bust east font gust host port post punt soot sort toot tort
saps sips sops soot sort
ebb
fuzz
NO MATCH
```

6. Right Stuff

Program Name: RightStuff.java

Input File: rightstuff.dat

Example Input file

```
5
2.75 2.68 2.70 2.71 2.75 2.75 2.76
3.14 2.14 4.14 2.14 4.14 2.14 4.14 2.14 4.14
9.99 6.99 7.01 7.11 6.98 7.00 7.05 7.09
10.0 8.0 6.0 8.0 6.0 8.0 6.0 8.0 6.0 8.0 6.0 8.0 6.0 8.0 6.0 8.0
6.0 8.0 6.0
10.0 10.1 9.9 10.1 9.9 10.1 9.9 10.1 9.9 10.1 9.9 10.1 9.9 10.1
9.9 10.1 9.9 10.1 9.9
```

(NOTE: the last two data sets starting with 10.0 are on one line in the data file)

Output to screen:

```
Both
Accurate
Precise
Neither
Both
```

7. Periodic Permutations

Program Name: Periodic2.java

Input File: periodic2.dat

Example Input file

```
H He Li Be B C N O F Ne Na Mg Al Si P S Cl Ar K Ca Sc Ti V Cr Mn
Fe Co Ni Cu Zn Ga Ge As Se Br Kr Rb Sr Y Zr Nb Mo Tc Ru Rh Pd Ag Cd In Sn
Sb Te I Xe Cs Ba La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu Hf Ta W Re
Os Ir Pt Au Hg Tl Pb Bi Po At Rn Fr Ra Ac Th Pa U Np Pu Am Cm Bk Cf Es Fm
13
chocolate
rose
bananas
champions
north
south
uil
ladygaga
xenophobe
carbon
potassium
helicopter
heybronicecar
```

Output to screen:

```
yes
no
yes
yes
no
yes
no
yes
yes
yes
no
yes
yes
```

8. Deer Tags

Program Name: DeerTags.java

Input File: deertags.dat

Example Input File

```
A001 NEW
A002 NEW
A001 OK
A003 NEW
A003 DEAD - NATURAL CAUSES
A004 NEW
A002 OK
A001 OK
A005 NEW
A006 NEW
A007 NEW
A008 NEW
A009 NEW
A010 NEW
A002 DEAD - NATURAL CAUSES
A010 DEAD - COYOTE
A009 DEAD - MOUNTAIN LION
A008 DEAD - MOUNTAIN LION
A007 DEAD - MOUNTAIN LION
```

Output to screen:

```
ALIVE 40%
MOUNTAIN LION 30%
NATURAL CAUSES 20%
COYOTE 10%
BEAR 0%
```

9. Vowely Words

Program Name: Vowely.java

Input File: vowley.dat

Example Input file

```
9
banana
mystic
baaxuwaashee
regular
complex
regulate
aaaah
hahahaha
uhhuh
```

Output to screen:

```
YES
NO
YES
NO
NO
YES
YES
YES
NO
```

10. Tiles

Program Name: Tiles.java

Input File: tiles.dat

Example Input file

```
5
14 16
10 20
11 21
10 10
19 27
```

Output to screen:

```
247
220
255
110
565
```

11. Bubble Pop 1

Program Name: BubblePop1.java

Input File: bubblepop1.dat

Example Input file

```
ABBCDDABAA
DAADBDAACCB
CCDECCCAED
ECCAEEBBAD
DADCBAECBD
DEDADDEBDB
BCEEEBCCDB
CACBBACBCB
ADBCADAACB
ABCDABBBBB
8
0 0
2 0
0 9
6 4
9 9
1 0
7 6
3 9
```

Output to screen:

```
NO
YES 4
NO
YES 3
YES 9
NO
YES 3
YES 3
```

12. Bubble Pop 2

Program Name: BubblePop2.java

Input File: bubblepop2.dat

Example Input file

```
ABBCDDABAA
DAADBDAACCB
CCDECCCAED
ECCAEEBBAD
DADCBAECBD
DEDADDEBDB
BCEEEBCCDB
CACBBACBCB
ADBCADAACB
ABCDABBBBB
```

```
1 6
2 4
2 0
6 4
9 9
9 9
2 3
2 6
7 3
5 5
3 2
9 4
9 3
9 5
7 7
9 6
4 2
```

Output to screen:

GAME OVER

```
XXXXXXXXXX
AXXXXXXXXX
DXXXXXXXX
EXXXXXXXXX
DBXCXXXXXX
DEXXXXXXX
BCBAXXXBXX
CACCCXXCCX
ADBABXXBEA
ABCCBXXBAB
```