



UIL Computer Science Competition

State 2022

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

| Number | Name |
|------------|----------|
| Problem 1 | Andrei |
| Problem 2 | Charles |
| Problem 3 | Dmitry |
| Problem 4 | Fatima |
| Problem 5 | Frances |
| Problem 6 | Honghui |
| Problem 7 | Manuel |
| Problem 8 | Michelle |
| Problem 9 | Prateek |
| Problem 10 | Richard |
| Problem 11 | Sanjay |
| Problem 12 | Urvashi |

Problem #1
60 Points

1. Andrei

Program Name: Andrei.java

Input File: None

Test Input File:

None

Test Output to Screen:

2 3 5 7
11 13 17 19
23 29
31 37
41 43 47
53 59
61 67
71 73 79
83 89
97

Problem #2
60 Points

2. Charles

Program Name: Charles.java

Input File: charles.dat

Test Input File:

8
30
28
25
1
17
72
64
97

Test Output to Screen:

1+2+3+5+6+10+15+30=72
1+2+4+7+14+28=56
1+5+25=31
1=1
1+17=18
1+2+3+4+6+8+9+12+18+24+36+72=195
1+2+4+8+16+32+64=127
1+97=98

Problem #3
60 Points

3. Dmitry

Program Name: Dmitry.java

Input File: dmitry.dat

Test Input File:

```
8
1 2 3 4 5 6 7 8 9 10
5 4 3 2 1
2 4 6 7 5 3
12
4 4 6 6 8 8 1 1
2 7 2 7 2
10 10 10 10 10
10 2 8 6 4 5 5 5
```

Test Output to Screen:

```
X
XX
XXX
XXXX
XXXXX
XXXXXX
XXXXXXX
XXXXXXXX
XXXXXXXXX
XXXXXXXXXX
X
XX
XXX
XXXX
XXXXX
XX
XXX
XXXX
XXXXX
XXXXXX
XXXXXXX
XXXXXXXX
XXXXXXXXXX
X
X
XXXX
XXXX
XXXXXX
XXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XX
XX
XX
XXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXXX
XXXXXX
XXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XX
XXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXXX
XXXXXX
XXXXXXXX
XXXXXXXXXX
```

Problem #4
60 Points

4. Fatima

Program Name: Fatima.java

Input File: fatima.dat

Test Input File:

```
10
5.0 5.0
4.5 7.5
3.0 10.0
2.5 2.5
10.0 10.0
7.5 5.5
8.5 3.3
9.0 6.5
10.0 10.0
1.0 1.0
```

Test Output To Screen: (Lines indented on left are continuation of previous line)

```
Temp 80.0 85.0 90.0 95.0 100.0 105.0 110.0 115.0 120.0 125.0
Humid
=====
20.0 78.6 82.0 86.3 91.5 97.5 104.3 112.0 120.5 129.9
25.0 78.9 82.4 87.0 92.7 99.6 107.6 116.8 127.1 138.5
30.0 79.2 82.9 87.9 94.4 102.3 111.6 122.3 134.5
35.0 79.5 83.5 89.2 96.5 105.5 116.2 128.6
40.0 79.9 84.3 90.7 99.0 109.3 121.5 135.7
45.0 80.3 85.3 92.5 101.9 113.5 127.4
50.0 80.8 86.5 94.6 105.2 118.3 133.9
55.0 81.3 87.8 97.0 108.9 123.6
60.0 81.8 89.3 99.7 113.1 129.5
65.0 82.4 90.9 102.7 117.6 135.9
70.0 83.0 92.7 105.9 122.6
75.0 83.6 94.7 109.5 128.0
80.0 84.2 96.8 113.3 133.8
85.0 84.9 99.1 117.5 140.0
90.0 86.3 101.8 121.6
95.0 87.8 104.6 126.0
100.0 89.3 107.6 130.7
=====
Temp 80.0 84.5 89.0 93.5 98.0 102.5 107.0 111.5 116.0 120.5 125.0
Humid
=====
20.0 78.6 81.7 85.4 89.8 95.0 100.8 107.3 114.5 122.3 130.9
27.5 79.0 82.2 86.4 91.6 97.8 105.1 113.4 122.7 133.1
35.0 79.5 83.0 87.9 94.1 101.7 110.7 121.0 132.7
42.5 80.1 84.2 90.0 97.5 106.7 117.6 130.1
50.0 80.8 85.8 92.8 101.8 112.8 125.8
57.5 81.5 87.7 96.1 106.9 119.9 135.3
65.0 82.4 89.9 100.0 112.8 128.2
72.5 83.3 92.5 104.6 119.6 137.5
80.0 84.2 95.4 109.7 127.2
87.5 85.6 98.8 115.3 135.4
95.0 87.8 102.7 121.4
=====
Temp 80.0 83.0 86.0 89.0 92.0 95.0 98.0 101.0 104.0 107.0 110.0 113.0 116.0 119.0 122.0 125.0
Humid
=====
20.0 78.6 80.6 82.8 85.4 88.3 91.5 95.0 98.8 102.9 107.3 112.0 117.0 122.3 128.0 133.9
30.0 79.2 81.2 83.8 86.8 90.4 94.4 99.0 104.1 109.6 115.7 122.3 129.4 137.1
40.0 79.9 82.3 85.4 89.3 93.8 99.0 104.9 111.5 118.9 126.9 135.7
50.0 80.8 83.9 87.9 92.8 98.5 105.2 112.8 121.2 130.6
60.0 81.8 85.9 91.1 97.4 104.7 113.1 122.6 133.1
70.0 83.0 88.4 95.1 103.0 112.2 122.6 134.3
```

~ Output continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Fatima, output continued ~

```

80.0 84.2 91.3 99.8 109.7 121.0 133.8
90.0 86.3 95.1 105.4 117.3 130.8
100.0 89.3 99.7 111.8 125.7
=====
Temp 80.0 82.5 85.0 87.5 90.0 92.5 95.0 97.5 100.0 102.5 105.0 107.5 110.0 112.5 115.0
      117.5 120.0 122.5 125.0
Humid
=====
20.0 78.6 80.2 82.0 84.1 86.3 88.8 91.5 94.4 97.5 100.8 104.3 108.1 112.0 116.2 120.5
      125.1 129.9 134.9
22.5 78.7 80.3 82.2 84.3 86.6 89.2 92.1 95.1 98.5 102.1 105.9 110.0 114.3 118.9 123.7
      128.8 134.1 139.6
25.0 78.9 80.5 82.4 84.5 87.0 89.7 92.7 96.0 99.6 103.5 107.6 112.1 116.8 121.8 127.1
      132.6 138.5
27.5 79.0 80.6 82.6 84.8 87.4 90.3 93.5 97.1 100.9 105.1 109.6 114.4 119.5 124.9 130.7
      136.7
30.0 79.2 80.8 82.9 85.2 87.9 91.0 94.4 98.2 102.3 106.8 111.6 116.8 122.3 128.2 134.5
32.5 79.4 81.1 83.2 85.6 88.5 91.8 95.4 99.4 103.8 108.7 113.8 119.4 125.4 131.7 138.5
35.0 79.5 81.3 83.5 86.1 89.2 92.6 96.5 100.8 105.5 110.7 116.2 122.2 128.6 135.5
37.5 79.7 81.6 83.9 86.7 89.9 93.6 97.7 102.3 107.3 112.8 118.8 125.2 132.0 139.4
40.0 79.9 81.9 84.3 87.3 90.7 94.6 99.0 103.9 109.3 115.1 121.5 128.3 135.7
42.5 80.1 82.2 84.8 87.9 91.5 95.7 100.4 105.6 111.3 117.6 124.3 131.6 139.5
45.0 80.3 82.6 85.3 88.6 92.5 96.9 101.9 107.4 113.5 120.2 127.4 135.1
47.5 80.6 82.9 85.9 89.4 93.5 98.2 103.5 109.4 115.9 122.9 130.6 138.8
50.0 80.8 83.3 86.5 90.2 94.6 99.6 105.2 111.5 118.3 125.8 133.9
52.5 81.0 83.7 87.1 91.1 95.8 101.1 107.0 113.6 120.9 128.8 137.4
55.0 81.3 84.2 87.8 92.0 97.0 102.6 108.9 116.0 123.6 132.0
57.5 81.5 84.7 88.5 93.0 98.3 104.3 111.0 118.4 126.5 135.3
60.0 81.8 85.2 89.3 94.1 99.7 106.0 113.1 120.9 129.5 138.8
62.5 82.1 85.7 90.1 95.2 101.1 107.8 115.3 123.6 132.6
65.0 82.4 86.2 90.9 96.4 102.7 109.7 117.6 126.4 135.9
67.5 82.7 86.8 91.8 97.6 104.3 111.7 120.1 129.2 139.3
70.0 83.0 87.4 92.7 98.9 105.9 113.8 122.6 132.3
72.5 83.3 88.0 93.7 100.2 107.7 116.0 125.3 135.4
75.0 83.6 88.7 94.7 101.6 109.5 118.3 128.0 138.6
77.5 83.9 89.3 95.7 103.1 111.4 120.6 130.8
80.0 84.2 90.0 96.8 104.6 113.3 123.1 133.8
82.5 84.6 90.8 97.9 106.1 115.4 125.6 136.8
85.0 84.9 91.5 99.1 107.8 117.5 128.2 140.0
87.5 85.6 92.5 100.4 109.4 119.5 130.6
90.0 86.3 93.5 101.8 111.1 121.6 133.2
92.5 87.1 94.6 103.2 112.9 123.8 135.8
95.0 87.8 95.6 104.6 114.7 126.0 138.5
97.5 88.5 96.7 106.1 116.6 128.3
100.0 89.3 97.8 107.6 118.6 130.7
=====
Temp 80.0 90.0 100.0 110.0 120.0
Humid
=====
20.0 78.6 86.3 97.5 112.0 129.9
30.0 79.2 87.9 102.3 122.3
40.0 79.9 90.7 109.3 135.7
50.0 80.8 94.6 118.3
60.0 81.8 99.7 129.5
70.0 83.0 105.9
80.0 84.2 113.3
90.0 86.3 121.6
100.0 89.3 130.7
=====

```

~ Output continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Fatima, output continued ~

Temp 80.0 87.5 95.0 102.5 110.0 117.5 125.0
Humid

```
=====
20.0 78.6 84.1 91.5 100.8 112.0 125.1
25.5 78.9 84.6 92.9 103.8 117.3 133.4
31.0 79.3 85.4 94.8 107.5 123.5
36.5 79.7 86.4 97.2 111.9 130.7
42.0 80.1 87.8 100.1 117.1 138.7
47.5 80.6 89.4 103.5 122.9
53.0 81.1 91.3 107.4 129.5
58.5 81.7 93.5 111.8 136.7
64.0 82.3 95.9 116.7
69.5 82.9 98.6 122.1
75.0 83.6 101.6 128.0
80.5 84.3 104.9 134.4
86.0 85.2 108.4
91.5 86.8 112.2
97.0 88.4 116.2
=====
```

Temp 80.0 88.5 97.0 105.5 114.0 122.5
Humid

```
=====
20.0 78.6 85.0 93.8 105.0 118.8 134.9
23.3 78.8 85.3 94.8 107.3 122.7
26.6 79.0 85.7 96.0 109.8 127.1
29.9 79.2 86.2 97.4 112.5 131.8
33.2 79.4 86.9 98.9 115.6 136.8
36.5 79.7 87.6 100.7 118.9
39.8 79.9 88.5 102.7 122.6
43.1 80.2 89.5 104.9 126.5
46.4 80.5 90.6 107.3 130.7
49.7 80.8 91.8 109.9 135.2
53.0 81.1 93.1 112.7 139.9
56.3 81.4 94.5 115.7
59.6 81.8 96.0 118.9
62.9 82.1 97.7 122.3
66.2 82.5 99.4 125.9
69.5 82.9 101.3 129.7
72.8 83.3 103.3 133.7
76.1 83.7 105.4 137.9
79.4 84.2 107.6
82.7 84.6 109.9
86.0 85.2 112.2
89.3 86.1 114.7
92.6 87.1 117.2
95.9 88.1 119.9
99.2 89.0 122.6
=====
```

Temp 80.0 89.0 98.0 107.0 116.0 125.0
Humid

```
=====
20.0 78.6 85.4 95.0 107.3 122.3
26.5 79.0 86.2 97.4 112.5 131.5
33.0 79.4 87.4 100.6 118.8
39.5 79.9 89.1 104.6 126.3
46.0 80.4 91.2 109.4 134.9
52.5 81.0 93.8 115.0
59.0 81.7 96.8 121.5
65.5 82.4 100.3 128.8
72.0 83.2 104.3 136.9
78.5 84.0 108.6
85.0 84.9 113.5
91.5 86.8 118.5
98.0 88.7 124.0
=====
```

~ Output continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Fatima, output continued ~

Temp 80.0 90.0 100.0 110.0 120.0
Humid

```
=====
20.0 78.6 86.3 97.5 112.0 129.9
30.0 79.2 87.9 102.3 122.3
40.0 79.9 90.7 109.3 135.7
50.0 80.8 94.6 118.3
60.0 81.8 99.7 129.5
70.0 83.0 105.9
80.0 84.2 113.3
90.0 86.3 121.6
100.0 89.3 130.7
=====
```

~ Last test case output very wide and long, please see judge's output file. ~

Problem #5
60 Points

5. Frances

Program Name: Frances.java

Input File: frances.dat

Test Input File: (Lines indented on left are continuation of previous line)

```

9
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design
-----
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design,Ethics
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
Ethics,CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and
    Algorithms,Computer Organization and Programming,Web Programming,Theory of
    Algorithms,Databases,Operating Systems,Software Engineering,Computer Architecture,Compiler
    Design
-----
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design,Ethics
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
Ethics,CS I,Databases,Introduction to Programming and Problem Solving,CS II,Data Structures and
    Algorithms,Computer Organization and Programming,Web Programming,Theory of
    Algorithms,Operating Systems,Software Engineering,Computer Architecture,Compiler Design
-----
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Compiler
    Design,Computer Organization and Programming,Web Programming,Theory of
    Algorithms,Databases,Operating Systems,Software Engineering,Computer Architecture
-----
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design

```

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Frances, input continued ~

```
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture
-----
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,Compiler Design
CS I->CS II,CS II->Data Structures and Algorithms,CS II->Computer Organization and Programming,CS
    II->Databases,CS I->Web Programming,Computer Organization and Programming->Computer
    Architecture,Data Structures and Algorithms->Theory of Algorithms,Data Structures and
    Algorithms->Compiler Design,Computer Organization and Programming->Compiler Design,Data
    Structures and Algorithms->Operating Systems,Computer Organization and Programming-
    >Operating Systems,Data Structures and Algorithms->Software Engineering
CS I,Introduction to Programming and Problem Solving,CS II,Data Structures and Algorithms,Computer
    Organization and Programming,Web Programming,Theory of Algorithms,Databases,Operating
    Systems,Software Engineering,Computer Architecture,CS I
-----
1,2
1->2
1,2
-----
1,2,3
1->2,2->3,3->1
1,2,3
-----
1,2,3
3->2,2->1,
3,2,1
-----
```

Test Output To Screen:

```
Degree plan #1 is legal.
Degree plan #2 is legal.
Degree plan #3 is illegal.
Degree plan #4 is illegal.
Degree plan #5 is illegal.
Degree plan #6 is illegal.
Degree plan #7 is legal.
Degree plan #8 is illegal.
Degree plan #9 is legal.
```

11

~ Honghui, continued ~

Test Output To Screen:

```
Case #1: 4
Case #2: 6
Case #3: 0
Case #4: 0
Case #5: 12
Case #6: 1337
Case #7: 56349
Case #8: 4
Case #9: 17
Case #10: 645
Case #11: 94
Case #12: 262
Case #13: 22032
Case #14: 400000000
Case #15: 400000000
Case #16: 13154655
Case #17: 27363250
Case #18: 12329791
Case #19: 35795600
Case #20: 19471789
Case #21: 5776936
Case #22: 96547210
Case #23: 11724176
Case #24: 174267708
Case #25: 4174262
```

Problem #7
60 Points

7. Manuel

Program Name: Michelle.java

Input File: michelle.dat

Test Input File:

```
11
2
1m-1n=3
7m-1n=-3
2
4x+1y=2
1x-1y=3
2
-7x+4y=24
4x-4y=0
2
-7y+2x=18
6y+6x=0
3
-1x-5y-5z=2
4x-5y+4z=19
1x+5y-1z=-20
3
-1x-5y+1z=17
-5x-5y+5z=5
2x+5y-3z=-10
3
6r-1s+3t=-9
5r+5s-5t=20
3r-1s+4t=-5
2
3r+1m=4
-3r+1m=-2
3
-6x-2y-1z=-17
5x+1y-6z=19
-4x-6y-6z=-20
3
-3a-1b-3c=-8
-5a+3b+6c=-4
-6a-4b+1c=-20
3
-4x-5y-1z=18
-2x-5y-2z=12
-2x+5y+2z=4
```

Test Output To Screen:

```
m=-1.000,n=-4.000
x=1.000,y=-2.000
x=-8.000,y=-8.000
y=-2.000,x=2.000
x=-2.000,y=-3.000,z=3.000
x=-1.000,y=-4.000,z=-4.000
r=-1.000,s=6.000,t=1.000
r=1.000,m=1.000
x=2.000,y=3.000,z=-1.000
a=2.000,b=2.000,c=0.000
x=-4.000,y=0.000,z=-2.000
```

Problem #8
60 Points

8. Michelle

Program Name: Michelle.java

Input File: michelle.dat

Test Input File: (Lines indented on left are continuation of previous line)

```

7
1 4 7 12
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
#
5 9 12
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
#
3 5 7 9 11
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
We the People of the United States in Order to form a more perfect Union
establish Justice insure domestic Tranquility provide for the common defence
promote the general Welfare and secure the Blessings of Liberty to ourselves
and our Posterity do ordain and establish this Constitution for the
United States of America
#
2 5 9
a b c d e ff gg hh ii jj kkk lll mmm nnn ooo aaaaa bbbbbb cccccc ddddd eeeee fffff ggggg hhhhh
aaaaabbbbb cccccdddd eeeeefffff aaaaabbbbb cccccdddd eeeeefffff
      abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyz
a
b
c
abcdefghijklm abcdefghijklm abcdefghijklm abcdefghijklm abcdefghijklm abcdefghijklm abcdefghijklm
#
5 10
UILROCKS
#

```

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Michelle, input continued ~

```
1 5 10 20
Fourscore
and seven years ago our fathers brought forth on this continent a new nation conceived in liberty
    and dedicated to the proposition that all men are created equal
Now we are engaged in a great civil war testing whether that nation or any nation so conceived and
    so dedicated can long endure
We are met on a great battle field of that war
We have come to dedicate a portion of that field as a final resting place for those who here gave
    their lives that that nation might live
It is altogether fitting and proper that we should do this
But in a larger sense we cannot dedicate we cannot consecrate we cannot hallow this ground
The brave men living and dead who struggled here have consecrated it far above our poor power to add
    or detract
The world will little note nor long remember what we say here but it can never forget what they did
    here
It is for us the living rather to be dedicated here to the unfinished work which they who fought
    here have thus far so nobly advanced
It is rather for us to be here dedicated to the great task remaining before us that from these
    honored dead we take increased devotion to that cause for which they here gave the last full
    measure of devotion that we here highly resolve that these dead shall not have died in vain
    that this nation under
God shall have a new birth of freedom and that government of the people by the people for the people
    shall not perish from the
earth
#
1 2 3 4 5 6 7 8 9 10 11 12 15 20
Fourscore
and seven years ago our fathers brought forth on this continent a new nation conceived in liberty
    and dedicated to the proposition that all men are created equal
Now we are engaged in a great civil war testing whether that nation or any nation so conceived and
    so dedicated can long endure
We are met on a great battle field of that war
We have come to dedicate a portion of that field as a final resting place for those who here gave
    their lives that that nation might live
It is altogether fitting and proper that we should do this
But in a larger sense we cannot dedicate we cannot consecrate we cannot hallow this ground
The brave men living and dead who struggled here have consecrated it far above our poor power to add
    or detract
The world will little note nor long remember what we say here but it can never forget what they did
    here
It is for us the living rather to be dedicated here to the unfinished work which they who fought
    here have thus far so nobly advanced
It is rather for us to be here dedicated to the great task remaining before us that from these
    honored dead we take increased devotion to that cause for which they here gave the last full
    measure of devotion that we here highly resolve that these dead shall not have died in vain
    that this nation under
God shall have a new birth of freedom and that government of the people by the people for the people
    shall not perish from the
earth
#
```

~ Output on next page ~

Problem #9
60 Points

9. Prateek

Program Name: Prateek.java

Input File: prateek.dat

Test Input File:

| | | |
|-----------------------|-----------|------------------|
| 25 | this | v |
| 3 10 4 1 | e | w |
| apple | cd | x |
| orange | ac | y |
| strawberry | qqq | z |
| 5 4 1 1 | 26 10 5 4 | 100 1000 900 100 |
| ab | a | mg |
| ac | b | db |
| xy | c | oa |
| xz | d | yt |
| az | e | af |
| 20 15 4 2 | f | mp |
| a | g | za |
| aa | h | nw |
| aaa | i | wl |
| aaaa | j | qn |
| aaaaa | k | ys |
| aaaaaaa | l | td |
| aaaaaaaa | m | el |
| aaaaaaaaa | n | rn |
| aaaaaaaaaa | o | up |
| aaaaaaaaaaa | p | pk |
| aaaaaaaaaaaa | q | nj |
| aaaaaaaaaaaaa | r | eq |
| aaaaaaaaaaaaaa | s | xr |
| aaaaaaaaaaaaaaa | t | vc |
| aaaaaaaaaaaaaaaa | u | pi |
| aaaaaaaaaaaaaaaaa | v | xp |
| aaaaaaaaaaaaaaaaaa | w | zc |
| aaaaaaaaaaaaaaaaaaa | x | zc |
| aaaaaaaaaaaaaaaaaaaa | y | ls |
| aaaaaaaaaaaaaaaaaaaaa | z | vl |
| 6 12 5 3 | 26 10 5 6 | kt |
| p | a | rz |
| q | b | kf |
| qp | c | ag |
| qppq | d | sg |
| qppdqpp | e | fy |
| qppdqppdqpp | f | xn |
| 17 100 50 20 | g | ie |
| accd | h | qy |
| aacd | i | oy |
| abcd | j | ew |
| acc | k | ei |
| aac | l | iq |
| abb | m | cd |
| abc | n | sg |
| aaa | o | vf |
| aba | p | rw |
| abcde | q | gk |
| a | r | ri |
| ab | s | iw |
| | t | ve |
| | u | df |

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ xxx, input continued ~

| | | |
|----|------------------|----|
| lj | 100 1000 900 101 | vc |
| rr | rl | fl |
| le | bc | yf |
| ch | hz | hb |
| wz | lp | lt |
| es | pj | qw |
| xz | qx | re |
| ik | cd | jl |
| hc | rk | eq |
| sp | gb | hh |
| xm | xv | oq |
| vy | vr | tt |
| zi | og | ot |
| mv | rb | xm |
| sg | cv | cj |
| bw | hi | bl |
| zs | hx | bz |
| ky | zm | vc |
| ux | xk | qs |
| dh | up | ny |
| la | vn | ze |
| ei | ag | ti |
| cf | fy | pk |
| ed | hq | qt |
| ov | dy | wf |
| sk | ur | vq |
| sj | ib | xu |
| fg | sv | hh |
| rl | vu | iw |
| sb | af | tq |
| jg | ic | ls |
| ua | dz | pc |
| od | we | ov |
| gt | km | lh |
| vm | vc | am |
| ut | vm | oo |
| xc | mx | hf |
| pt | pb | ha |
| ot | oc | iz |
| gn | tp | ce |
| il | dt | mo |
| iw | ms | ix |
| tb | ih | ro |
| br | xn | xg |
| xq | zu | rp |
| ie | zj | ub |
| ws | un | qw |
| zn | ps | pr |
| tc | je | jf |
| ac | np | |
| hl | bi | |
| nj | tx | |

~ Remaining input test cases are very large, please view judge's data file ~

~ Output on next page ~

~ Prateek, continued ~

Test Output To Screen:

```
Case #1: 29
Case #2: 12
Case #3: 129
Case #4: 63
Case #5: 1300
Case #6: 235
Case #7: 260
Case #8: 99300
Case #9: 99600
Case #10: 100000
Case #11: 33967
Case #12: 24780
Case #13: 27054
Case #14: 33189
Case #15: 46070
Case #16: 3588
Case #17: 48752
Case #18: 40117
Case #19: 55783
Case #20: 27493
Case #21: 12830
Case #22: 23635
Case #23: 14177
Case #24: 30412
Case #25: 62653
```

Problem #10
60 Points

10. Richard

Program Name: Richard.java

Input File: richard.dat

Test Input File:

```
12
12
abcdefghijkl
479001599
abcdefghijkl
479001601
abcdefghijklm
2147483646
abcdefghijklmnopqrst
2147483645
aAbBcCdD5468mN02qwzt
43
password123
1
a
2
ab
2112345677
poiuytrewqlkjhgfdsa!
1000000007
abcdefghijklmnopqrstuvwxyzABCDEFGHJKLMNOPQRSTUVWXYZ
1000000007
NzJPdcTCtwKpExvRSGOHyFjWDarnhVAfmeBXilqsimBoQLgkUu
1289512494
!@#$$%^&*(){};','./\:"<>
```

Test Output To Screen:

```
Password #1: abcdefghjlk
Password #2: lkjihgfedcab
Password #3: bacdefghijklm
Password #4: abcdefglnrqthikjmspo
Password #5: 024568AactqzBCNDbwdm
Password #6: 123adpwors
Password #7: a
Password #8: ba
Password #9: !adefghopyjislrukwt
Password #10: ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmponvxuwzrytqs
Password #11: ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmponvxuwzrytqs
Password #12: !"#$%&'().\,:;>}@</*{^,
```

Problem #11
60 Points

11. Sanjay

Program Name: Sanjay.java

Input File: sanjay.dat

Test Input File: (Lines indented on left are continuation of previous line)

```

8
50 -909.66 -2724.91 -0.10 0.84
39 2593.00 -581.21 2606.82 -588.89 2585.85 -584.53 2582.60 -582.20 2587.47 -587.25 2585.77 -588.63
    2585.50 -588.79 2588.51 -609.01 2584.39 -594.58 2581.00 -581.00 2576.98 -593.36 2573.00 -594.86
    2573.50 -589.04 2564.65 -595.72 2563.13 -595.47 2570.62 -588.82 2555.63 -590.23 2558.09 -583.00
    2565.00 -580.72 2565.41 -572.00 2574.45 -576.41 2571.42 -573.78 2571.82 -567.89 2568.39 -558.26
    2578.08 -571.44 2580.17 -578.12 2579.75 -573.10 2580.98 -580.00 2581.24 -567.00 2583.70 -569.31
    2583.66 -570.33 2595.16 -559.19 2586.25 -574.96 2585.77 -575.88 2589.90 -574.53 2602.38 -570.10
    2591.34 -577.24 2607.74 -577.24 2591.98 -580.42
11 1608.92 2950.80 1576.47 2930.03 1568.47 2945.80 1564.06 2946.23 1571.34 2963.78 1565.61 2954.34
    1573.02 2972.31 1565.29 2977.16 1548.79 2990.35 1555.12 3007.86 1580.74 2973.75
11 1920.77 4701.71 1917.47 4697.95 1914.03 4705.18 1909.61 4701.88 1910.43 4706.45 1913.00 4708.00
    1903.73 4704.25 1907.06 4708.84 1907.23 4709.65 1913.76 4711.93 1919.99 4708.37
6 2299.98 -3112.98 2285.42 -3131.90 2275.29 -3118.18 2266.61 -3114.63 2279.01 -3097.62 2274.83 -
    3109.17
27 898.00 3741.00 919.03 3725.72 904.36 3734.64 898.67 3740.26 911.12 3725.91 907.12 3714.53 897.69
    3732.01 891.94 3719.85 892.19 3725.03 891.75 3726.27 891.90 3727.30 886.00 3741.00 888.05
    3742.05 891.13 3742.34 878.77 3746.51 886.86 3747.70 887.18 3776.38 897.69 3746.99 897.48
    3771.00 898.03 3743.00 902.31 3771.70 900.78 3756.76 901.58 3753.50 911.28 3772.30 919.41
    3764.78 912.89 3742.83 908.99 3741.38
41 5010.93 -3747.36 5013.71 -3749.05 5011.16 -3750.79 5006.16 -3749.80 5020.07 -3757.74 5004.78 -
    3750.24 4998.72 -3746.69 5004.50 -3757.26 5005.18 -3761.41 5000.85 -3752.39 5002.10 -3757.28
    5000.85 -3756.63 4996.66 -3756.92 4995.40 -3760.77 4991.38 -3769.07 4993.93 -3755.14 4992.26 -
    3754.19 4995.67 -3747.89 4984.42 -3756.23 4997.18 -3746.57 4981.22 -3754.92 4990.53 -3748.87
    4998.00 -3746.00 4978.11 -3743.91 4990.21 -3744.20 4975.72 -3734.65 4993.41 -3739.45 4997.12 -
    3744.20 4996.78 -3743.26 4991.81 -3728.04 4996.19 -3739.24 4995.81 -3732.17 4998.00 -3725.00
    4998.96 -3735.04 4999.17 -3742.17 5004.25 -3731.27 5000.85 -3739.61 5002.24 -3741.76 5009.98 -
    3736.97 5000.70 -3744.68 5006.00 -3746.00
17 -1090.38 2067.55 -1081.83 2053.63 -1097.08 2030.21 -1094.81 2056.13 -1106.26 2034.46 -1100.18
    2053.59 -1119.60 2040.48 -1106.99 2057.67 -1099.47 2064.30 -1114.88 2066.70 -1098.98 2068.48 -
    1093.00 2069.00 -1097.75 2107.71 -1087.99 2100.61 -1087.93 2079.88 -1057.27 2073.39 -1074.05
    2070.33
20 -3398.22 2885.80 -3386.02 2874.15 -3404.68 2875.78 -3412.76 2875.29 -3411.28 2868.15 -3416.03
    2872.74 -3412.18 2858.24 -3419.47 2878.11 -3420.83 2884.00 -3424.36 2876.44 -3435.37 2858.19 -
    3428.63 2884.23 -3444.07 2882.38 -3449.56 2894.04 -3425.89 2890.04 -3452.49 2906.45 -3442.55
    2908.00 -3435.98 2918.40 -3416.53 2899.05 -3390.14 2907.54
12 -4634.26 -2356.75 -4640.84 -2362.96 -4642.25 -2360.56 -4641.77 -2355.94 -4642.00 -2355.03 -
    4641.84 -2354.22 -4648.83 -2350.31 -4646.25 -2348.53 -4638.35 -2349.23 -4636.63 -2346.66 -
    4638.44 -2351.32 -4636.85 -2352.54
15 -3680.00 -109.00 -3678.97 -110.71 -3679.81 -109.98 -3680.52 -114.98 -3682.03 -113.57 -3686.22 -
    114.03 -3688.29 -114.59 -3683.53 -110.88 -3692.29 -113.23 -3695.59 -112.60 -3692.36 -104.98 -
    3692.36 -102.43 -3680.00 -109.00 -3679.53 -108.12 -3680.00 -109.00
42 -3958.94 -3261.50 -3960.34 -3261.78 -3959.34 -3263.66 -3960.23 -3263.12 -3965.00 -3258.00 -
    3964.22 -3262.94 -3964.58 -3263.99 -3965.05 -3261.00 -3965.28 -3266.00 -3965.76 -3261.93 -
    3965.81 -3259.83 -3966.45 -3260.62 -3969.31 -3263.52 -3966.26 -3259.55 -3971.39 -3262.81 -
    3968.96 -3258.56 -3973.00 -3257.72 -3965.95 -3257.67 -3967.82 -3256.97 -3970.56 -3255.75 -
    3966.80 -3257.12 -3972.06 -3254.24 -3966.70 -3256.94 -3971.39 -3253.19 -3968.89 -3254.85 -
    3965.00 -3258.00 -3967.35 -3254.76 -3966.68 -3255.51 -3966.63 -3255.48 -3967.63 -3252.61 -
    3965.88 -3255.13 -3965.63 -3254.05 -3965.00 -3258.00 -3965.00 -3258.00 -3962.61 -3251.42 -
    3963.55 -3255.38 -3959.13 -3254.19 -3964.05 -3257.69 -3965.00 -3258.00 -3957.15 -3256.47 -
    3964.01 -3257.84 -3963.01 -3257.76
12 3499.96 1365.72 3505.70 1354.86 3499.00 1366.00 3499.00 1366.00 3496.99 1363.77 3498.23 1365.36
    3499.00 1366.00 3497.38 1367.18 3495.85 1379.64 3499.42 1371.99 3500.21 1370.85 3518.13 1371.85
23 -3036.05 -448.45 -3032.33 -449.95 -3028.94 -452.23 -3038.00 -448.00 -3030.23 -454.29 -3036.55 -
    450.62 -3034.58 -457.40 -3036.89 -455.92 -3038.00 -457.00 -3038.70 -455.97 -3038.14 -448.99 -
    3041.51 -459.48 -3038.67 -448.74 -3040.26 -449.97 -3041.76 -449.37 -3041.71 -446.50 -3042.54 -
    439.09 -3043.49 -436.22 -3038.00 -448.00 -3041.36 -435.44 -3039.11 -440.08 -3033.50 -440.21 -
    3025.71 -443.77

```

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Sanjay, input continued ~

```
43 220.98 -1919.70 229.93 -1920.66 233.22 -1924.95 223.05 -1923.87 230.33 -1927.21 224.48 -1925.58
    224.93 -1928.75 220.58 -1926.22 219.18 -1929.10 222.44 -1936.61 221.08 -1939.67 219.99 -1940.17
    215.23 -1931.29 214.09 -1928.51 211.35 -1920.97 210.51 -1932.99 210.02 -1921.84 208.95 -1924.64
    209.44 -1922.68 209.78 -1921.74 199.50 -1938.92 197.23 -1938.66 211.00 -1919.00 198.74 -1929.28
    198.88 -1926.00 193.01 -1918.37 195.06 -1917.61 200.43 -1915.97 202.91 -1913.12 204.96 -1913.75
    204.05 -1911.81 200.10 -1903.44 204.30 -1907.86 203.48 -1898.33 209.20 -1911.21 211.37 -1912.01
    219.21 -1896.45 215.88 -1908.04 211.00 -1919.00 220.21 -1915.09 212.85 -1918.25 219.40 -1915.77
    220.85 -1917.26
40 2450.97 -4212.77 2468.37 -4221.77 2455.74 -4220.73 2452.99 -4219.50 2453.40 -4222.47 2442.83 -
    4214.83 2453.07 -4232.13 2441.27 -4214.72 2440.34 -4212.94 2441.40 -4231.95 2439.06 -4220.95
    2436.95 -4227.71 2433.76 -4241.34 2439.78 -4212.97 2434.21 -4218.89 2429.60 -4221.37 2424.15 -
    4225.78 2421.63 -4225.84 2414.56 -4227.90 2434.61 -4214.63 2439.05 -4212.33 2423.00 -4211.70
    2411.02 -4210.99 2419.16 -4209.44 2427.33 -4209.08 2430.42 -4204.78 2419.32 -4194.64 2429.76 -
    4202.45 2438.07 -4209.70 2435.53 -4201.95 2435.43 -4190.48 2439.37 -4203.02 2440.52 -4206.02
    2440.17 -4211.02 2445.07 -4201.12 2450.44 -4191.51 2445.66 -4206.34 2453.37 -4205.19 2441.95 -
    4211.55 2440.00 -4212.00
6 -28.44 -4402.55 -41.29 -4402.77 -35.83 -4395.56 -43.75 -4390.15 -34.24 -4391.07 -32.61 -4388.42
17 901.90 -295.18 893.57 -300.03 893.18 -304.76 879.05 -295.19 877.96 -303.96 874.92 -304.82 861.90
    -311.65 871.56 -295.54 869.01 -292.58 842.96 -281.28 870.82 -289.71 876.27 -292.32 875.13 -
    288.36 877.89 -276.02 880.20 -270.22 886.06 -259.19 881.69 -281.95
44 357.93 -3226.72 337.69 -3228.45 320.83 -3229.99 327.93 -3233.76 318.69 -3229.92 346.99 -3244.88
    316.65 -3231.46 323.00 -3253.44 314.60 -3244.25 311.56 -3242.17 308.23 -3239.84 310.39 -3265.77
    306.52 -3229.98 305.88 -3231.00 298.13 -3243.47 295.86 -3245.75 297.00 -3239.59 300.46 -3231.09
    284.15 -3250.05 300.54 -3229.85 296.34 -3232.70 286.83 -3238.44 287.16 -3237.19 266.16 -3247.00
    284.13 -3231.11 270.43 -3234.20 294.31 -3221.30 277.31 -3215.23 277.26 -3212.39 284.25 -3213.86
    300.84 -3216.63 298.84 -3203.20 298.89 -3202.13 304.34 -3205.07 303.49 -3176.07 308.59 -3214.34
    315.12 -3197.53 326.71 -3179.59 318.26 -3199.94 317.28 -3219.90 317.54 -3220.69 329.56 -3219.42
    312.95 -3223.15 306.00 -3224.00
43 1939.99 -1236.65 1923.92 -1237.83 1913.34 -1239.76 1932.68 -1254.55 1928.92 -1263.79 1910.07 -
    1244.43 1909.10 -1249.70 1911.21 -1255.33 1901.85 -1257.97 1902.65 -1237.97 1886.87 -1278.01
    1885.51 -1275.28 1899.71 -1242.18 1878.09 -1275.86 1882.77 -1250.69 1898.09 -1239.44 1892.87 -
    1240.30 1867.20 -1239.76 1881.01 -1236.77 1873.45 -1213.73 1888.28 -1219.65 1895.58 -1218.51
    1894.54 -1211.42 1902.58 -1230.01 1903.42 -1230.01 1912.77 -1190.03 1910.72 -1209.08 1906.09 -
    1226.49 1904.63 -1231.27 1920.75 -1197.94 1916.62 -1209.27 1926.00 -1192.74 1916.78 -1213.95
    1909.62 -1227.22 1915.71 -1221.88 1909.47 -1229.75 1909.79 -1230.10 1935.67 -1218.63 1931.37 -
    1226.23 1939.34 -1224.89 1909.95 -1235.15 1929.90 -1233.65 1948.97 -1234.39
40 -4059.00 4056.00 -4057.17 4055.19 -4056.28 4054.73 -4048.21 4050.74 -4058.78 4055.03 -4059.03
    4055.00 -4059.21 4053.01 -4059.42 4052.02 -4059.87 4051.08 -4061.34 4048.35 -4061.19 4051.51 -
    4063.59 4050.72 -4066.36 4052.87 -4059.96 4055.72 -4062.91 4055.17 -4059.98 4055.81 -4062.00
    4055.84 -4069.94 4057.15 -4063.94 4056.78 -4059.00 4056.00 -4064.59 4060.21 -4063.86 4061.04 -
    4063.68 4061.20 -4060.18 4057.62 -4060.12 4057.66 -4064.33 4065.62 -4060.95 4061.67 -4059.31
    4056.95 -4058.04 4066.96 -4058.78 4056.97 -4055.74 4065.46 -4054.90 4067.28 -4059.00 4056.00 -
    4058.26 4056.67 -4057.40 4057.20 -4056.48 4057.63 -4048.73 4059.94 -4057.07 4056.52 -4059.00
    4056.00 -4057.00 4056.10
35 4336.95 2100.15 4338.73 2098.82 4330.95 2100.67 4339.84 2089.68 4337.22 2091.42 4333.09 2091.49
    4332.92 2091.44 4330.00 2101.00 4331.36 2088.07 4330.00 2085.00 4328.61 2091.10 4328.86 2095.11
    4328.54 2096.22 4329.19 2099.17 4324.93 2090.12 4326.61 2094.88 4323.88 2097.61 4318.05 2102.05
    4327.06 2101.57 4316.36 2104.15 4319.43 2104.03 4320.36 2112.49 4326.24 2108.06 4323.19 2114.37
    4330.85 2107.95 4332.78 2116.76 4331.66 2108.83 4332.74 2107.44 4332.72 2106.35 4336.79 2113.24
    4335.50 2110.53 4338.43 2112.18 4332.57 2104.06 4333.06 2103.57 4340.80 2103.10
17 1604.98 -926.89 1596.86 -927.56 1612.73 -934.03 1609.33 -934.62 1607.18 -934.54 1609.76 -943.62
    1588.54 -926.84 1590.88 -958.87 1586.88 -941.96 1580.27 -943.36 1569.55 -953.36 1565.35 -922.01
    1581.90 -912.30 1588.30 -909.00 1601.20 -912.33 1608.21 -909.64 1610.55 -917.79
35 -2660.52 1504.43 -2677.73 1501.68 -2662.12 1492.40 -2667.21 1485.73 -2687.89 1491.58 -2697.00
    1502.34 -2700.12 1475.05 -2701.58 1499.01 -2701.44 1479.00 -2702.84 1487.01 -2703.46 1504.15 -
    2711.06 1477.19 -2711.27 1495.57 -2717.79 1486.68 -2731.52 1477.04 -2728.35 1491.14 -2726.03
    1504.11 -2746.45 1503.96 -2719.90 1509.12 -2710.99 1511.47 -2738.86 1514.22 -2728.80 1514.29 -
    2745.33 1518.64 -2723.87 1523.12 -2716.77 1522.96 -2737.67 1543.12 -2719.98 1528.37 -2707.54
    1518.09 -2705.88 1525.49 -2701.72 1511.96 -2698.23 1514.28 -2695.14 1515.12 -2694.12 1512.39 -
    2656.45 1517.40 -2679.03 1512.20
10 -1589.71 -3289.60 -1593.97 -3292.47 -1582.39 -3311.19 -1604.61 -3310.89 -1615.48 -3287.58 -
    1607.85 -3279.65 -1624.22 -3275.05 -1603.15 -3279.76 -1596.13 -3262.93 -1599.10 -3280.22
```

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Sanjay, input continued ~

```
14 -3894.26 3183.71 -3900.31 3166.77 -3902.74 3162.94 -3914.37 3169.01 -3915.28 3179.00 -3922.25
    3159.95 -3931.04 3178.83 -3918.00 3186.84 -3929.26 3194.26 -3918.39 3193.12 -3903.43 3200.79 -
    3898.33 3204.26 -3900.62 3197.83 -3892.59 3192.17
21 -3292.02 4785.63 -3272.31 4778.19 -3293.80 4784.40 -3291.67 4770.35 -3299.78 4763.50 -3301.34
    4763.89 -3305.55 4761.15 -3297.94 4781.95 -3301.34 4783.04 -3315.46 4807.94 -3300.90 4792.79 -
    3299.69 4794.83 -3295.72 4787.87 -3295.87 4790.92 -3283.76 4813.82 -3289.58 4793.19 -3270.73
    4797.84 -3269.97 4796.11 -3270.14 4793.60 -3279.29 4789.05 -3270.00 4786.00
34 875.00 -892.05 877.52 -894.34 878.92 -900.55 873.18 -893.62 875.91 -897.80 874.06 -895.43 877.00
    -900.66 872.94 -893.77 876.30 -902.13 873.29 -896.83 871.39 -898.97 868.74 -901.46 871.32 -
    893.88 870.13 -896.64 871.59 -892.91 871.43 -892.82 865.71 -899.77 865.53 -898.25 868.57 -889.94
    864.45 -887.10 867.14 -886.96 868.78 -881.48 872.14 -888.00 872.78 -883.03 873.81 -885.24 873.63
    -888.35 872.00 -892.00 876.59 -886.72 880.67 -885.23 872.00 -892.00 872.00 -892.00 877.64 -
    889.95 874.98 -891.69 875.00 -891.95
5 2014.00 -1294.00 2014.00 -1294.00 2014.00 -1294.00 2013.01 -1293.84 2010.32 -1292.44
16 -3240.35 665.01 -3240.34 631.28 -3253.50 652.55 -3271.60 656.71 -3302.00 669.00 -3275.98 674.24 -
    3275.69 674.92 -3283.38 686.71 -3289.40 696.33 -3267.02 674.73 -3266.07 712.89 -3244.36 691.22 -
    3248.88 681.71 -3263.00 669.00 -3251.18 678.23 -3247.20 671.50
35 1333.00 -4501.00 1344.78 -4506.49 1346.99 -4508.76 1336.54 -4504.54 1340.07 -4509.43 1335.26 -
    4513.80 1333.00 -4501.00 1329.57 -4518.67 1331.65 -4506.85 1330.79 -4508.69 1326.49 -4515.62
    1332.44 -4501.83 1320.04 -4514.90 1330.12 -4503.78 1324.22 -4509.18 1318.27 -4507.25 1331.08 -
    4501.55 1323.18 -4502.91 1315.18 -4503.51 1329.02 -4500.65 1317.63 -4489.83 1318.14 -4487.62
    1321.30 -4490.09 1331.56 -4499.61 1323.14 -4482.46 1326.16 -4481.14 1335.92 -4480.20 1336.33 -
    4485.35 1335.93 -4492.49 1333.39 -4500.08 1340.01 -4486.62 1339.57 -4488.64 1338.04 -4496.14
    1350.10 -4487.15 1345.47 -4494.64
29 -1292.00 -1838.00 -1290.13 -1838.72 -1292.00 -1838.00 -1288.12 -1845.00 -1292.87 -1842.92 -
    1292.31 -1838.95 -1292.00 -1838.00 -1292.00 -1838.00 -1292.80 -1838.60 -1293.66 -1839.12 -
    1293.83 -1838.81 -1297.64 -1840.05 -1296.94 -1838.78 -1299.00 -1837.88 -1298.99 -1837.63 -
    1295.43 -1835.94 -1296.10 -1835.13 -1295.06 -1835.43 -1293.81 -1835.60 -1295.50 -1831.94 -
    1291.31 -1834.06 -1290.20 -1830.21 -1289.95 -1831.31 -1289.72 -1831.38 -1289.66 -1832.48 -
    1289.40 -1836.50 -1291.03 -1837.74 -1292.00 -1838.00 -1287.00 -1838.00
18 -2531.04 4213.16 -2534.51 4211.81 -2532.76 4210.82 -2539.00 4214.00 -2539.00 4214.00 -2541.63
    4205.39 -2546.89 4197.82 -2543.12 4207.14 -2541.62 4210.98 -2545.93 4210.00 -2557.07 4219.87 -
    2545.69 4221.43 -2546.46 4224.65 -2542.13 4221.36 -2540.57 4228.92 -2531.51 4232.54 -2536.76
    4217.32 -2534.15 4215.21
22 -1791.14 -350.12 -1768.15 -366.13 -1793.27 -349.69 -1796.51 -347.34 -1785.26 -377.52 -1794.64 -
    358.56 -1810.05 -383.09 -1833.08 -354.10 -1804.00 -346.21 -1822.76 -342.52 -1821.70 -342.25 -
    1808.20 -341.88 -1811.12 -330.91 -1797.97 -345.00 -1797.74 -343.01 -1790.24 -332.01 -1781.00 -
    317.71 -1776.06 -325.54 -1794.94 -343.43 -1761.35 -332.66 -1779.42 -342.05 -1780.02 -345.06
37 -830.42 -1539.39 -819.19 -1548.13 -831.96 -1541.86 -827.14 -1555.54 -824.32 -1564.19 -834.08 -
    1560.82 -844.89 -1562.82 -849.04 -1550.38 -860.87 -1562.60 -855.70 -1555.06 -864.95 -1558.06 -
    871.98 -1556.39 -859.25 -1545.99 -841.87 -1538.12 -860.56 -1541.58 -852.00 -1536.74 -877.75 -
    1526.84 -845.28 -1533.48 -841.46 -1534.73 -866.70 -1507.30 -846.73 -1526.93 -837.00 -1537.00 -
    860.14 -1509.42 -837.91 -1535.22 -836.23 -1515.01 -835.12 -1519.10 -834.77 -1521.16 -827.08 -
    1509.75 -828.04 -1513.66 -824.50 -1515.35 -815.25 -1507.07 -812.25 -1512.25 -809.67 -1510.60 -
    828.57 -1529.93 -829.23 -1530.71 -819.88 -1531.44 -821.01 -1536.44
32 -94.00 4321.83 -78.20 4314.84 -93.36 4319.95 -82.56 4314.68 -85.88 4306.91 -96.51 4310.26 -95.37
    4303.35 -98.86 4314.00 -100.46 4310.09 -100.81 4315.24 -112.85 4304.90 -117.26 4316.76 -108.66
    4319.41 -118.41 4317.16 -100.92 4322.55 -113.09 4331.51 -108.58 4329.22 -99.77 4322.64 -101.52
    4325.11 -112.84 4340.37 -107.03 4333.47 -108.21 4338.62 -99.49 4325.97 -98.24 4325.93 -97.37
    4326.73 -87.85 4342.12 -90.50 4336.72 -89.73 4337.43 -94.59 4327.44 -96.35 4323.41 -77.40
    4326.20 -92.02 4322.49
9 2739.66 3995.59 2736.97 3997.25 2736.00 3999.00 2732.72 3996.71 2734.61 4000.44 2734.82 4000.62
    2735.65 4003.99 2738.72 4003.19 2738.00 3999.03
35 -1530.04 3394.72 -1524.70 3390.07 -1528.99 3392.77 -1523.45 3385.67 -1525.92 3383.03 -1530.53
    3392.04 -1531.10 3389.00 -1534.58 3382.50 -1533.05 3388.31 -1536.33 3385.38 -1533.08 3392.84 -
    1531.00 3395.00 -1535.05 3392.06 -1542.20 3390.70 -1543.93 3396.36 -1535.83 3396.29 -1532.90
    3395.62 -1541.24 3403.00 -1534.11 3397.52 -1536.25 3401.04 -1532.93 3397.30 -1537.92 3403.55 -
    1531.56 3395.83 -1531.91 3396.78 -1530.65 3398.98 -1529.85 3405.94 -1529.90 3403.93 -1527.78
    3405.52 -1523.78 3403.30 -1527.11 3398.15 -1527.50 3396.94 -1525.61 3397.63 -1531.00 3395.00 -
    1526.27 3396.63 -1525.20 3396.55
```

~ Input continues on next page ~

UIL – Computer Science Programming Packet – State - 2022

~ Sanjay, input continued ~

```
44 3346.53 3173.71 3348.41 3171.34 3345.00 3175.00 3350.54 3167.91 3346.79 3170.33 3346.71 3170.30
3347.28 3168.38 3347.16 3168.34 3346.34 3168.13 3345.21 3169.00 3344.72 3167.00 3344.53 3172.04
3344.33 3172.08 3342.97 3170.43 3343.85 3173.36 3342.99 3172.77 3342.81 3172.95 3342.67 3173.11
3343.27 3174.00 3344.03 3174.74 3336.23 3172.98 3337.10 3176.25 3338.15 3176.46 3339.44 3177.25
3338.66 3177.96 3340.83 3179.32 3341.71 3181.18 3341.49 3182.19 3345.00 3175.00 3343.43 3181.82
3345.00 3181.00 3345.42 3180.99 3348.25 3182.31 3348.95 3183.09 3349.70 3181.47 3346.97 3177.26
3350.12 3179.77 3350.28 3179.59 3345.77 3175.64 3350.66 3179.11 3347.65 3176.41 3346.97 3175.35
3346.99 3175.17 3354.00 3175.16
36 -3311.35 -2438.34 -3313.48 -2438.34 -3312.45 -2440.59 -3308.77 -2449.58 -3316.71 -2439.28 -
3317.43 -2442.82 -3315.18 -2457.67 -3317.90 -2442.91 -3317.42 -2448.90 -3319.00 -2436.00 -
3319.07 -2437.00 -3320.83 -2456.92 -3319.16 -2436.99 -3320.59 -2438.54 -3323.15 -2438.80 -
3333.72 -2444.50 -3339.28 -2441.44 -3336.73 -2439.13 -3338.89 -2438.09 -3326.97 -2436.70 -
3322.00 -2436.16 -3322.99 -2435.79 -3321.95 -2435.48 -3326.31 -2432.75 -3339.13 -2422.93 -
3336.68 -2418.32 -3322.18 -2430.91 -3327.03 -2418.78 -3319.24 -2434.01 -3314.42 -2412.44 -
3309.45 -2425.76 -3304.26 -2425.68 -3319.00 -2436.00 -3308.24 -2433.71 -3300.14 -2433.68 -
3304.08 -2434.43
26 3606.76 3008.06 3612.70 3003.90 3623.49 2996.43 3624.44 2994.10 3603.60 3006.14 3627.87 2976.79
3615.90 2978.21 3614.05 2970.79 3581.10 2969.80 3595.09 3004.20 3575.60 2980.06 3582.33 2992.74
3597.06 3009.52 3573.67 3004.15 3577.27 3006.56 3554.25 3005.30 3597.00 3009.93 3587.52 3016.10
3589.47 3015.50 3575.84 3027.45 3569.01 3037.96 3588.25 3038.01 3591.58 3042.15 3595.87 3029.75
3635.41 3036.45 3613.55 3013.63
9 3809.66 1718.25 3810.45 1716.38 3809.00 1719.00 3805.72 1715.23 3807.10 1718.38 3805.24 1720.37
3806.38 1720.45 3807.97 1721.82 3810.29 1720.53
25 -1369.23 3384.98 -1365.71 3382.77 -1352.79 3377.32 -1373.21 3383.39 -1380.93 3384.27 -1392.13
3379.49 -1378.89 3386.55 -1388.34 3383.24 -1385.61 3389.47 -1385.13 3390.63 -1402.49 3400.57 -
1382.66 3390.78 -1386.39 3399.44 -1379.56 3390.68 -1384.53 3413.20 -1380.09 3401.85 -1375.44
3407.84 -1371.79 3410.18 -1370.02 3402.01 -1364.46 3404.34 -1357.19 3405.74 -1362.46 3399.59 -
1373.95 3389.94 -1364.88 3394.27 -1349.11 3389.53
9 705.08 -4690.25 704.14 -4689.89 706.22 -4671.18 694.81 -4657.21 696.63 -4649.16 701.23 -4643.34
703.85 -4642.88 722.22 -4653.42 720.93 -4662.06
41 -4396.01 1658.53 -4405.00 1659.00 -4381.82 1652.79 -4401.40 1655.53 -4393.62 1646.37 -4400.55
1646.78 -4403.05 1653.33 -4405.00 1659.00 -4405.28 1651.00 -4409.99 1635.52 -4406.57 1652.18 -
4405.00 1659.00 -4405.00 1659.00 -4426.17 1650.01 -4423.97 1658.01 -4424.56 1663.16 -4429.26
1665.05 -4416.28 1663.10 -4424.90 1672.42 -4416.70 1669.91 -4412.05 1668.71 -4417.61 1681.74 -
4406.75 1662.60 -4406.03 1661.82 -4408.58 1671.50 -4407.78 1674.76 -4406.88 1670.85 -4405.31
1661.98 -4404.63 1665.99 -4405.00 1659.00 -4400.40 1677.44 -4398.11 1683.03 -4397.27 1682.78 -
4394.58 1669.79 -4400.34 1662.78 -4386.88 1673.16 -4401.81 1661.41 -4391.30 1665.10 -4392.44
1662.36 -4405.00 1659.00 -4390.11 1660.83
26 -4855.01 2000.50 -4857.53 1994.60 -4863.31 1999.17 -4865.07 1999.49 -4863.34 1990.61 -4868.00
1998.00 -4868.07 2004.00 -4870.82 1990.22 -4871.38 2000.75 -4871.36 2003.03 -4881.12 1992.91 -
4875.64 2000.09 -4878.52 2004.78 -4886.82 2005.36 -4882.92 2006.43 -4880.36 2012.02 -4885.81
2019.13 -4870.30 2009.93 -4876.76 2022.57 -4873.08 2019.97 -4869.34 2014.87 -4867.69 2010.98 -
4865.08 2017.56 -4863.22 2009.46 -4850.02 2008.94 -4853.00 2008.00
12 -3550.91 4628.05 -3552.08 4623.45 -3556.71 4628.72 -3559.38 4621.01 -3561.29 4621.24 -3561.57
4628.94 -3565.89 4626.21 -3566.88 4630.61 -3560.30 4635.78 -3559.00 4632.00 -3556.71 4642.76 -
3554.23 4637.12
30 3381.00 2273.95 3383.80 2270.09 3398.23 2259.31 3388.07 2257.89 3379.36 2271.33 3377.60 2251.00
3377.39 2267.03 3372.14 2256.98 3371.84 2257.09 3370.02 2258.99 3369.47 2264.19 3367.58 2263.21
3353.85 2267.53 3359.10 2272.01 3356.00 2274.38 3372.26 2275.75 3368.81 2281.71 3378.00 2274.00
3365.96 2287.38 3378.00 2274.00 3369.08 2290.78 3375.66 2281.65 3378.00 2274.00 3377.23 2295.99
3379.05 2288.96 3380.40 2296.87 3379.29 2278.83 3379.76 2276.43 3378.00 2274.00 3391.90 2286.96
25 2652.00 4555.97 2662.99 4555.55 2657.46 4550.97 2664.39 4542.11 2652.65 4551.76 2650.67 4553.08
2636.60 4545.53 2644.00 4552.39 2648.00 4555.93 2648.00 4556.07 2646.03 4556.49 2634.62 4560.41
2636.25 4565.99 2645.91 4560.39 2646.31 4560.73 2650.00 4556.00 2642.83 4574.67 2645.32 4571.30
2650.03 4558.00 2650.52 4570.99 2650.78 4558.90 2654.77 4563.63 2655.67 4557.95 2657.61 4558.47
2658.73 4558.18
21 -1790.08 -4597.57 -1792.31 -4601.92 -1781.83 -4607.80 -1782.04 -4608.21 -1797.19 -4618.69 -
1805.00 -4596.00 -1807.39 -4602.58 -1826.55 -4610.54 -1835.88 -4593.30 -1809.97 -4595.48 -
1805.96 -4595.72 -1831.53 -4578.11 -1805.75 -4595.34 -1808.66 -4587.78 -1813.89 -4571.57 -
1796.64 -4586.04 -1793.49 -4584.89 -1785.08 -4579.29 -1776.46 -4583.89 -1799.26 -4594.25 -
1785.68 -4590.82
12 4635.53 3169.05 4634.37 3184.01 4631.15 3180.37 4632.37 3188.48 4624.88 3184.85 4613.01 3179.36
4618.46 3203.59 4631.57 3204.79 4634.19 3191.98 4634.21 3191.98 4645.44 3208.61 4638.00 3191.07
```

~ Remaining input test cases are extremely long – please see judge’s data file ~

~ Output on next page ~

~ Sanjay, continued ~

Test Output To Screen:

93.790
49.047
128.729
48.421
177.316
327.167
638.145
127.250

Problem #12
60 Points

12. Urvashi

Program Name: Urvashi.java

Input File: Urvashi.dat

Test Input File:

```
22
3 1 shire mordor
shire middleearth 1
middleearth mordor 32
shire mordor 303
3 1 a d
a b 12
b c 32
c d 34
3 2 a d
a b 12
b c 32
c d 34
1 0 a a
a b 6
1 2 start end
start end 1000000000
```

```
1 2 start end
start end 999999999
1 2 start end
start end 999999998
1 2 a b
c d 10
1 2 a b
c b 10
1 2 a b
a d 10
6 5 zzafkarssgy nptck
zzafkarssgy phsxcs 3
phsxcs vpxzzlvkrkas 4
vpxzzlvkrkas nptck 2
zzafkarssgy httpvnk 5
httpvnk nptck 4
httpvnk vpxzzlvkrkas 3
```

~ Remaining test cases are very long, please view the judge's data file, ~

Test Output To Screen:

```
Case #1: 24
Case #2: 78
Case #3: 69
Case #4: 0
Case #5: 1
Case #6: 999999999
Case #7: 899999999
Case #8: IMPOSSIBLE
Case #9: IMPOSSIBLE
Case #10: IMPOSSIBLE
Case #11: 9
Case #12: 133
Case #13: 11
Case #14: 499
Case #15: 2000000000
Case #16: 47080660
Case #17: IMPOSSIBLE
Case #18: 40878198
Case #19: 644263045
Case #20: 310530166
Case #21: 2759492
Case #22: 655499
```