

Component	Points
<code>csce322homework03part01.hs</code>	
Test Cases	$30 \times 1$
Compilation	10
Total	40
<code>csce322homework03part02.hs</code>	
Test Cases	$10 \times 1$
Compilation	10
Total	20
<code>csce322homework03part03.hs</code>	
Test Cases	$30 \times 1$
Compilation	10
Total	40
Total	100%

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# Chapter 1

## Metadata

### 1.1 Submitted Files

handin.time

```
1 03/10/2016 23:12:43 kmahlin: csce322homework03part03.hs - OK
2 03/10/2016 23:12:45 kmahlin: csce322homework03part01.hs - OK
3 03/10/2016 23:12:46 kmahlin: csce322homework03part02.hs - OK
4 03/10/2016 23:12:48 kmahlin: Helpers.hs - OK
```

### 1.2 webgrader Runs

webgrader.time

```
1 2016-03-10T23:11:34-0600 76.84.123.250 kmahlin 03
```

### 1.3 diffs

submission.diffs

```
1 csce322homework03/kmahlin/03/part03test29.diff
```

## Chapter 2

# webgrader Run

Unsuccessful webgrader Report Generation

# Chapter 3

## csce322homework03part01.hs

### 3.1 part01test01

#### 3.1.1 Diff

part01test01.diff

#### 3.1.2 Input File

part01test01.g

```
(
[
"xxxxxxxxxxxxxxxxxx",
"xx-----xx",
"x-----g-----x",
"x-----1---x-x",
"x---x-----x",
"x-xxx--x--x--x",
"x-----x",
"x-----x",
"x---xx-----x",
"x-----xx-xxx",
"x-x-----x-xx",
"x-----x",
"x-----x--x",
"x-----x-x",
"xxxxxxxxxxxxxxxxxx"
],
[
"c",
"180"
]
)
```

#### 3.1.3 Submission Output

part01test01.output

```
"Result "
"xxxxxxxxxxxxxxxxxx"
"x-----xx"
"x---x---x---x"
"x-----x---x"
"x-----xx---x"
"x-----x-----x"
"x-----x-----g-x"
```

```

"x-----x---x"
"x-----x"
"x---x-----x"
"x---x---x---x"
"x-x-x-----1--x"
"xx---x-----x--x"
"x---xx-----xx"
"xxxxxxxxxxxxxxxx"
"

```

### 3.1.4 Solution Output

part01test01.output

```

"Result"
"xxxxxxxxxxxxxxxx"
"x-----xx"
"x---x---x---x"
"x-----x---x"
"x-----xx---x"
"x---x-----x"
"x---x---x---g-x"
"x-----x---x"
"x-----x"
"x---x-----x"
"x---x---x---x"
"x-x-x-----1--x"
"xx---x-----x--x"
"x---xx-----xx"
"xxxxxxxxxxxxxxxx"
"

```

### 3.1.5 stderr

part01test01.err

## 3.2 part01test02

### 3.2.1 Diff

part01test02.diff

### 3.2.2 Input File

part01test02.g

```

(
[
"xxxxxxxxxxxxxxxx",
"x-1-----xxx",
"x-x-----x-x",
"x-----x--x",
"x-----x--x",
"x-----x",
"x-----xgx",
"x-----xx",
"x-----x",
"xx---x---x",
"xxxxxxxxxxxxxxxx"
],
[

```

```

"c",
"cc",
"c",
"c",
"cc",
"180",
"cc",
"cc",
"cc",
"c",
"cc",
"180",
"180",
"c",
"c",
"cc",
"180",
"c"
]
)

```

### 3.2.3 Submission Output

part01test02.output

```

"Result "
"xxxxxxxxxxxxx"
"xx-----x"
"x-----x-x"
"x-----x"
"x-----x"
"xx-----x"
"x-----x"
"x-----xx-1x"
"x--x---xxx"
"x--xg----xx"
"xxxxxxxxxxxxx"
"

```

### 3.2.4 Solution Output

part01test02.output

```

"Result "
"xxxxxxxxxxxxx"
"xx-----x"
"x-----x-x"
"x-----x"
"x-----x"
"xx-----x"
"x-----x"
"x-----xx-1x"
"x--x---xxx"
"x--xg----xx"
"xxxxxxxxxxxxx"
"

```

### 3.2.5 stderr

part01test02.err

### 3.3 part01test03

#### 3.3.1 Diff

part01test03.diff

#### 3.3.2 Input File

part01test03.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxx",  
"x-x--x-----gx---x",  
"x-x--x-----x",  
"x-x-----x--x",  
"x-xx-----xx-----x",  
"x-----x",  
"x-----x-x",  
"x-----xx",  
"x--x-----1---x",  
"xxxxxxxxxxxxxxxxxxxx",  
],  
[  
"cc",  
"c",  
"c",  
"c",  
"cc",  
"c",  
"180",  
"c",  
"cc",  
"cc",  
"cc",  
"c",  
"cc",  
"180",  
"c"  
]  
)
```

#### 3.3.3 Submission Output

part01test03.output

```
"Result "  
"xxxxxxxxxxxx"  
"x-----x-x"  
"x-----x--x"  
"x--x-----x"  
"xx-----x"  
"xg-----x"  
"x-----x"  
"x--x-----x"  
"x--x-----x"  
"x-----x"  
"x-----x"  
"xxx-----x"  
"x-----1x"  
"x--x---xx"
```

```
"xxxxx ----x"
"x-----x"
"xxxxxxxxxxx"
"
```

### 3.3.4 Solution Output

part01test03.output

```
"Result"
"xxxxxxxxxxx"
"x-----x-x"
"x-----x--x"
"x--x-----x"
"xx-----x"
"xg-----x"
"x-----x"
"x---x-----x"
"x---x-----x"
"x-----x"
"x-----x"
"xxx-----x"
"x-----1x"
"x---x---xx"
"xxxxx-----x"
"x-----x"
"xxxxxxxxxxx"
"
```

### 3.3.5 stderr

part01test03.err

## 3.4 part01test04

### 3.4.1 Diff

part01test04.diff

### 3.4.2 Input File

part01test04.g

```
(
[
"xxxxxxxxxxxxxxxxxxx",
"x-x-----xx",
"x-----x",
"x---x---x-----x",
"x---x--1-----x",
"xx-----x-x",
"x-----x-----x",
"x--x-----x",
"x-----x-----x-x",
"x-x---x-----x",
"xx--x-----x---xx",
"x---x-----x---x",
"x-----x-----x-x",
"x-----x-----x",
"x---x---x-x-x-x",
"x---x-gx--x-xx-x",
```



```

"xxxxxxxxxxxxxxxxxxxxx "
],
[
"c ",
"c ",
"180 ",
"180 ",
"cc ",
"180 ",
"180 ",
"cc ",
"180 ",
"180 ",
"c ",
"c ",
"180 ",
"c ",
"180 ",
"180 ",
"180 ",
"cc ",
"c ",
"cc "
]
)

```

### 3.4.3 Submission Output

part01test04.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx "
"x-----x-----x-----x "
"x-----x-----xx "
"x-----x-----x "
"xxx--xx-----x---x "
"x-----x---x "
"xg--x---x-----x "
"xx-----x-----x "
"x-----x "
"x-x-----x--x--x "
"xx-x--x-----x "
"x-----x "
"xxx-xx-----x---x "
"xx-----x-----x "
"x-----x-----1--xx "
"xxxxxxxxxxxxxxxxxxxxx "
" "

```

### 3.4.4 Solution Output

part01test04.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx "
"x-----x-----x-----x "
"x-----x-----xx "
"x-----x-----x "
"xxx--xx-----x---x "
"x-----x---x "
"xg--x---x-----x "
"xx-----x-----x "

```

```

"x-----x"
"x-x-----x--x--x"
"xx-x--x-----x"
"x-----x"
"xxx-xx-----x-----x"
"xx-----x-----x"
"x-----x-----1--xx"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 3.4.5 stderr

part01test04.err

## 3.5 part01test05

### 3.5.1 Diff

part01test05.diff

### 3.5.2 Input File

part01test05.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxx",
"x-----x---xx",
"x---xx-----x",
"xx---xgxx-----x-x",
"x----1---x-xx--x",
"x-----x-x-x-x",
"x-----x---x---x",
"x-----x---x",
"x-----x---x",
"x-----x-x",
"x-----xx-----x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"180",
"180",
"c",
"180",
"cc",
"c",
"cc",
"180",
"cc",
"180",
"180",
"180",
"c",
"cc",
"180",
"cc"
]
)

```

### 3.5.3 Submission Output

part01test05.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxx "  
"x-----xx-----x "  
"x-x-----x "  
"x---x-----x "  
"x---x---x-----x "  
"x-x-x-x-----x "  
"x--xx-x---1-----x "  
"x-x-----xxgx---xx "  
"x-----xx---x "  
"xx---x-----x "  
"xxxxxxxxxxxxxxxxxxx "  
"
```

### 3.5.4 Solution Output

part01test05.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxx "  
"x-----xx-----x "  
"x-x-----x "  
"x---x-----x "  
"x---x---x-----x "  
"x-x-x-x-----x "  
"x--xx-x---1-----x "  
"x-x-----xxgx---xx "  
"x-----xx---x "  
"xx---x-----x "  
"xxxxxxxxxxxxxxxxxxx "  
"
```

### 3.5.5 stderr

part01test05.err

## 3.6 part01test06

### 3.6.1 Diff

part01test06.diff

### 3.6.2 Input File

part01test06.g

```
(  
[  
"xxxxxxxxxxxxxxxxx",  
"x----x----gx",  
"xxxx-----x",  
"x--x-----x-x",  
"x----1-----x",  
"x---xx-----x",  
"x-----x--xx",  
"x-----x",  
"x-----x",  
"x--x--x----x",  
"xxxxxxxxxxxxxxxxx"  
],
```

```
[
"180",
"c",
"c",
"cc",
"cc",
"180",
"c",
"c",
"cc",
"cc",
"c",
"cc",
"180",
"c",
"c",
"c"
]
)
```

### 3.6.3 Submission Output

part01test06.output

```
"Result "
"xxxxxxxxxxxxxx"
"x----x--x--x"
"x-----x"
"x-----x"
"xx--x-----x"
"x-----xx---x"
"x-----x"
"x-x-----x--x"
"x-----1-xxxx"
"xg----x----x"
"xxxxxxxxxxxxxx"
""
```

### 3.6.4 Solution Output

part01test06.output

```
"Result "
"xxxxxxxxxxxxxx"
"x----x--x--x"
"x-----x"
"x-----x"
"xx--x-----x"
"x-----xx---x"
"x-----x"
"x-x-----x--x"
"x-----1-xxxx"
"xg----x----x"
"xxxxxxxxxxxxxx"
""
```

### 3.6.5 stderr

part01test06.err

## 3.7 part01test07

### 3.7.1 Diff

part01test07.diff

### 3.7.2 Input File

part01test07.g

```
(
[
"xxxxxxxxxxxxxxxxxxx",
"x---x-----x",
"x-----x---x",
"x-----x",
"x-----x",
"x----xx----x-x",
"x-----x--x",
"x-xx---x----x",
"x---x-----x",
"x--x-----x",
"xxx-x----xx--x",
"x-----x--x--x",
"x-x-----x",
"x-----1-x-x--x",
"x-----x",
"xx-----x",
"x-----x--xxx",
"x--x-x---x---x",
"x--x-----g-xx",
"xxxxxxxxxxxxxxxxxxx"
],
[
"180",
"180",
"cc",
"cc",
"cc",
"180",
"180",
"cc",
"180",
"180",
"180",
"cc",
"180",
"c",
"cc",
"c",
"cc",
"c",
"cc"
]
)
```

### 3.7.3 Submission Output

part01test07.output

```
"Result "
"xxxxxxxxxxxxxxxxxxx"
```

```

"xx-g-----x---x"
"x---x---x-x--x"
"xxx--x-----x"
"x-----xx"
"x-----x"
"x--x-x-----x"
"x-----1---x-x"
"x--x---x-----x"
"x--xx---x-xxx"
"x-----x--x"
"x-----x----x"
"x-----x---xx-x"
"x--x-----x"
"x-x---xx-----x"
"x-----x"
"x----x-----x"
"x-----x---x"
"xxxxxxxxxxxxxxxx"
" "

```

### 3.7.4 Solution Output

part01test07.output

```

"Result"
"xxxxxxxxxxxxxxxx"
"xx-g-----x---x"
"x---x---x-x--x"
"xxx--x-----x"
"x-----xx"
"x-----x"
"x--x-x-----x"
"x-----1---x-x"
"x--x---x-----x"
"x--xx---x-xxx"
"x-----x--x"
"x-----x----x"
"x-----x---xx-x"
"x--x-----x"
"x-x---xx-----x"
"x-----x"
"x----x-----x"
"x-----x---x"
"xxxxxxxxxxxxxxxx"
" "

```

### 3.7.5 stderr

part01test07.err

## 3.8 part01test08

### 3.8.1 Diff

part01test08.diff

### 3.8.2 Input File

part01test08.g

(

```
[
"xxxxxxxxxxxxx",
"x-----xx--x",
"xx-----x---x",
"xx-----x-x",
"x1-----x",
"x--x----gx",
"x----x-xx-x",
"x-----x---x",
"xx--x---x-x",
"x-----x",
"x-----x-x",
"x----x----x",
"x-----x-x",
"xxxxxxxxxxxxx"
],
[
"c",
"c",
"c",
"cc",
"c",
"180",
"cc",
"cc",
"cc",
"180",
"180"
]
)
```

### 3.8.3 Submission Output

part01test08.output

```
"Result "
"xxxxxxxxxxxxxxx"
"x----x-----xx-x"
"x-----x"
"x-----x"
"x----x--x----x"
"x-x-----x-----x"
"x-----x----xxx"
"x-----x----xx"
"xx-x-x-x--x--x"
"x-----g1---x"
"xxxxxxxxxxxxxxx"
"
```

### 3.8.4 Solution Output

part01test08.output

```
"Result "
"xxxxxxxxxxxxxxx"
"x----x-----xx-x"
"x-----x"
"x-----x"
"x----x--x----x"
"x-x-----x-----x"
"x-----x----xxx"
"x-----x----xx"
```

### 3.8.5 stderr

### 3.9 part01test09

part01test09.diff

part01test09.g

### 3.9.3 Submission Output

24



```

"x---xx-----x"
"xx-----x"
"xx-----x--xx"
"x-----x-x-xx"
"x--x-----x"
"x-g-----x"
"x----x-----x"
"x1-----xx"
"xxxxxxxxxxxxx"
" "

```

### 3.9.4 Solution Output

part01test09.output

```

"Result"
"xxxxxxxxxxxxx"
"x-----x"
"xx-----x--x"
"x-----x"
"x-----x-x"
"x---xx-----x"
"xx-----x"
"xx-----x--xx"
"x-----x-x-xx"
"x--x-----x"
"x-g-----x"
"x----x-----x"
"x1-----xx"
"xxxxxxxxxxxxx"
" "

```

### 3.9.5 stderr

part01test09.err

## 3.10 part01test10

### 3.10.1 Diff

part01test10.diff

### 3.10.2 Input File

part01test10.g

```

(
[
"xxxxxxxxxxxxx",
"xx-----g--x",
"x-1-x-----x",
"x-----x",
"x-----x---x",
"x---x-x-x--x",
"x----x-----x",
"x----x-----x",
"x---x-----x",
"xxxxxxxxxxxxx"
],
[
" c ",

```

```

"180",
"c",
"cc",
"180",
"c",
"c",
"180",
"c",
"c",
"cc",
"cc",
"cc",
"180",
"180"
]
)

```

### 3.10.3 Submission Output

part01test10.output

```

"Result "
"xxxxxxxxxxx"
"x-----xx"
"x-----x"
"x-----1-x"
"xx--x--x-x"
"x-xx-----x"
"x--x-----x"
"x----x---x"
"x----x---gx"
"x-----x"
"x-----x"
"xxxxxxxxxxx"
"

```

### 3.10.4 Solution Output

part01test10.output

```

"Result "
"xxxxxxxxxxx"
"x-----xx"
"x-----x"
"x-----1-x"
"xx--x--x-x"
"x-xx-----x"
"x--x-----x"
"x----x---x"
"x----x---gx"
"x-----x"
"x-----x"
"xxxxxxxxxxx"
"

```

### 3.10.5 stderr

part01test10.err

## 3.11 part01test11

### 3.11.1 Diff

### 3.11.2 Input File

part01test11.g

```
(
[
"xxxxxxxxxxxxxxxxxxxx",
"x-----x-----x--x",
"xg-----x-----x-x",
"x-----x-----x",
"x-----x---x-x-xx",
"x-----x-x-----xx",
"x-x-----x---x-x",
"x---x-x-----x",
"x---x---1--x-xx",
"x-----x-----xx",
"x-----x--x",
"xxxxxxxxxxxxxxxxxxxx"
],
[
"c",
"180",
"cc",
"cc"
]
)
```

### 3.11.3 Submission Output

part01test11.output

```
"Result "
"xxxxxxxxxxxxxxxx"
"x-----g-x"
"x-----x"
"x-----x"
"x--xx-----x"
"x-----x"
"x-x-x-xx-xxx"
"x-----x--x"
"x-----x---x"
"x-----x---x"
"x-----x---x"
"x--1-----xx"
"xx-x---x---x"
"x-----x---x"
"x-xx--xx---x"
"xxxxxxxxxxxxxxxx"
"
```

### 3.11.4 Solution Output

part01test11.output

```
"Result "
"xxxxxxxxxxxxxxxx"
"x-----g-x"
"x-----x"
"x-----x"
"x--xx-----x"
```

```

"x-----x"
"x-x-x-xx-xxx"
"x-----x--x"
"x-----x----x"
"x-----x-----x"
"x-----x----x"
"x-----x----x"
"x--1-----xx"
"xx-x---x---x"
"x-----x---x-x"
"x-xx--xx---x"
"xxxxxxxxxxxxx"
" "

```

### 3.11.5 stderr

part01test11.err

## 3.12 part01test12

### 3.12.1 Diff

part01test12.diff

### 3.12.2 Input File

part01test12.g

```

(
[
"xxxxxxxxxxxxxxxxx",
"x-----xx--x--x",
"x-----x---x",
"xx-----x-----x",
"xx-----x-----x",
"x-----x-----x",
"x-x-----xx",
"x-xx-----xx",
"x-x-x-----x--x",
"x-----xx",
"x-----x",
"x--x-----x",
"x-----g-x",
"x-----1--x-x",
"xxxxxxxxxxxxxxxxx"
],
[
"c"
]
)

```

### 3.12.3 Submission Output

part01test12.output

```

"Result"
"xxxxxxxxxxxxxxxxx"
"x-----xx--x"
"x-----xxx-----x"
"x--x---x-----x"
"x-----x-----x"
"x-----x"

```

```
"x-----xx"
"x-----x-xx"
"x-----x---x"
"x-----x-x"
"x1----x-----xx"
"xxg-----x"
"x----x-xx-----x"
"xxxxxxxxxxxxxxxx"
"
```

### 3.12.4 Solution Output

part01test12.output

```
"Result"
"xxxxxxxxxxxxxxxx"
"x-----xx--x"
"x-----xxx-----x"
"x--x---x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----xx"
"x-----x-xx"
"x-----x----x"
"x-----x-x"
"x1----x-----xx"
"xxg-----x"
"x----x-xx-----x"
"xxxxxxxxxxxxxxxx"
"
```

### 3.12.5 stderr

part01test12.err

## 3.13 part01test13

### 3.13.1 Diff

part01test13.diff

### 3.13.2 Input File

part01test13.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----x-x--x",
"x-x-x---x--x",
"x---x-----x",
"x-----x",
"x-----x-x",
"x-1-----xx",
"xx-----xx",
"xx----x----x",
"x-----g----x",
"x--x--x----x",
"xxxxxxxxxxxxxxxx"
],
[
```

```

"c",
"c",
"180",
"180",
"180",
"180",
"cc",
"cc",
"180",
"180",
"c",
"cc",
"180",
"180",
"cc"
]
)

```

### 3.13.3 Submission Output

part01test13.output

```

"Result "
"xxxxxxxxxxxxxx"
"x--xx-----x"
"x-----x-x"
"xx-----x"
"x-----xx-x"
"x-----x----x"
"xxgx-----xx"
"x-----x"
"x-----xxx"
"x----1x----x"
"x---xx-----x"
"xxxxxxxxxxxxxx"
"

```

### 3.13.4 Solution Output

part01test13.output

```

"Result "
"xxxxxxxxxxxxxx"
"x--xx-----x"
"x-----x-x"
"xx-----x"
"x-----xx-x"
"x-----x----x"
"xxgx-----xx"
"x-----x"
"x-----xxx"
"x----1x----x"
"x---xx-----x"
"xxxxxxxxxxxxxx"
"

```

### 3.13.5 stderr

part01test13.err

## 3.14 part01test14

### 3.14.1 Diff

part01test14.diff

### 3.14.2 Input File

part01test14.g

```
(  
[  
"xxxxxxxxxxxxxxxxxx",  
"x----x-----xx",  
"x-----xx-----x",  
"x-----x",  
"xx-----x-----x",  
"x-----1--x",  
"x-x-----x",  
"x-----x",  
"xx--x-----x",  
"x-----x",  
"x-----x--x",  
"x-----xg---x",  
"x-x-----x--x",  
"x-----x",  
"x-x-----x--x",  
"xx-----x--x",  
"x----xxx----x",  
"x-----x----x",  
"x--x--x--x--x",  
"xxxxxxxxxxxxxxxxxx",  
],  
[  
"c",  
"c",  
"180"  
]  
)
```

### 3.14.3 Submission Output

part01test14.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxxxxxx"  
"x--x-----x--x--x"  
"x--x-x-----x-----x"  
"x-----x"  
"xx-----x-----x"  
"x--x-----xxx"  
"x--x-----x-x-x"  
"x-xx----x-----x"  
"xx-----gx-----x"  
"x--xx-x-----x"  
"x-----x"  
"x-----1---xx"  
"xxxxxxxxxxxxxxxxxxxxxxxxxx"  
"
```

### 3.14.4 Solution Output

part01test14.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"x---x-----x---x---x"
"x----x-x-----x-----x"
"x-----x-----x-----x"
"xx-----x-----x-----x"
"x--x-----x-----xxx"
"x--x-----x-----x-x-x"
"x-xx----x-----x-----x"
"xx-----gx-----x-----x"
"x---xx-x-----x-----x"
"x-----x-----x-----x"
"x-----x-----1---xx"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 3.14.5 stderr

part01test14.err

## 3.15 part01test15

### 3.15.1 Diff

part01test15.diff

### 3.15.2 Input File

part01test15.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxxxxx",
"xx-----x-xg-----x",
"x-----x-----x",
"x-----x-x-----x",
"x--x-----x-x---x",
"x--x--xx-----x",
"x-----x-----x",
"x-----x---x",
"x-----x--x---1xxx",
"x-----x-----x",
"x-----xxx-----x",
"x--x-xx--xx-----x",
"xxxxxxxxxxxxxxxxxxxxxxxxx"
],
[
"cc",
"c",
"cc",
"c",
"c",
"180",
"180",
"c",
"c",
"c",
"cc",
"cc",

```



```
"c"
]
)
```

### 3.15.3 Submission Output

part01test15.output

```
"Result "
"xxxxxxxxxxxxxxxxx"
"x-----x---x"
"x-----x---x"
"x-----x---x"
"x---x-----x"
"x-----x"
"x---x---1---x"
"xg-----x---x"
"xx-x-----xxx"
"x-----xxx"
"xx-x---x-x-x"
"x---x-----x"
"x---x-----xx"
"x-----xx"
"x-----x"
"x---xx-----xx"
"x-----x"
"xx-----x"
"xxxxxxxxxxxxxxxxx"
"
```

### 3.15.4 Solution Output

part01test15.output

```
"Result "
"xxxxxxxxxxxxxxxxx"
"x-----x---x"
"x-----x---x"
"x-----x---x"
"x---x-----x"
"x-----x"
"x---x---1---x"
"xg-----x---x"
"xx-x-----xxx"
"x-----xxx"
"xx-x---x-x-x"
"x---x-----x"
"x---x-----xx"
"x-----xx"
"x-----x"
"x---xx-----xx"
"x-----x"
"xx-----x"
"xxxxxxxxxxxxxxxxx"
"
```

### 3.15.5 stderr

part01test15.err

## 3.16 part01test16

### 3.16.1 Diff

part01test16.diff

### 3.16.2 Input File

part01test16.g

```
(
[
"xxxxxxxxxxxxxxxxxxxx",
"x--x-----x-x-----x",
"x-----x-----x",
"xx---x-----xx",
"x---x-----xx-xx",
"x--g-----xx",
"x-----x---x",
"x-x-x-----x-xx",
"x-x--x-----x---x",
"x-x-----xx",
"xx----1x-----x",
"x-xx-----x",
"x-xx-----x",
"x-----x-----x",
"x-----x",
"xxxxxxxxxxxxxxxxxxxx",
],
[
"c",
"180",
"180",
"cc",
"c",
"c",
"180",
"cc",
"180",
"c",
"180",
"c",
"cc",
"cc"
]
)
```

### 3.16.3 Submission Output

part01test16.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxx"
"x----x-----x--x"
"x--xx-xxx-----x"
"x--xx-----g---xx"
"x-----x--x---x"
"x-----x---x--x"
"x----1-----x"
"x-x--x-----x"
"x-----xx"
```

```

"x-----x "
"x-----xxx "
"x-----x-x-x---x "
"x-----x--x---x "
"x-----x "
"x-----x "
"x-----x-x-xxx--x "
"xxxxxxxxxxxxxxxx "
" "

```

### 3.16.4 Solution Output

part01test16.output

```

"Result "
"xxxxxxxxxxxxxxxx "
"x-----x-----x--x "
"x--xx-xxx-----x "
"x--xx-----g---xx "
"x-----x--x---x "
"x-----x----x--x "
"x----1-----x "
"x-x--x-----x "
"x-----xx "
"x-----x "
"x-----xxx "
"x-----x-x-x---x "
"x-----x--x---x "
"x-----x "
"x-----x-x-xxx--x "
"xxxxxxxxxxxxxxxx "
" "

```

### 3.16.5 stderr

part01test16.err

## 3.17 part01test17

### 3.17.1 Diff

part01test17.diff

### 3.17.2 Input File

part01test17.g

```

(
[
"xxxxxxxxxxxxxxxx ",
"xxxx-x-----x----x ",
"x--x-----xx-x ",
"x-----xx----x-x ",
"xx-----x--x---x ",
"xx-----x ",
"x---x-----xx ",
"x-----x-x ",
"x--x-----x----x ",
"xx-gx----x--x---x ",
"x-x--x---x--x---x ",
"x----xx--1-----x ",
"x-----x-----x ",

```

```

"x-----x",
"x-----x",
"x-xx-x---xx---x",
"xxx-----x-x",
"xxxxxxxxxxxxxxxxx",
],
[
"180",
"cc",
"cc",
"cc",
"c",
"cc",
"cc",
"cc",
"cc",
"180",
"cc",
"c",
"c",
"cc",
"180",
"cc",
"c",
"180",
"cc",
"cc"
]
)

```

### 3.17.3 Submission Output

part01test17.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x-x-----xxx"
"x---xx---x-xx-x"
"x-----x"
"x-----x"
"x-----x-----x"
"x-----1--xx-----x"
"x--x--x---x--x-x"
"x--x--x---xg-xx"
"x---x-----x--x"
"x-x-----x"
"xx-----x--x"
"x-----xx"
"x--x--x-----xx"
"x-x---xx-----x"
"x-xx-----x--x"
"x---x---x-xxxx"
"xxxxxxxxxxxxxxxxx"
""

```

### 3.17.4 Solution Output

part01test17.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x-x-----xxx"
"x---xx---x-xx-x"

```

```

"x-----x "
"x-----x "
"x-----x-----x "
"x-----1--xx-----x "
"x--x--x--x--x--x--x "
"x--x--x--x--xg--xx "
"x--x--x-----x--x "
"x-x-----x "
"xx-----x--x "
"x-----xx "
"x--x--x-----xx "
"x-x-----xx-----x "
"x-xx-----x--x "
"x--x-----x-xxxx "
"xxxxxxxxxxxxxxxxxxxx "
" "

```

### 3.17.5 stderr

part01test17.err

## 3.18 part01test18

### 3.18.1 Diff

part01test18.diff

### 3.18.2 Input File

part01test18.g

```

(
[
"xxxxxxxxxxxxxxxxxxxx " ,
"x-----x " ,
"x-----x-----x " ,
"x-----x " ,
"x-----x--x--x " ,
"x-----x--x " ,
"x-x-----x-----x " ,
"x-----x-----x " ,
"x-----x--xx " ,
"x-x-----x-1--x " ,
"x-----g-----x " ,
"xxxxxxxxxxxxxxxxxxxx "
] ,
[
"180" ,
"c "
]
)

```

### 3.18.3 Submission Output

part01test18.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxx "
"x-----g-----x "
"x-----x-----x--x "
"xx---x-----x "

```

```

"x-----x-----x"
"x---1--x-----x-x"
"x---x-----x"
"x-x--x-----x"
"x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"xxxxxxxxxxxxxxxxxxx"
"

```

### 3.18.4 Solution Output

part01test18.output

```

"Result"
"xxxxxxxxxxxxxxxxxxx"
"x-----g-----x"
"x-----x-----x-x"
"xx---x-----x"
"x-----x-----x"
"x---1--x-----x-x"
"x---x-----x"
"x-x--x-----x"
"x-----x"
"x-----x-----x"
"x-----x-----x"
"xxxxxxxxxxxxxxxxxxx"
"

```

### 3.18.5 stderr

part01test18.err

## 3.19 part01test19

### 3.19.1 Diff

part01test19.diff

### 3.19.2 Input File

part01test19.g

```

(
[
"xxxxxxxxxxxxxxxxxxx",
"x-----x-----x",
"xxxx-----x",
"xxgx-x-----x",
"x---x--xx-----xx",
"x---1-----x",
"x--x--x--x-----x",
"x-x-xx-----x",
"x-----x--x-xx",
"x---xx-----x",
"x-----x",
"xx-----x-----x",
"x-----x--x--x",
"xxxxxxxxxxxxxxxxxxx"
],
[

```

```

"180",
"180",
"c",
"c",
"cc",
"180",
"c",
"180",
"180",
"c",
"cc",
"180",
"180",
"180",
"180"
]
)

```

### 3.19.3 Submission Output

part01test19.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----x"
"x-----x-----xx"
"x-----x"
"x---x-----xx---x"
"xx-x--x-----x"
"x-----xx-x-x"
"x-----x--x--x"
"x-----1----x"
"xx-----xx--x----x"
"x-----x-xgxx"
"x-----xxxx"
"x-----x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 3.19.4 Solution Output

part01test19.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----x"
"x-----x-----xx"
"x-----x"
"x---x-----xx---x"
"xx-x--x-----x"
"x-----xx-x-x"
"x-----x--x--x"
"x-----1----x"
"xx-----xx--x----x"
"x-----x-xgxx"
"x-----xxxx"
"x-----x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 3.19.5 stderr

part01test19.err

## 3.20 part01test20

### 3.20.1 Diff

part01test20.diff

### 3.20.2 Input File

part01test20.g

```
(  
[  
"xxxxxxxxxxxxxx",  
"xx---x-----x",  
"x-----x--x",  
"x----x-----x",  
"xx--x-----x",  
"x--x-1-x--xx",  
"xx-----x",  
"x-x-----x",  
"x-----x-xxx",  
"x----x-----x",  
"x--x---x-gx",  
"x-----x-x-x",  
"x---xx-----x",  
"xxxxxxxxxxxxxx"  
],  
[  
"180",  
"180",  
"c",  
"cc",  
"180",  
"cc"  
]  
)
```

### 3.20.3 Submission Output

part01test20.output

```
"Result "  
"xxxxxxxxxxxxxx"  
"x-----xx---x"  
"x-x-x-----x"  
"xg-x---x---x"  
"x-----x-----x"  
"xxx-x-----x"  
"x-----x-x"  
"x-----xx"  
"xx--x---x--x"  
"x-----1x--xx"  
"x-----x-----x"  
"x--x-----x"  
"x-----x---xx"  
"xxxxxxxxxxxxxx"  
"
```

### 3.20.4 Solution Output



part01test20.output

```
"Result "  
"xxxxxxxxxxxxxx "  
"x-----xx---x "  
"x-x-x-----x "  
"xg-x---x---x "  
"x-----x---x "  
"xxx-x-----x "  
"x-----x-x "  
"x-----xx "  
"xx--x---x--x "  
"x-----1x--xx "  
"x-----x---x "  
"x--x-----x "  
"x-----x---xx "  
"xxxxxxxxxxxxxx "  
"
```

### 3.20.5 stderr

part01test20.err

## 3.21 part01test21

### 3.21.1 Diff

part01test21.diff

### 3.21.2 Input File

part01test21.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"xx---x-1-x-----x--x",  
"x---x-----x---xx",  
"xx-x---x--xx---g---x",  
"xx-----x-x",  
"x-----x---x-----x",  
"x---x--x-----xx-x",  
"x-----x---x---x",  
"x-----x--x-----x",  
"xx--x-----x-----x",  
"xx---x---x-----x",  
"x---x-----x-x-x",  
"xx-xx-x---x--x---xx",  
"x-----x---x---x-x",  
"x-----x-x-----x",  
"xxxxxxxxxxxxxxxxxxxxxx",  
],  
[  
"180",  
"c"  
]  
)
```

### 3.21.3 Submission Output

part01test21.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"x-----x-x-----x"
"x-x---x---x-----x"
"xx----x--x---x-xx-xx"
"x-x-x-----x-----x"
"x-----x---x-----xx"
"x-----x-----x--xx"
"x-----x--x-----x"
"x----x-----x-----x"
"x-xx-----x--x-----x"
"x-----x---x-----x"
"x-x-----x-----xx"
"x---g---xx--x---x-xx"
"xx---x-----x-----x"
"x--x-----x-1-x-----xx"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 3.21.4 Solution Output

part01test21.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"x-----x-x-----x"
"x-x---x---x-----x"
"xx----x--x---x-xx-xx"
"x-x-x-----x-----x"
"x-----x---x-----xx"
"x-----x-----x--xx"
"x-----x--x-----x"
"x----x-----x-----x"
"x-xx-----x--x-----x"
"x-----x---x-----x"
"x-x-----x-----xx"
"x---g---xx--x---x-xx"
"xx---x-----x-----x"
"x--x-----x-1-x-----xx"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 3.21.5 stderr

part01test21.err

## 3.22 part01test22

### 3.22.1 Diff

part01test22.diff

### 3.22.2 Input File

part01test22.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----xx--x",
```

```

"x--1x---x-xx",
"x-x-----x",
"x-x-----x-x",
"x--x--x----x",
"x----x--g--x",
"xx-x---xx--x",
"x-x-x-x----x",
"x---x-xx---x",
"x-----x----x",
"xxxxxxxxxxxxx"
],
[
"c",
"c"
]
)

```

### 3.22.3 Submission Output

part01test22.output

```

"Result "
"xxxxxxxxxxxxx"
"x---x-----x"
"x--x---xx--x"
"x---x-x--1-x"
"x-xx-----x-x"
"x-----x-----x"
"xxxx--x----x"
"x-x-x-----xx"
"x---xg---xxx"
"x-----x---x"
"x-----x-x"
"xxxxxxxxxxxxx"
"

```

### 3.22.4 Solution Output

part01test22.output

```

"Result "
"xxxxxxxxxxxxx"
"x---x-----x"
"x--x---xx--x"
"x---x-x--1-x"
"x-xx-----x-x"
"x-----x-----x"
"xxxx--x----x"
"x-x-x-----xx"
"x---xg---xxx"
"x-----x---x"
"x-----x-x"
"xxxxxxxxxxxxx"
"

```

### 3.22.5 stderr

part01test22.err

## 3.23 part01test23

### 3.23.1 Diff

### 3.23.2 Input File

part01test23.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"xx-----xx-xx--xx",
"x-----x--x",
"xx-----x---x-x",
"x-----x-----x",
"x-----xx",
"x-----x---x--x",
"x--x-----x",
"xxx-x-x-x-x-----x",
"x-1-x-----xx-x",
"x-xx---x-----x--x",
"xx-----x--xx-----x",
"x-----x---x---x",
"x-----x-----x",
"x--x-g-----xx",
"x-----x",
"x-----x",
"xxxxxxxxxxxxxxxxxxxxxx"
],
[
"cc",
"cc",
"c",
"cc",
"cc",
"180",
"cc",
"c",
"c",
"c",
"cc",
"180",
"c",
"c",
"cc",
"cc"
]
)
```

### 3.23.3 Submission Output

part01test23.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"xx---x-----x--x"
"x--x-----x-----x"
"x-x---x--xx-----x"
"xx-----x-----x"
"xx-----x-----x"
"x--x-----x--x-x---x"
"xx---x-----xx"
"xx-----x-----x"
"x-----xxx-----x"
```

```

"x---x---x-----x"
"x-----g--x"
"x-----xxx-----x"
"x-----x---x--x"
"x-----x-x-----x"
"xx-x---x1-x-----x"
"xxxxxxxxxxxxxxxxxxx"
" "

```

### 3.23.4 Solution Output

part01test23.output

```

"Result "
"xxxxxxxxxxxxxxxxxxx"
"xx---x-----x--x"
"x--x-----x-----x"
"x-x---x--xx-----x"
"xx-----x-----x"
"xx-----x-----x"
"x--x---x--x-x---x"
"xx---x-----xx"
"xx-----x-----x"
"x-----xxx-----x"
"x--x---x-----x"
"x-----g--x"
"x-----xxx-----x"
"x-----x---x--x"
"x-----x-x-----x"
"xx-x---x1-x-----x"
"xxxxxxxxxxxxxxxxxxx"
" "

```

### 3.23.5 stderr

part01test23.err

## 3.24 part01test24

### 3.24.1 Diff

part01test24.diff

### 3.24.2 Input File

part01test24.g

```

(
[
"xxxxxxxxxxxxxxxx",
"x-x-----x",
"x-----x",
"x-----x",
"x-----xx",
"x-1-----x",
"x-gx-----x",
"xx-----xx-x",
"x-----x",
"x-----x",
"x-x-----x",
"x-----x",

```

```

"x--x-----x",
"xxxxxxxxxxxxx"
],
[
"c",
"cc",
"cc",
"180"
]
)

```

### 3.24.3 Submission Output

part01test24.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x-----x-----x"
"x--x---g----xx"
"xx-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----1x---x"
"xxxxxxxxxxxxxxxxx"
" "

```

### 3.24.4 Solution Output

part01test24.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x-----x-----x"
"x--x---g----xx"
"xx-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x"
"x-----1x---x"
"xxxxxxxxxxxxxxxxx"
" "

```

### 3.24.5 stderr

part01test24.err

## 3.25 part01test25

### 3.25.1 Diff

part01test25.diff

### 3.25.2 Input File

part01test25.g

(

```
[
"xxxxxxxxxxxxxxxxxxxxxxxx",
"x-----x-----xx",
"xx-----x-----xxx--x",
"xxxx-xxx-x--xx----xx",
"x-----x-x-x",
"x--g-----x--x--x",
"x--x-----x-x",
"x--x-x-----x",
"x-----x-----xx",
"x-----x--x-----xx",
"xx-----x----x-----xx",
"xx--1-----x-----x",
"xx---x-----x",
"x-----x--x",
"x-----x-----x-xx--x",
"xxxxxxxxxxxxxxxxxxxxxxxx",
],
[
"c",
"180",
"c",
"c",
"cc",
"cc",
"c",
"c",
"180",
"c",
"c",
"cc",
"cc",
"180",
"c",
"180",
"c",
]
)
```

### 3.25.3 Submission Output

part01test25.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x--xxx-----xx-x"
"x-----x--x"
"x-----x-g-x--x"
"x-----x-----x"
"x-----x--x--x"
"xx-x--x-----x--x"
"x-----xx-x"
"x---x-----xx"
"x-----x--x"
"x-----x"
"x-----x"
"x--1-----x-x--x"
"xx-xxx-----x--x"
"x-----x-x"
"xx-----xx-x-x"
"xxx-----x-x"
```

```
"x-----x-x--x"
"x----xxx----x-xx"
"xxxxxxxxxxxxxxxx"
"
```

### 3.25.4 Solution Output

part01test25.output

```
"Result"
"xxxxxxxxxxxxxxxx"
"x--xxx-----xx-x"
"x-----x--x"
"x-----x-g-x--x"
"x-----x-----x"
"x-----x---x--x"
"xx-x---x---x--x"
"x-----xx-x"
"x----x-----xx"
"x-----x--x"
"x----x-----x"
"x-----x"
"x---1-----x-x--x"
"xx--xxx-----x--x"
"x-----x-x"
"xx-----xx-x-x"
"xxx-----x-x"
"x-----x-x--x"
"x----xxx----x-xx"
"xxxxxxxxxxxxxxxx"
"
```

### 3.25.5 stderr

part01test25.err

## 3.26 part01test26

### 3.26.1 Diff

part01test26.diff

### 3.26.2 Input File

part01test26.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----x-----1-x--x",
"x-----x-----x---x",
"x-----x---xx",
"x-----xx--x",
"xx-----x---x",
"x-----x---x-xx",
"x-----x--x-----x",
"x-----x-----x",
"x--x-----x---xx",
"x--x-----x",
"xx--x-----xx-x--x",
"x--x-----x",

```



```

"x-----gxx-xx-x",
"xxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"c",
"cc",
"cc",
"cc",
"cc",
"c",
"cc",
"c"
]
)

```

### 3.26.3 Submission Output

part01test26.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxx"
"x-xx-xxg-----x"
"x-----x--x"
"x--x--xx----x---xx"
"x-----x--x"
"xx---x-----x--x"
"x-----x-----x"
"x-----x--x-----x"
"xx-x---x-----x"
"x--x-----xx"
"x--xx-----x"
"xx---x-----x"
"x---x-----x-----x"
"x--x-1-----x-----x"
"xxxxxxxxxxxxxxxxxxxx"
" "

```

### 3.26.4 Solution Output

part01test26.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxx"
"x-xx-xxg-----x"
"x-----x--x"
"x--x--xx----x---xx"
"x-----x--x"
"xx---x-----x--x"
"x-----x-----x"
"x-----x--x-----x"
"xx-x---x-----x"
"x--x-----xx"
"x--xx-----x"
"xx---x-----x"
"x---x-----x-----x"
"x--x-1-----x-----x"
"xxxxxxxxxxxxxxxxxxxx"
" "

```

### 3.26.5 stderr

part01test26.err

## 3.27 part01test27

### 3.27.1 Diff

part01test27.diff

### 3.27.2 Input File

part01test27.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"x-----x-----x-x",  
"x-----x-x",  
"xx-----g-----x-x",  
"x-----1--x-----x",  
"x-----x-----x-x",  
"x--x-----x--xx-----x",  
"x-x-----x-x-----x",  
"x--x-----x-----xx",  
"xxxxxxxxxxxxxxxxxxxxxx",  
],  
[  
"cc",  
"cc",  
"180",  
"c",  
"c",  
"180",  
"cc",  
"180",  
"cc",  
"cc",  
"cc",  
"cc",  
"cc",  
"cc"  
]  
)
```

### 3.27.3 Submission Output

part01test27.output

```
"Result "  
"xxxxxxxxxx"  
"x-----xx"  
"xxx--x---x"  
"x-----x"  
"x-----x"  
"x--x--x--x"  
"x-----xx-x"  
"x---x---x"  
"x----x-x-x"  
"x-----x-xx"  
"xx-g-----x"  
"x-----x"  
"x-----x"  
"x-----x"  
"x-----x-xx"  
"x-----x-x"
```

```
"x--x1----x"
"xxxxxxxxxxx"
"
```

### 3.27.4 Solution Output

part01test27.output

```
"Result "
"xxxxxxxxxxx"
"x-----xx"
"xxx--x---x"
"x-----x"
"x-----x"
"x--x--x--x"
"x-----xx-x"
"x---x-----x"
"x-----x-x-x"
"x-----x-xx"
"xx-g-----x"
"x-----x"
"x-----x"
"x-----x"
"x-----x-xx"
"x-----x-x"
"x--x1----x"
"xxxxxxxxxxx"
"
```

### 3.27.5 stderr

part01test27.err

## 3.28 part01test28

### 3.28.1 Diff

part01test28.diff

### 3.28.2 Input File

part01test28.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"xx-----xx-----x",
"x--x-x-----x--x",
"x--x-x-----x",
"x-x---x-----x",
"x-----g---x-----xxx",
"x-----x",
"x--x--x--x--xx--x",
"x-----x",
"xx-----x1-----xx",
"x--x-x-----x",
"xxxxxxxxxxxxxxxxxxxxxx",
],
[
"180",
"c",
]
```

```
"180",
"180",
"180",
"180",
"c",
"c",
"180",
"c",
"c",
"c",
"180"
]
)
```

### 3.28.3 Submission Output

part01test28.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x-----x-----x-x---x"
"xx-----x-----xx"
"x-----1-----x"
"x--xx-x---x---x---x"
"x-----x"
"xxx-----x---g-----x"
"x-----x-----x-x"
"x-----x-x---x"
"x--x-----x-x---x"
"x-----xx-----xx"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 3.28.4 Solution Output

part01test28.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x-----x-----x-x---x"
"xx-----x-----xx"
"x-----1-----x"
"x--xx-x---x---x---x"
"x-----x"
"xxx-----x---g-----x"
"x-----x-----x-x"
"x-----x-x---x"
"x--x-----x-x---x"
"x-----xx-----xx"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 3.28.5 stderr

part01test28.err

## 3.29 part01test29

### 3.29.1 Diff

part01test29.diff

### 3.29.2 Input File

part01test29.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"x--x-----x-x",  
"x--x-x-----x-x",  
"x----x-----x",  
"x-----x--x-xx",  
"x--x--x----xx-x",  
"x----x-----x-x",  
"x----x-----x-x",  
"xx-----x",  
"xx-----x--x",  
"x-----xxx-x",  
"x-----x-----xx",  
"x--x-----x",  
"x-x----1-----x",  
"x----x-----x",  
"x-----x",  
"xx-x-----x--x",  
"x-----x-x--x",  
"xg-----x--x--x",  
"xxxxxxxxxxxxxxxxxxxxxx",  
],  
[  
"180"  
]  
)
```

### 3.29.3 Submission Output

part01test29.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxx"  
"x--x--x-----gx"  
"x--x-x-----x"  
"x-----x-----x-xx"  
"x-----x"  
"x-----x-----x"  
"x-----x-x"  
"x-----x--x"  
"xx-----x-----x"  
"x-xxx-----x"  
"x--x-----xx"  
"x-----xx"  
"x-x-----x-----x"  
"x-x-----x-----x"  
"x--xx---x--x--x"  
"xx--x--x-----x"  
"x-----x-----x"  
"x--x-----x-x--x"  
"x--x----1---x--x"  
"xxxxxxxxxxxxxxxxxxxxxx"  
"
```

### 3.29.4 Solution Output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x--x--x-----gx"
"x--x-x-----x"
"x-----x-----x-xx"
"x-----x-----x"
"x-----x-----x"
"x-----x-----x-x"
"x-----x-----x-x"
"x-----x-----x"
"xx-----x-----x"
"x-xxx-----x"
"x---x-----xx"
"x-----xx"
"x-x-----x-----x"
"x-x-----x-----x"
"x--xx---x--x---x"
"xx--x--x-----x"
"x-----x-----x"
"x---x-----x-x---x"
"x--x-----1---x---x"
"xxxxxxxxxxxxxxxxxxxxx"
" "

```

### 3.29.5 stderr

part01test29.err

## 3.30 part01test30

### 3.30.1 Diff

part01test30.diff

### 3.30.2 Input File

part01test30.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxx",
"xx--x-----x---x",
"x-----x-----x-x",
"xx-----x",
"x-x-----x",
"x---x-----x-x",
"x-----x-xx",
"x--xx---x---x",
"x--xx---x-x---x",
"x-xxx-x--x---x",
"x-----x-----x",
"x---xxx-----xx",
"x-----x--gx",
"x-1-----xx-x",
"x--x-x-xxx---x",
"xx---x---x---x",
"x--xx-----xx",
"x-----x---x",
"x--x-----x",
"xxxxxxxxxxxxxxxxxxxxx"

```

```
],
[
"180",
"cc",
"180",
"c",
"c",
"180",
"c",
"180",
"c",
"cc",
"180",
"c",
"c",
"c",
"180",
"cc",
"c",
"c",
"cc"
]
)
```

### 3.30.3 Submission Output

part01test30.output

```
"Result "
"xxxxxxxxxxxxxxxxxx "
"x-----x--x "
"x--x-----x "
"xx-----xx--x "
"x--x--x---xx "
"x---xxx-x-x--x "
"x-xx-----x "
"xg--x-----x "
"xx-----xxx---x "
"x-----x-----1-x "
"x---x--x-xxx-x "
"x--x-x---xx---x "
"x---x---xx--x "
"xx-x-----x "
"x-x-----x---x "
"x-----x-x "
"x-----xx "
"x--x---x-----x "
"x--x---x--xx "
"xxxxxxxxxxxxxxxxxx "
"
```

### 3.30.4 Solution Output

part01test30.output

```
"Result "
"xxxxxxxxxxxxxxxxxx "
"x-----x--x "
"x--x-----x "
"xx-----xx--x "
"x---x---x---xx "
"x---xxx-x-x--x "
```

```

"x-xx-----x"
"xg--x-----x"
"xx-----xxx---x"
"x-----x-----1-x"
"x-----x--x-xxx-x"
"x--x-x---xx---x"
"x-----x---xx--x"
"xx-x-----x"
"x-x-----x---x"
"x-----x-x"
"x-----xx"
"x--x-----x---x"
"x--x-----x--xx"
"xxxxxxxxxxxxxxxx"
"

```

### 3.30.5 stderr

part01test30.err

## 3.31 Source Code

csce322homework03part01.hs

```

1 import Prelude
2 import System.Environment ( getArgs )
3 import Data.List
4 import Helpers
5
6 -- The main method that will be used for testing / command line access
7 main = do
8     args <- getArgs
9     filename <- readFile (head args)
10    (maze,moves) <- readGravityMazeFile filename
11    print "Result"
12    printMaze (onePlayerOneRotation maze (head moves))
13
14 -- YOUR CODE SHOULD COME AFTER THIS POINT
15 onePlayerOneRotation :: [[Char]] -> [Char] -> [[Char]]
16 onePlayerOneRotation maze move
17   | move == "c"      = makeMove c
18   | move == "cc"     = makeMove cc
19   | move == "180"    = makeMove oneEighty
20   | otherwise        = error "bad move"
21 where
22   c          = clockwiseRotation (maze)
23   cc         = counterClockwiseRotation (maze)
24   oneEighty  = oneHundredEightyRotation (maze)

```



# Chapter 4

## csce322homework03part02.hs

### 4.1 part02test01

#### 4.1.1 Diff

part02test01.diff

#### 4.1.2 Input File

part02test01.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x---xx--x---x",
"x-----1-x",
"x-----x",
"x-g---x---x-x",
"x--x----xxx-x",
"x---x-xx----x",
"x-----xx",
"xx-----x-xx",
"x----xx-x---x",
"x--x----x--xx",
"x-x----x----x",
"xxxxxxxxxxxxxxxx",
],
[
"180",
"180",
"c",
"180",
"c",
"cc",
"180",
"c",
"180",
"cc",
"c",
"180",
"180",
"cc"
]
)
```

#### 4.1.3 Submission Output

part02test01.output

```
"Result "  
"xxxxxxxxxxxxxxxxx "  
"x-----xx-x-x "  
"x---xx-----x "  
"x----x--x---x "  
"xx---x---xx1x "  
"x-----x-----xx "  
"x--x-x--x--x "  
"xx-----x--x "  
"xx----x-----x "  
"x----x-----x-x "  
"x---g-----xx "  
"x-----x---x "  
"xxxxxxxxxxxxxxxxx "  
"
```

#### 4.1.4 Solution Output

part02test01.output

```
"Result "  
"xxxxxxxxxxxxxxxxx "  
"x-----xx-x-x "  
"x---xx-----x "  
"x----x--x---x "  
"xx---x---xx1x "  
"x-----x-----xx "  
"x--x-x--x--x "  
"xx-----x--x "  
"xx----x-----x "  
"x----x-----x-x "  
"x---g-----xx "  
"x-----x---x "  
"xxxxxxxxxxxxxxxxx "  
"
```

#### 4.1.5 stderr

part02test01.err

## 4.2 part02test02

### 4.2.1 Diff

part02test02.diff

### 4.2.2 Input File

part02test02.g

```
(  
[  
"xxxxxxxxxxxxxxxxx",  
"x--x-----x-x",  
"xx-----x",  
"x-x-----x--x",  
"x-----x",  
"x-g-----x-x",  
"x-x-x--x-x---xx",  
"x-----xxxx",  
]
```

```

"x-----x--x",
"x--x-x---1x---x",
"x----x---x----x",
"xx-----xx----x",
"x--x--x---x-xx",
"x--x-xxx---x-x",
"x-----x",
"x-x-----x",
"x-----x-x-x",
"xxxxxxxxxxxxxxxx"
],
[
"cc",
"cc",
"c",
"cc",
"180",
"c",
"c",
"180",
"cc",
"180",
"c",
"cc",
"180",
"cc",
"c",
"180",
"180",
"cc",
"180",
"cc"
]
)

```

### 4.2.3 Submission Output

part02test02.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x-----xx----x----x"
"xx---x-x-----x--xx"
"x-----xx---x----x"
"x--x-----x-----xx"
"x-----x---xx-----x"
"x-----x-x---x"
"x-----x-----xx---x"
"x-----x---x"
"x-----xx-----x"
"x-----x-----xx---x"
"xx-----x-----x"
"x--x-gx-----x-x"
"x-x-----1x-----x"
"xxxxxxxxxxxxxxxxxxxxxx"
"

```

### 4.2.4 Solution Output

part02test02.output

```

"Result "

```

```

"xxxxxxxxxxxxxxxxxxxxx"
"x-----xx-----x-----x"
"xx---x-x-----x--xx"
"x-----xx---x-----x"
"x--x-----x-----xx"
"x-----x---xx-----x"
"x-----x-x-x---x"
"x-----x-----xx---x"
"x-----x-----x---x"
"x-----xx-----x"
"x-----x-----xx---x"
"xx-----x-----x"
"x--x-gx-----x-x"
"x-x-----1x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
" "

```

#### 4.2.5 stderr

part02test02.err

### 4.3 part02test03

#### 4.3.1 Diff

part02test03.diff

#### 4.3.2 Input File

part02test03.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxx",
"x---x-----xx",
"x-----x",
"x-----x--x--x",
"x-----x---x",
"x---x---xxx-----x",
"x-----x-x--x",
"xx-----1x--x",
"x---x---x-----x",
"x-----x---xx---x",
"x---x-g---x--x",
"x-----xx",
"x-----x--x",
"x-----x",
"x---x-----x",
"xx-----x---x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"c",
"cc",
"c",
"cc",
"cc",
"cc",
"180",
"180",

```

```

"cc",
"180",
"cc",
"180",
"cc",
"c",
"cc",
"cc",
"180"
]
)

```

### 4.3.3 Submission Output

part02test03.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x---x-----xx"
"x-----x"
"x-----x--x--x"
"x-----x--x--x"
"x---x--xxx-----x"
"x-----x-x--x"
"xx-----x--x"
"x---x--x-----x"
"x---x--xx-----x"
"x---x-g-----x--x"
"x-----xx"
"x-----x--x"
"x-----x"
"x1---x-----x"
"xx-----x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 4.3.4 Solution Output

part02test03.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x---x-----xx"
"x-----x"
"x-----x--x--x"
"x-----x--x--x"
"x---x--xxx-----x"
"x-----x-x--x"
"xx-----x--x"
"x---x--x-----x"
"x---x--xx-----x"
"x---x-g-----x--x"
"x-----xx"
"x-----x--x"
"x-----x"
"x1---x-----x"
"xx-----x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 4.3.5 stderr

part02test03.err

## 4.4 part02test04

### 4.4.1 Diff

part02test04.diff

### 4.4.2 Input File

part02test04.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxxxx",
"x--x---x-----xx",
"x-----x--xx-----x",
"x--x---x-----x",
"x-----x-----x",
"x--x-----x-x",
"x-----x-----xx",
"x-----g---x--x-1-x",
"x-----xx---x-xx--x",
"x-----x-----x",
"x-----x-----x",
"x-----x-----x",
"xxxxxxxxxxxxxxxxxxxxxxxx",
],
[
"180",
"cc",
"cc"
]
)
```

### 4.4.3 Submission Output

part02test04.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----xx"
"x-----x--xx-----x"
"x--x---x-----x"
"x-----x-----x"
"x--x-----x-x"
"x-----x-----xx"
"x-----g---x--x--x"
"x-----xx---x-xx--x"
"x-----x-----x"
"x-----x-----x"
"x-----1-x"
"xxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 4.4.4 Solution Output

part02test04.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----xx"
```

#### 4.4.5 stderr

## 4.5 part02test05

part02test05.diff

part02test05.g

63

```
"180",
"180",
"c",
"180",
"cc",
"c",
"c"
]
)
```

### 4.5.3 Submission Output

part02test05.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x"
"xx-x-----x-x--x"
"x-----x-----xx-x"
"x-x--x-----x-x"
"xx-x-----x-x"
"x-----g---x"
"x-----x-----x"
"xx-x--x-x-----x"
"x-x--xxx----xxx"
"x-xx-x-----xx"
"x-----x-----x"
"x-----x-----x"
"x---xx-----x-x"
"x-----x-----x"
"x1-----x"
"xx---x-x-----xx"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 4.5.4 Solution Output

part02test05.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x"
"xx-x-----x-x--x"
"x-----x-----xx-x"
"x-x--x-----x-x"
"xx-x-----x-x"
"x-----g---x"
"x-----x-----x"
"xx-x--x-x-----x"
"x-x--xxx----xxx"
"x-xx-x-----xx"
"x-----x-----x"
"x-----x-----x"
"x---xx-----x-x"
"x-----x-----x"
"x1-----x"
"xx---x-x-----xx"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 4.5.5 stderr



part02test05.err

## 4.6 part02test06

### 4.6.1 Diff

part02test06.diff

### 4.6.2 Input File

part02test06.g

```
(
[
"xxxxxxxxxxxxxxxxxxxx",
"xx----x--xx----x",
"x--g-----x---x",
"x-----x",
"x-----x---xxx-x",
"x1---x-----x",
"x-----xx",
"x-x-----x-x--x",
"x-----x",
"xxxxxxxxxxxxxxxxxxxx",
],
[
"180",
"180",
"c",
"cc",
"c",
]
)
```

### 4.6.3 Submission Output

part02test06.output

```
"Result "
"xxxxxxxxxxxx"
"x-----xx"
"x-x-----x"
"x-----g-x"
"x-----x"
"x---x---x"
"x-----xx"
"x---x---x"
"x-----x"
"x-----xx"
"x-x-----xx"
"x---x-x-x"
"x-x--x---x"
"x---x---x"
"x1-x-----x"
"xxxxxxxxxxxx"
"
```

### 4.6.4 Solution Output

part02test06.output

```
"Result "
```

```

"xxxxxxxxxxxxx "
"x-----xx "
"x-x-----x "
"x-----g-x "
"x-----x "
"x---x---x "
"x-----xx "
"x----x---x "
"x-----x "
"x-----xx "
"x-x-----xx "
"x----x-x-x "
"x-x--x---x "
"x----x---x "
"x1-x-----x "
"xxxxxxxxxxxxx "
" "

```

#### 4.6.5 stderr

part02test06.err

### 4.7 part02test07

#### 4.7.1 Diff

part02test07.diff

#### 4.7.2 Input File

part02test07.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxx",
"x-x--x-x-----xx-x",
"x-x-----x-x-x---x",
"x-----g-----x",
"x-----x",
"x-1---x-----x",
"x-----x-----x",
"x-----x-----xx",
"x----xx-----x",
"x----x--xx-----x",
"x-----x-----x",
"x---xx---x-----x",
"x-----x",
"xx--x-----x-----x",
"xx--x-x-----x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"180",
"cc",
"c",
"c",
"180",
"180",
"cc",

```

```
"c",
" c",
" c",
"cc"
]
)
```

### 4.7.3 Submission Output

part02test07.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx "
"x-----x-x--xx "
"x-----x-----x--xx "
"x-----x "
"x-----x---xx---x "
"x-----x-----x "
"x-----xx--x-----x "
"x-----xx-----x "
"xx-----x-----x "
"x-----x-----x "
"x-----x-----x "
"x-----x "
"x-----g-----x "
"x--x-x-x-----x-x "
"x-xx-----x-x-1x-x "
"xxxxxxxxxxxxxxxxxxxxxx "
"
```

### 4.7.4 Solution Output

part02test07.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx "
"x-----x-x--xx "
"x-----x-----x--xx "
"x-----x "
"x-----x---xx---x "
"x-----x-----x "
"x-----xx--x-----x "
"x-----xx-----x "
"xx-----x-----x "
"x-----x-----x "
"x-----x-----x "
"x-----x "
"x-----g-----x "
"x--x-x-x-----x-x "
"x-xx-----x-x-1x-x "
"xxxxxxxxxxxxxxxxxxxxxx "
"
```

### 4.7.5 stderr

part02test07.err

## 4.8 part02test08

### 4.8.1 Diff

part02test08.diff

## 4.8.2 Input File

part02test08.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"x---x-----x---xx",  
"x-----x",  
"x---x-----x---xx",  
"x-----xxx-x---xx---x",  
"x---xx-----x---x",  
"x-----xxx",  
"x---x---xx-x-----x",  
"x-----x--1-----x",  
"x-----xx--g-x",  
"x-x-----x---xx",  
"x-----x---x",  
"xxxxxxxxxxxxxxxxxxxxxx"  
],  
[  
"cc",  
"c",  
"180",  
"cc",  
"180",  
"cc",  
"c",  
"180",  
"cc",  
"cc",  
"cc",  
"180",  
"cc",  
"cc",  
"180",  
"cc",  
"c",  
"c"  
]  
)
```

## 4.8.3 Submission Output

part02test08.output

```
"Result "  
"xxxxxxxxxxxxxxxxxx"  
"x-----x"  
"x-----x"  
"x-x-----x"  
"x---x-----xx"  
"x-----x-x--x"  
"x1--x---xx---x"  
"xx-----x---x"  
"x---x---x---x"  
"x---x-----x"  
"x-----x---x"  
"x---x-----x"  
"x---x-----x"  
"x--x-----x"  
"x-xx---xxx-xx"
```

```
"xx-----x---x"
"x-----x"
"x--g--x-----x"
"x-x---x--x-xx"
"xxxxxxxxxxxxxxxx"
"
```

#### 4.8.4 Solution Output

part02test08.output

```
"Result"
"xxxxxxxxxxxxxxxx"
"x-----x"
"x-----x"
"x-x-----x"
"x----x-----xx"
"x-----x-x--x"
"x1--x--xx--x"
"xx-----x--x"
"x----x--x--x"
"x----x-----x"
"x-----x--x"
"x----x-----x"
"x-----x--x"
"x----x-----x"
"x--x-----x"
"x-xx---xxx-xx"
"xx-----x--x"
"x-----x"
"x--g--x-----x"
"x-x---x--x-xx"
"xxxxxxxxxxxxxxxx"
"
```

#### 4.8.5 stderr

part02test08.err

### 4.9 part02test09

#### 4.9.1 Diff

part02test09.diff

#### 4.9.2 Input File

part02test09.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----x",
"xx-----x---gxx",
"xx----xx----x--x",
"xx-----xx--x--xx",
"x-----xx",
"x-x----x-----x",
"x-----x--x",
"x--x--x-----x",
"x-x--x---1---x-x",
"x-----x-x-----x",

```

```

"x--x--x-----x-xx",
"x--x-----xx",
"x-----x",
"x--x-----x",
"x-x-x--x-----xx",
"x-xx-----x-x",
"x-----xx",
"xxxxxxxxxxxxxxxxxxxx"
],
[
"c",
"c",
"cc"
]
)

```

### 4.9.3 Submission Output

part02test09.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxx"
"x-----xxx-x"
"x-xx-----x-x-----x"
"x-x-----x-x-----x"
"x--x--x-----x"
"x--x--x-----x"
"x--x--x-----x"
"x-----x-x-----x-x"
"x-----x-xx--x"
"x-----x-----x--x"
"x--x-----x-x"
"x-----x-----x"
"x-----x--x--x"
"x-x-----x-----x-x"
"x-----x-----1-g-x"
"xx-x--xx-----xx-x-x"
"xxxxxxxxxxxxxxxxxxxx"
"

```

### 4.9.4 Solution Output

part02test09.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxx"
"x-----xxx-x"
"x-xx-----x-x-----x"
"x-x-----x-x-----x"
"x--x--x-----x"
"x--x--x-----x"
"x-----x-x-----x-x"
"x-----x-xx--x"
"x-----x-----x--x"
"x--x-----x-x"
"x-----x-----x"
"x-----x--x--x"
"x-x-----x-----x-x"
"x-----x-----1-g-x"
"xx-x--xx-----xx-x-x"
"xxxxxxxxxxxxxxxxxxxx"
"

```

#### 4.9.5 stderr

part02test09.err

### 4.10 part02test10

#### 4.10.1 Diff

part02test10.diff

#### 4.10.2 Input File

part02test10.g

```
(
[
"xxxxxxxxxxxxxx",
"xxx---x---x",
"x--x--x---x",
"x-x---x---x",
"x-----x",
"x-----x1x",
"x-----gx---x",
"x-----x",
"x-xx-x---x",
"xxxxxxxxxxxxxx"
],
[
"c",
"180",
"cc",
"180",
"c",
"c",
"180",
"180",
"c"
]
)
```

#### 4.10.3 Submission Output

part02test10.output

```
"Result"
"xxxxxxxxxxxx"
"x-----x"
"x----x---x"
"x-----x"
"x1-x--x--x"
"xxx---g--x"
"x-----xx"
"x-----x"
"x-x-----xx"
"xx-x----xx"
"xx-----x"
"xxxxxxxxxxxx"
""
```

#### 4.10.4 Solution Output

```

"Result "
"xxxxxxxxxx"
"x-----x"
"x----x---x"
"x-----x"
"x1-x--x--x"
"xxx---g--x"
"x-----xx"
"x-----x"
"x-x-----xx"
"xx-x-----xx"
"xx-----x"
"xxxxxxxxxx"
"

```

#### 4.10.5 stderr

### 4.11 Source Code

```

1 import Prelude
2 import System.Environment ( getArgs )
3 import Data.List
4 import Helpers
5
6 -- The main method that will be used for testing / command line access
7 main = do
8     args <- getArgs
9     filename <- readFile (head args)
10    (maze,moves) <- readGravityMazeFile filename
11    print "Result"
12    printMaze (onePlayerManyRotations maze moves)
13
14 -- YOUR CODE SHOULD COME AFTER THIS POINT
15 onePlayerManyRotations :: [[Char]] -> [[Char]] -> [[Char]]
16 onePlayerManyRotations maze [] = maze
17 onePlayerManyRotations maze (he:ta)
18   | inGoal == True = maze
19   | he == "c"      = onePlayerManyRotations (makeMove c) ta
20   | he == "cc"     = onePlayerManyRotations (makeMove cc) ta
21   | he == "180"    = onePlayerManyRotations (makeMove oneEighty) ta
22   | otherwise      = error "bad move"
23 where
24     c      = clockwiseRotation (maze)
25     cc     = counterClockwiseRotation (maze)
26     oneEighty = oneHundredEightyRotation (maze)
27     inGoal  = isGoal maze

```



# Chapter 5

## csce322homework03part03.hs

### 5.1 part03test01

#### 5.1.1 Diff

part03test01.diff

#### 5.1.2 Input File

part03test01.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"x-----xx",
"xg--x-----x--x",
"x-----x---x",
"x-----x-----x",
"x-----xx-----x",
"x-x-----xx-x----2x",
"x1-x-----x-----x",
"x-----x---x",
"x-x-----x-----x",
"x--x-----x--x-xxx",
"x-----x-----x",
"xxxxxxxxxxxxxxxxxxxxxx"
],
[
"cc",
"cc",
"cc",
"cc",
"cc",
"c",
"c",
"c",
"c",
"cc",
"cc",
"c",
"c",
"c",
"180",
"180",
"c",
"cc"
]
```

```
]
)
```

### 5.1.3 Submission Output

part03test01.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x----x-----x"
"xxx-x-x--x----x--x"
"x-----x-----x-x"
"x---x-----x"
"x-----x-----x--x"
"x-----x-xx-----x-x"
"x-----xx-----x"
"x-----x-----x"
"x---x-----x"
"x--x-----x--1x"
"xx---2-----x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.1.4 Solution Output

part03test01.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x----x-----x"
"xxx-x-x--x----x--x"
"x-----x-----x-x"
"x---x-----x"
"x-----x-----x--x"
"x-----x-xx-----x-x"
"x-----xx-----x"
"x-----x-----x"
"x---x-----x"
"x--x-----x--1x"
"xx---2-----x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.1.5 stderr

part03test01.err

## 5.2 part03test02

### 5.2.1 Diff

part03test02.diff

### 5.2.2 Input File

part03test02.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"x---x-----x",
"x--xx-----xx--2x",
```

```

"xx--x---x----1x",
"x---x-3x----x-x",
"xx-----x",
"x--xx-x-----gx",
"x----x-x-----x",
"x-x-x---x--x--x",
"x-----x-x--x",
"x-----x",
"x-xx-----x--x",
"x----x--x-----x",
"xx-----x-xx",
"x-----x----x",
"x----x-----x--x",
"x-----x--xx",
"xxxxxxxxxxxxxxxx"
],
[
"c",
"180",
"c",
"180",
"180",
"180",
"180",
"180"
]
)

```

### 5.2.3 Submission Output

part03test02.output

```

"Result "
"xxxxxxxxxxxxxxxx"
"xx--x-----x"
"x---x---x---x"
"x----x-----x"
"xx-x-----xx"
"x-----x--x---x"
"x---x-----xx-x"
"x-----x"
"x--x-x-----x"
"x--x--x---x-x-x"
"x-----x-x---x"
"xg-----x-xx--x"
"x-----xx"
"x-x---x--x---x"
"x---1x---x--xx"
"x--xx---xx--x"
"x--2-----3x---x"
"xxxxxxxxxxxxxxxx"
"

```

### 5.2.4 Solution Output

part03test02.output

```

"Result "
"xxxxxxxxxxxxxxxx"
"xx--x-----x"
"x---x---x---x"
"x-----x"

```

```

"xx-x-----xx"
"x-----x--x----x"
"x--x-----xx-x"
"x-----x"
"x--x-x-----x"
"x--x--x---x-x-x"
"x-----x-x----x"
"xg-----x-xx--x"
"x-----xx"
"x-x-----x--x---x"
"x----1x---x--xx"
"x---xx-----xx--x"
"x--2-----3x---x"
"xxxxxxxxxxxxxxxx"
"

```

### 5.2.5 stderr

part03test02.err

## 5.3 part03test03

### 5.3.1 Diff

part03test03.diff

### 5.3.2 Input File

part03test03.g

```

(
[
"xxxxxxxxxxxxxxxx",
"x-xx-----x---x",
"x----g-----xx",
"x--3--x--x---x",
"x-----xx-x",
"x----x-----x",
"x-----x",
"x-----x-x---x",
"x--x---x-----x",
"x--xx-----x-x",
"x-----x",
"x--x1-----x",
"x--x--x-----x",
"x-----x-----x",
"x-----x--x",
"x-----x-----x",
"x-----x----xx",
"x-2-----x",
"x-x-x---x-----x",
"xxxxxxxxxxxxxxxx"
],
[
"180",
"180"
]
)

```

### 5.3.3 Submission Output

```

"Result "
"xxxxxxxxxxxxxxxxxx "
"x-xx-----x---x "
"x----g-----xx "
"x-----x--x---x "
"x-----xx-x "
"x----x-----x "
"x-----x "
"x--3---x-x---x "
"x--x---x-----x "
"x--xx-----x-x "
"x-----x "
"x--x-----x "
"x--x--x-----x "
"x-----x-----x "
"x-----x--x "
"x-----x-----x "
"x-----x----xx "
"x-2-1-----x "
"x-x-x---x---x "
"xxxxxxxxxxxxxxxxxx "
" "

```

### 5.3.4 Solution Output

```

"Result "
"xxxxxxxxxxxxxxxxxx "
"x-xx-----x---x "
"x----g-----xx "
"x-----x--x---x "
"x-----xx-x "
"x----x-----x "
"x-----x "
"x--3---x-x---x "
"x--x---x-----x "
"x--xx-----x-x "
"x-----x "
"x--x-----x "
"x--x--x-----x "
"x-----x-----x "
"x-----x--x "
"x-----x-----x "
"x-----x----xx "
"x-2-1-----x "
"x-x-x---x---x "
"xxxxxxxxxxxxxxxxxx "
" "

```

### 5.3.5 stderr

## 5.4 part03test04

### 5.4.1 Diff

### 5.4.2 Input File

part03test04.g

```
(
[
"xxxxxxxxxxxxxxxx",
" xg-----xx-xx",
"x-x-----xx",
"x--x-x--x-2x",
"x--x-----x-x",
"x-----x-x",
"x-----xx-x--x",
"x-xx-----xx",
"x-----x",
"x-----x-x",
"x-----x-x",
"x-----x",
"x--xx---3--x",
"xx-----x--x",
"x--x-----x",
"x-----x",
"x-x--x1----x",
"xxxxxxxxxxxxxxxx"
],
[
"180",
"cc",
"cc",
"180",
"cc",
"c",
"c",
"cc",
"180",
"cc"
]
)
```

### 5.4.3 Submission Output

part03test04.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"xxx-----x-----x"
"x--2xx---xx-----x"
"xx-x-----x---x"
"xx-----x-----x"
"x-----x-----x"
"x--x--x-----xx"
"x---3-x-----x---x"
"x--xx--x---x-x--x"
"x-x-----x-----xx"
"x1-----x---x"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.4.4 Solution Output

part03test04.output

```
"Result "
```

```

"xxxxxxxxxxxxxxxxxxxxxx"
"xxx----x-----x"
"x--2xx---xx-----x"
"xx-x-----x---x"
"xx----x-----x"
"x-----x"
"x--x--x-----xx"
"x---3-x-----x---x"
"x--xx--x-----x-x--x"
"x-x----x-----xx"
"x1-----x---x"
"xxxxxxxxxxxxxxxxxxxxxx"
"

```

#### 5.4.5 stderr

part03test04.err

### 5.5 part03test05

#### 5.5.1 Diff

part03test05.diff

#### 5.5.2 Input File

part03test05.g

```

(
[
"xxxxxxxxxxxxxx",
"xx-----xx",
"x-----x",
"x-x-x---x-x",
"x---x---x-x",
"x----x----x",
"x1-----x-x",
"x-x-----x",
"x-----x--x",
"xx-----x-x",
"x-----x",
"xx-----x",
"x-----x",
"x-----g-xx-x",
"xxx-----x",
"x----x----x",
"x-----x",
"x2-----x--x",
"xxxxxxxxxxxxxx"
],
[
"180",
"c",
"180",
"180",
"180"
]
)

```

#### 5.5.3 Submission Output

part03test05.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxx "  
"x---x--x-x-----xx "  
"x---x-----x---x--x "  
"x-----x "  
"x--2-----xx--x "  
"x--x-g-----x----x "  
"x-----x "  
"xx---x---x-----x "  
"x----x---x--x-xx--x "  
"x-----1xx "  
"xxxxxxxxxxxxxxxxxxxxxx "  
"
```

#### 5.5.4 Solution Output

part03test05.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxx "  
"x---x--x-x-----xx "  
"x---x-----x---x--x "  
"x-----x "  
"x--2-----xx--x "  
"x--x-g-----x----x "  
"x-----x "  
"xx---x---x-----x "  
"x----x---x--x-xx--x "  
"x-----1xx "  
"xxxxxxxxxxxxxxxxxxxxxx "  
"
```

#### 5.5.5 stderr

part03test05.err

### 5.6 part03test06

#### 5.6.1 Diff

part03test06.diff

#### 5.6.2 Input File

part03test06.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"x---x-----x-----xxx",  
"x-x-----x-----x--x",  
"x-----x---x",  
"x---x-----x-----x",  
"xx-x-----x",  
"xx--x-----x-x-----x",  
"x--x--x-----x---x",  
"x----1--x-----xx",  
"xx-----x--x",  
"x-----x---x--x",  
"xx-----x-x---xx",  
]
```



```

"x----gx----x----x",
"x-----xx",
"x-----2--x---x3x",
"x-----x-----x",
"x-----x-x",
"x--x-----xx-x",
"xxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"c",
"c",
"180",
"c",
"180",
"180",
"180",
"c",
"180",
"c",
"180",
"cc",
"c",
"180",
"180",
"cc",
"c"
]
)

```

### 5.6.3 Submission Output

part03test06.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"xx-----x--x-x3---x"
"xx-----x-xxx"
"x-x-----xx-----xx"
"x--x---x-----x"
"x-----x---xx-----x"
"x--x-----xx--x"
"x-----x---xx-----x"
"xx-----x-----x"
"x-x-----x"
"x-----x---x-----x"
"x-----x---g-----x"
"x1--x-x-----x"
"xx--x-x-----xx"
"x-x-----x"
"x2--xx--x-x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
""

```

### 5.6.4 Solution Output

part03test06.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"xx-----x--x-x3---x"
"xx-----x-xxx"

```

```

"x-x-----xx-----xx"
"x--x---x-----x"
"x-----x---xx-----x"
"x--x-----xx--x"
"x-----x---xx-----x"
"xx-----x-----x"
"x-x-----x"
"x-----x---x-----x"
"x-----x---g-----x"
"x1--x-x-----x"
"xx--x-x-----xx"
"x-x-----x"
"x2---xx--x-x-----x"
"xxxxxxxxxxxxxxxxxxxx"
"

```

## 5.6.5 stderr

part03test06.err

## 5.7 part03test07

### 5.7.1 Diff

part03test07.diff

### 5.7.2 Input File

part03test07.g

```

(
[
"xxxxxxxxxxx",
"x-----xx--x",
"xx-----xx",
"x-----xxgx",
"x-----x",
"x-----xx",
"x--2x-----x",
"x---x-----x",
"x-x-----x-x",
"x-----x",
"x1-----x",
"xx---x-xxx",
"x-----x",
"x--x---x-x",
"x-----x",
"x--x-----xx",
"xx-----xx",
"xxxxxxxxxxx"
],
[
"cc",
"c",
"c",
"c",
"180",
"c",
"c"
]
)

```

### 5.7.3 Submission Output

part03test07.output

```
"Result "  
"xxxxxxxxxxxx "  
"xx-----xx "  
"xx----x--x "  
"x-----x "  
"x-x--x--x "  
"x-----x "  
"xxx-x---xx "  
"x-----x "  
"x-----x "  
"x-x---x-x "  
"x1---x---x "  
"x2---x---x "  
"xx-----x "  
"x-----x "  
"xgxx-----x "  
"xx-----xx "  
"x--xx----x "  
"xxxxxxxxxxxx "  
" "
```

### 5.7.4 Solution Output

part03test07.output

```
"Result "  
"xxxxxxxxxxxx "  
"xx-----xx "  
"xx----x--x "  
"x-----x "  
"x-x--x--x "  
"x-----x "  
"xxx-x---xx "  
"x-----x "  
"x-----x "  
"x-x---x-x "  
"x1---x---x "  
"x2---x---x "  
"xx-----x "  
"x-----x "  
"xgxx-----x "  
"xx-----xx "  
"x--xx----x "  
"xxxxxxxxxxxx "  
" "
```

### 5.7.5 stderr

part03test07.err

## 5.8 part03test08

### 5.8.1 Diff

part03test08.diff

### 5.8.2 Input File

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"x-----x-----x",
"x-----x--xxx-----x",
"x-----x-----x",
"x-x-----x-----x-x",
"x--x--x-----x-----x",
"x-----x-----x-x",
"x-----x-----x-x",
"x-----x-x-----x-x",
"x-----x-x-----x",
"x-----x-x-----x",
"x-----x-x-----x",
"xx-2-----x-----x-x",
"x-----x-----x-x",
"x-----4--x-----x",
"x-----x--1-----xx",
"xx-----x--3-----x",
"x--x--x-----x--x",
"x-x-----xx-x--x--x",
"xxxxxxxxxxxxxxxxxxxxxx",
],
[
"180",
"c",
"180"
]
)
```

### 5.8.3 Submission Output

part03test08.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----x"
"xx-----x---x"
"x-----x---x"
"x-x-----x"
"x-----x"
"x-----x--x--x-x"
"x-x-----2-----x"
"xx--x---x-x---xx"
"xx-x---x-----x-x-x"
"x-----x-----xx-x"
"xx-----x-x"
"x-----x---x"
"x---x---x-----x"
"xx-----4-----x"
"x-x---xx---3-x---x"
"x-----x-xx-----x"
"x---x---g-----1--x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.8.4 Solution Output

part03test08.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x--x---x-----x"
```

```

"xx-----x---x"
"x-----x---x"
"x-x-----x"
"x-----x"
"x-----x-x-x-x"
"x-x-----2-----x"
"xx--x---x-x---xx"
"xx-x---x-----x-x-x"
"x-----x-----xx-x"
"xx-----x-x"
"x-----x---x"
"x---x---x-----x"
"xx-----4-----x"
"x-x---xx---3-x---x"
"x-----x-xx-----x"
"x---x---g-----1---x"
"xxxxxxxxxxxxxxxxxxxx"
"

```

### 5.8.5 stderr

part03test08.err

## 5.9 part03test09

### 5.9.1 Diff

part03test09.diff

### 5.9.2 Input File

part03test09.g

```

(
[
"xxxxxxxxxxxxxxxxxxxx",
"x3----2--x-----x-x",
"x-----x-----x-x",
"x-----x",
"x-----x-g-1x---x",
"x---x-----x-x",
"x-----x--x-----x",
"x---x-----x-----xx",
"x-x---x---x-----x",
"xx-----x-----xx",
"x-----x",
"xxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"180",
"cc",
"cc",
"180",
"c",
"c",
"cc",
"180",
"cc",
"cc"
]

```

```
"c",
"cc",
"c",
"cc",
"cc",
"180"
]
)
```

### 5.9.3 Submission Output

part03test09.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"x1-----x"
"xx----x-----xx"
"x-----x---x---x-x"
"xx-----x-----x---x"
"x-----x--x-----x"
"x-x-----x---x"
"x----x--g-x-----x"
"x-----x"
"x-x-----x"
"x-x2-----x3-----x"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.9.4 Solution Output

part03test09.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"x1-----x"
"xx----x-----xx"
"x-----x---x---x-x"
"xx-----x-----x---x"
"x-----x--x-----x"
"x-x-----x---x"
"x----x--g-x-----x"
"x-----x"
"x-x-----x"
"x-x2-----x3-----x"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.9.5 stderr

part03test09.err

## 5.10 part03test10

### 5.10.1 Diff

part03test10.diff

### 5.10.2 Input File

part03test10.g

(

```
[
"xxxxxxxxxxxxxxxxxxxxx",
"x-----x-----x",
"x---x-x-----x",
"x-----gx-----x",
"x--x1-3x-----2---x",
"x-----x-----x-x",
"x--x--x---xxx-----x",
"x-----x-x-----x",
"x-----x-x---xx",
"x-x-x-----xx-x-x",
"x-----x-----x-x",
"x--x--x---x-----x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"c",
"c",
"180",
"cc",
"c",
"c"
]
)
```

### 5.10.3 Submission Output

part03test10.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x"
"x--x-----x"
"x3----x-x---x"
"xx-x-----x"
"x-----x-x"
"x1x---x-----x"
"xx-----x-xxx"
"x-----x"
"x-----g--x"
"x--x-xx-x--x"
"xx----x-----x"
"x--xx-x-----x"
"x--x-----x"
"x-x-----x"
"x--x-x-x-----x"
"x--x2-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.10.4 Solution Output

part03test10.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x"
"x--x-----x"
"x3----x-x---x"
"xx-x-----x"
"x-----x-x"
"x1x---x-----x"
```

```

"xx-----x-xxx "
"x-----x "
"x-----g--x "
"x--x-xx-x--x "
"xx----x-----x "
"x--xx-x-----x "
"x--x-----x "
"x-x-----x "
"x--x-x-x-----x "
"x---x2-----x "
"xxxxxxxxxxxxxxxx "
" "

```

## 5.10.5 stderr

part03test10.err

## 5.11 part03test11

### 5.11.1 Diff

part03test11.diff

### 5.11.2 Input File

part03test11.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxxx ",
"x----x-x-----x---xx ",
"xx-----x-x---x--x ",
"x---4---x--x-xx-xx ",
"x-----x ",
"x-----x-----x ",
"x-----x-----x ",
"x-----x-----x-x--x ",
"x-----x--x---x-x-x ",
"x---xx-----x---x ",
"x-x-x--x---x-----x ",
"x-x-----x-----2x ",
"xx--x--xx-----x-x ",
"xx-x-xx-----1---xx ",
"x-----x-----x-x ",
"x-x-----x-----x ",
"x--x-x-----x ",
"x-----xg-----x ",
"x3-----x ",
"xxxxxxxxxxxxxxxxxxxxxx "
],
[
"c ",
"180 ",
"180 ",
"c ",
"cc ",
"cc ",
"cc ",
"180 ",
"cc ",

```



```

"c",
"cc",
"180",
"c",
"c",
"180",
"cc",
"180",
"cc",
"cc",
"180"
]
)

```

### 5.11.3 Submission Output

part03test11.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"xx-x-----x3----x"
"x-----x---x-x----x"
"x-xx---x-----x"
"x--x---xx-----x"
"xx-----x--x-----g-x"
"x--x--x-----x-x"
"x-x-----x"
"x-----x-----x"
"x-xx-x-----x-xx---x"
"xx-----x--xxx1-----x"
"x-----x4---x-----x"
"xx-----x---x--x--x"
"x-----xx-x-----x"
"x-----x--x--x"
"x-----xx---x--x"
"x-x2-----xx-----x"
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"

```

### 5.11.4 Solution Output

part03test11.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxxxxxx"
"xx-x-----x3----x"
"x-----x---x-x----x"
"x-xx---x-----x"
"x--x---xx-----x"
"xx-----x--x-----g-x"
"x--x--x-----x-x"
"x-x-----x"
"x-----x-----x"
"x-xx-x-----x-xx---x"
"xx-----x--xxx1-----x"
"x-----x4---x-----x"
"xx-----x---x--x--x"
"x-----xx-x-----x"
"x-----x--x--x"
"x-----xx---x--x"
"x-x2-----xx-----x"
"xxxxxxxxxxxxxxxxxxxxxxxxx"

```

""

### 5.11.5 stderr

part03test11.err

## 5.12 part03test12

### 5.12.1 Diff

part03test12.diff

### 5.12.2 Input File

part03test12.g

```
(  
[  
"xxxxxxxxxxxxxxxx",  
"x-xx---g----x",  
"x-----x",  
"x-----x-x--x",  
"xx---x-----xx",  
"x--x-x-----xx",  
"xx-----1---x",  
"x---3x----2-x",  
"x-----x4---x",  
"xxxxxxxxxxxxxxxx",  
],  
[  
"180",  
"180",  
"180",  
"cc",  
"cc",  
"180"  
]  
)
```

### 5.12.3 Submission Output

part03test12.output

```
"Result "  
"xxxxxxxxxxxx "  
"x--x-x---x "  
"x-----xx "  
"x---x---xx "  
"x-----x "  
"x-x-xx---x "  
"x-----x "  
"xx----x-3x "  
"x-----x "  
"x-----x--x "  
"x-----1x "  
"x---xx-42x "  
"xxxxxxxxxxxx "  
""
```

### 5.12.4 Solution Output

part03test12.output

```
"Result "
"xxxxxxxxxxxx"
"x--x-x---x"
"x-----xx"
"x---x---xx"
"x-----x"
"x-x-xx---x"
"x-----x"
"xx---x-3x"
"x-----x"
"x-----x-x"
"x-----1x"
"x---xx-42x"
"xxxxxxxxxxxx"
""
```

### 5.12.5 stderr

part03test12.err

### 5.13 part03test13

### 5.13.1 Diff

part03test13.diff

### 5.13.2 Input File

part03test13.g

```
(
[
"xxxxxxxxxxxxx",
"x-----x-x",
"xx-x-----x",
"x-----x",
"x-----1x",
"xx-----xx",
"x--xx-----x",
"x-----x",
"x-xx-----x",
"x--x-----xx",
"x-----x",
"x-----x",
"x-----x",
"x--x--x--x",
"x----x---x",
"x----2x---x",
"xx---g---x",
"x---xx---x",
"xxxxxxxxxxxxx"
],
[
"cc",
"180",
"c",
"cc",
"180",
"180",

```

```

"cc",
"cc",
"180",
"180",
"cc",
"cc",
"cc",
"c",
"180",
"c",
"180",
"cc",
"c",
"cc"
]
)

```

### 5.13.3 Submission Output

part03test13.output

```

"Result "
"xxxxxxxxxxxx "
"x-----x-x"
"xx-x-----x"
"x-----x"
"x-----1x"
"xx-----xx"
"x--xx-----x"
"x-----x"
"x-xx-----x"
"x--x-----xx"
"x-----x"
"x-----x"
"x-----x"
"x--x--x--x"
"x----x---x"
"x-----x--x"
"xx--2---x"
"x--xx---x"
"xxxxxxxxxxxx "
"

```

### 5.13.4 Solution Output

part03test13.output

```

"Result "
"xxxxxxxxxxxx "
"x-----x-x"
"xx-x-----x"
"x-----x"
"x-----1x"
"xx-----xx"
"x--xx-----x"
"x-----x"
"x-xx-----x"
"x--x-----xx"
"x-----x"
"x-----x"
"x-----x"
"x--x--x--x"

```

```
"x----x---x"
"x----x--x"
"xx---2---x"
"x---xx---x"
"xxxxxxxxxxx"
"
```

### 5.13.5 stderr

part03test13.err

## 5.14 part03test14

### 5.14.1 Diff

part03test14.diff

### 5.14.2 Input File

part03test14.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----x--x--x",
"x-----x",
"x-----xx",
"x-----4--x---x",
"x-----3xx",
"x-x-x-x2x-x--x",
"x---xxx-----xx",
"x-x-----x",
"xxx-----x-x--x",
"x-----xx",
"x-----x",
"x-1x-----xx-x",
"x--xx-x--x--gx",
"xxxxxxxxxxxxxxxx",
],
[
"180",
"180",
"180",
"c",
"c",
"180",
"cc",
"180",
"180",
"180",
"180",
]
)
```

### 5.14.3 Submission Output

part03test14.output

```
"Result"
"xxxxxxxxxxxxxxxx"
"x-----x-----x"
```

```

"x----xx-x-----x"
"xxx-----x"
"xx-----xx-----x"
"x-----x-----x"
"xx-----xx----4x"
"x-----xx"
"x----x--x-----x"
"xx-----x---x"
"x-x--x--x----xx"
"x-x-1-----x"
"xg--x--x-x-x23x"
"xxxxxxxxxxxxxxxx"
"

```

#### 5.14.4 Solution Output

part03test14.output

```

"Result"
"xxxxxxxxxxxxxxxx"
"x----x-----x"
"x----xx-x-----x"
"xxx-----x"
"xx-----xx-----x"
"x-----x-----x"
"xx-----xx----4x"
"x-----xx"
"x----x--x-----x"
"xx-----x---x"
"x-x--x--x----xx"
"x-x-1-----x"
"xg--x--x-x-x23x"
"xxxxxxxxxxxxxxxx"
"

```

#### 5.14.5 stderr

part03test14.err

### 5.15 part03test15

#### 5.15.1 Diff

part03test15.diff

#### 5.15.2 Input File

part03test15.g

```

(
[
"xxxxxxxxxxxxxxxx",
"x-----x-x--g--x",
"x--2---3--4-x--x",
"x-----1-x---x--x",
"x-----x",
"x-x-x---x-----x",
"x--xx--x-----x",
"x-----x--x-x",
"x----x-----x",
"xx-----x---xx",

```

```

"xxxxxxxxxxxxxxxxxxxxx"
],
[
"cc",
"c",
"180",
"180",
"180",
"cc",
"cc",
"cc",
"c",
"c",
"c",
"180",
"cc"
]
)

```

### 5.15.3 Submission Output

part03test15.output

```

"Result "
"xxxxxxxxxxxxx"
"x-----xx"
"x-----x--x"
"xg-x-----x"
"x-x-----x"
"x-----x--x"
"x-----xx"
"xx-----x"
"x--x-----x"
"xx---xx---x"
"x-----x"
"x-----x"
"x-----x-x1x"
"x---xx--4x"
"x-----3x"
"x---x--2x"
"x-----xx"
"xxxxxxxxxxxxx"
"

```

### 5.15.4 Solution Output

part03test15.output

```

"Result "
"xxxxxxxxxxxxx"
"x-----xx"
"x-----x--x"
"xg-x-----x"
"x-x-----x"
"x-----x--x"
"x-----xx"
"xx-----x"
"x--x-----x"
"xx---xx---x"
"x-----x"
"x-----x"
"x-----x-x1x"

```

```
"x----xx--4x"
"x-----3x"
"x----x---2x"
"x-----xx"
"xxxxxxxxxxxx"
"
```

### 5.15.5 stderr

part03test15.err

## 5.16 part03test16

### 5.16.1 Diff

part03test16.diff

### 5.16.2 Input File

part03test16.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x---x-----x",
"x--x--x-----x",
"x-x---x--x---x",
"x-----x---x",
"x-----xx",
"x-----xx-2----x",
"x-----x",
"x-----xx",
"x-----x---x",
"x-----x---x",
"x---x---xxx--x",
"x-x-----x",
"x--x-----x--xx",
"x---x--1---xx",
"x-----x-x--x",
"x-----x--x",
"x-----g----x",
"xxxxxxxxxxxxxxxx",
],
[
"c",
"180",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
"180",
"cc",
"cc",
"cc",
"cc",
"cc",
"180",
"cc",

```



```
"cc"
]
)
```

### 5.16.3 Submission Output

part03test16.output

```
"Result "
"xxxxxxxxxxxxxxxxxx"
"x----g-----x"
"x--x-----x"
"x--x-x-----x"
"xx-----x---x"
"xx--x-----x--x"
"x-----x-x"
"x--xxx---x---x"
"x----x-----x"
"x----x-----x"
"xx-----x"
"x-----x"
"x-----xx---x"
"xx--2-----x"
"x--x-----x"
"x--x--x---x-x"
"x-----x--x--x"
"x-----x--1x"
"xxxxxxxxxxxxxxxxxx"
"
```

### 5.16.4 Solution Output

part03test16.output

```
"Result "
"xxxxxxxxxxxxxxxxxx"
"x----g-----x"
"x--x-----x"
"x--x-x-----x"
"xx-----x---x"
"xx--x-----x--x"
"x-----x-x"
"x--xxx---x---x"
"x----x-----x"
"x----x-----x"
"xx-----x"
"x-----x"
"x-----xx---x"
"xx--2-----x"
"x--x-----x"
"x--x--x---x-x"
"x-----x--x--x"
"x-----x--1x"
"xxxxxxxxxxxxxxxxxx"
"
```

### 5.16.5 stderr

part03test16.err

## 5.17 part03test17

### 5.17.1 Diff

part03test17.diff

### 5.17.2 Input File

part03test17.g

```
(
[
"xxxxxxxxxxxxxxxxxxxxxxxx",
"x-----x-----x",
"x--x-x-----xxx-----4x",
"x-----x",
"x---x--x--1-----x-x",
"x-x-----2---x---x",
"x-----xx-----x-x",
"x--x-----x---x-x--x",
"x-----x-----x",
"x-----x-----3-----x",
"x-----x---g---x",
"x-x-----x-----x",
"xxx--x-----x",
"xxxxxxxxxxxxxxxxxxxxxxxx",
],
[
"cc",
"180",
"180",
"c",
"cc",
"180",
"180",
"180",
"cc",
"180",
"180",
"cc",
"cc"
]
)
```

### 5.17.3 Submission Output

part03test17.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxxxx"
"x-----x---xxx"
"x----x-----x-x"
"x--1---x-----x"
"x-----x-----x"
"x-----x---x-----x"
"x-3x-x---x-----x-x"
"x-x-----xx-----x"
"x---x-----2-x-x"
"x-x-----x---x---x"
"x-----x"
"x-----xxx-----x-x--x"
```

```
"x4----x----x-----x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

#### 5.17.4 Solution Output

part03test17.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x-----x---xxx"
"x----x-----x-x"
"x--1---x-----x"
"x-----x-----x"
"x-----x----x-----x"
"x-3x-x---x-----x-x"
"x-x-----xx-----x"
"x--x-----2-x-x"
"x-x-----x--x--x"
"x-----x"
"x-----xxx-----x-x-x"
"x4----x----x-----x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

#### 5.17.5 stderr

part03test17.err

### 5.18 part03test18

#### 5.18.1 Diff

part03test18.diff

#### 5.18.2 Input File

part03test18.g

```
(
[
"xxxxxxxxxxxxxxxx",
"x-----xx",
"x-----xx",
"x--x-xxx--x",
"x-x--xxxgx-x",
"xx-----x4--x",
"x----2--xx-x",
"x----x-x--x",
"xx-----xx",
"x-----xx",
"xxx-1-x--x-x",
"x--x-----x",
"x----3---xx",
"x----x-----x",
"x----x-----x",
"x--x--x--x",
"x-x-x----x-x",
"x-----x",
"x---xx-----x",
"xxxxxxxxxxxxxxxx"
```

```
],
[
"cc",
"cc"
]
)
```

### 5.18.3 Submission Output

part03test18.output

```
"Result "
"xxxxxxxxxxxxxxxx"
"x-----xx---x"
"x-----x"
"x-x-----x-x-x"
"x--x--x---x"
"x-----x---x"
"x-----x---x"
"xx-----x"
"x-----x-3x"
"x-x--x---xxx"
"xx-----x"
"xx-----xx"
"x--x-x---x"
"x-xx-----2x"
"x--x-----xx"
"x-x4xxx--x-x"
"x--xxx-x---x"
"xx-----x"
"xx-----1--x"
"xxxxxxxxxxxxxxxx"
"
```

### 5.18.4 Solution Output

part03test18.output

```
"Result "
"xxxxxxxxxxxxxxxx"
"x-----xx---x"
"x-----x"
"x-x-----x-x-x"
"x--x--x---x"
"x-----x---x"
"x-----x---x"
"xx-----x"
"x-----x-3x"
"x-x--x---xxx"
"xx-----x"
"xx-----xx"
"x--x-x---x"
"x-xx-----2x"
"x--x-----xx"
"x-x4xxx--x-x"
"x--xxx-x---x"
"xx-----x"
"xx-----1--x"
"xxxxxxxxxxxxxxxx"
"
```

### 5.18.5 stderr

part03test18.err

## 5.19 part03test19

### 5.19.1 Diff

part03test19.diff

### 5.19.2 Input File

part03test19.g

```
(
[
"xxxxxxxxxxxxxxxxxx",
"x----x----x--x",
"x-xx-g----xx-x",
"x-----4x",
"x-x-----x--x",
"xx-----x---x",
"x---xx-x-----x",
"x---x-----1xx",
"x-x--x---x---x",
"x--x----x-x--x",
"x--x-x-----x",
"x-----x2x-x",
"x-----x-x-x-x",
"x-----3---xx",
"x-----x",
"xxxxxxxxxxxxxxxxxx",
],
[
"cc",
"cc",
"c",
"c",
"c",
"180",
"c",
"c",
"180",
"cc",
"cc",
"c",
"cc",
"c",
"cc",
"c",
"cc",
"180",
"c",
"cc"
]
)
```

### 5.19.3 Submission Output

part03test19.output

```
"Result"
"xxxxxxxxxxxxxxxxxx"
"x-----x----x"
"x-----2x---x-x-x"
```

```

"x----xx-----x-x"
"x-----xx----4x"
"x----x-x-x---gxx"
"x-----x"
"x--x-----x--x"
"x-----x-----x"
"x--xx--x--x----x"
"x-----x----x-xxx"
"x--xx-----x-x"
"x-x-----x----31x"
"xxxxxxxxxxxxxxxxxx"
" "

```

#### 5.19.4 Solution Output

part03test19.output

```

"Result"
"xxxxxxxxxxxxxxxxxx"
"x-----x----x"
"x-----2x---x-x-x"
"x-----xx-----x-x"
"x-----xx----4x"
"x----x-x-x---gxx"
"x-----x"
"x--x-----x--x"
"x-----x-----x"
"x--xx--x--x----x"
"x-----x----x-xxx"
"x--xx-----x-x"
"x-x-----x----31x"
"xxxxxxxxxxxxxxxxxx"
" "

```

#### 5.19.5 stderr

part03test19.err

### 5.20 part03test20

#### 5.20.1 Diff

part03test20.diff

#### 5.20.2 Input File

part03test20.g

```

(
[
"xxxxxxxxxxxxxxxxxx",
"x---x-----g---x",
"xx---x-----x",
"x-4-----x-x--xx",
"xx-x-x--x-----x",
"x-----x--x",
"x-----x-1--x",
"x-----xx---x",
"x-----3---x",
"x-----x",
"x---x-----x--x",

```

```

"x-----2---x",
"x-----x-----xx",
"x-----x",
"xxxxxxxxxxxxxxxxx",
],
[
"cc",
"c",
"cc",
"c",
"cc",
"180",
"c",
"180",
"c",
"c",
"cc",
"c",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
"cc",
]
)

```

### 5.20.3 Submission Output

part03test20.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x--x-----x-x"
"x-----x"
"x---x---x---x"
"x4-x---x-----x"
"x-----xx-----x"
"x--xx-----x"
"x-----x-x"
"x-3-----x"
"x-x-x-----x"
"xx-----x---x"
"x--x-----x"
"x-----x"
"x-x-x-----1-2x"
"xxxxxxxxxxxxxxxxx"
"

```

### 5.20.4 Solution Output

part03test20.output

```

"Result "
"xxxxxxxxxxxxxxxxx"
"x--x-----x-x"
"x-----x"
"x---x---x---x"
"x4-x---x-----x"
"x-----xx-----x"
"x--xx-----x"
"x-----x-x"

```

```

"x-3-----x"
"x-x-x-----x"
"xx-----x---x"
"x---x-----x"
"x-----x"
"x-x-x-----1-2x"
"xxxxxxxxxxxxxxxx"
"

```

## 5.20.5 stderr

part03test20.err

## 5.21 part03test21

### 5.21.1 Diff

part03test21.diff

### 5.21.2 Input File

part03test21.g

```

(
[
"xxxxxxxxxxxxxxxx",
"xx-----x",
"x-4x--x---x",
"xx----xx-x-x",
"x-1---x-g--x",
"xx-----x--xx",
"x-----xx-x",
"xx-----x",
"xx-----x",
"xx-x-----x",
"xx-xx-x--x-x",
"x-x-2-----x",
"x-----x",
"x-----x--x",
"xx-----xx",
"x---3-----x",
"x-----x",
"x-x--x-----x",
"xxxxxxxxxxxxxxxx"
],
[
"c",
"180",
"cc",
"cc",
"c",
"180",
"cc"
]
)

```

### 5.21.3 Submission Output

part03test21.output

```
"Result"
```



```

"xxxxxxxxxxxxxxxxxxxxxx"
"x----x-----x---x"
"x--x--x---x--2----x"
"x---g-x-----x----x"
"x--x-x-----x----x"
"x-xxx-----x-----3x"
"x-----xx"
"x-----x-----x"
"x-x-----xx-----x"
"x-----4x-----xx"
"xx-x-x-xxxx---x-1-x"
"xxxxxxxxxxxxxxxxxxxxxx"
"

```

## 5.21.4 Solution Output

part03test21.output

```

"Result"
"xxxxxxxxxxxxxxxxxxxxxx"
"x----x-----x---x"
"x--x--x---x--2----x"
"x---g-x-----x----x"
"x--x-x-----x----x"
"x-xxx-----x-----3x"
"x-----xx"
"x-----x-----x"
"x-x-----xx-----x"
"x-----4x-----xx"
"xx-x-x-xxxx---x-1-x"
"xxxxxxxxxxxxxxxxxxxxxx"
"

```

## 5.21.5 stderr

part03test21.err

## 5.22 part03test22

### 5.22.1 Diff

part03test22.diff

### 5.22.2 Input File

part03test22.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"x---x-----x-x",
"x-x-----x",
"x----x-----x--x",
"x-----x-----x",
"x-x-----x-x-----x",
"x---g---2-x-xx--x",
"x-----x-----x",
"x-x---1-----x",
"xxxxxxxxxxxxxxxxxxxxxx"
],
[

```

```

"180",
"cc",
"cc",
"c",
"180",
"180",
"cc",
"cc",
"cc",
"c",
"180",
"c"
]
)

```

### 5.22.3 Submission Output

part03test22.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x-x"
"x-----x-----x"
"x--xx-x-----g---x"
"x-----x-x-----x-x"
"x-----x-----x"
"x--x-----x-----x"
"x-----x-x"
"x-x1-----x2--x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 5.22.4 Solution Output

part03test22.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x-x"
"x-----x-----x"
"x--xx-x-----g---x"
"x-----x-x-----x-x"
"x-----x-----x"
"x--x-----x-----x"
"x-----x-x"
"x-x1-----x2--x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

### 5.22.5 stderr

part03test22.err

## 5.23 part03test23

### 5.23.1 Diff

part03test23.diff

### 5.23.2 Input File

```
(
[
"xxxxxxxxxxxxxxxxxxxxxx",
"x-x-----x-xx--xx",
"x-----2-----x-x-x",
"x-----x-----x---x",
"x-----x--1-----x",
"x--xx-----xx-x-x",
"x--xx-----x",
"x-----x-----x---x",
"x-xx--x--g-----x",
"x-----x-x--x--4---x",
"x-----xxx-----x",
"x-----x-----xx",
"x---x-----x",
"x-----x--x-x-xx",
"xx-----x-x---x",
"x-----x-----3-----x",
"x-x-----x-----x",
"x-----x",
"x-----xx-x-----x",
"xxxxxxxxxxxxxxxxxxxxxx"
],
[
"180"
]
)
```

### 5.23.3 Submission Output

part03test23.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
"x-----x-xx-----x"
"x-----x"
"x-----x-----x-x"
"x-----3-----x---x"
"x---x-x-----xx"
"xx-x-x--x-----x"
"x-----x---x"
"xx-----x---x"
"x-----xxx-----x"
"x-----x--x-x---x"
"x-----g--x--xx-x"
"x-----x-----x"
"x---4-----xx--x"
"x-x-xx-----xx--x"
"x-----x-----x"
"x---x-----x---x"
"x-x-x1-----x"
"xx--xx-x-2-----x-x"
"xxxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.23.4 Solution Output

part03test23.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxxx"
```

```

"x-----x-xx-----x "
"x-----x "
"x-----x-----x-x "
"x-----3-----x-----x "
"x--x-x-----xx "
"xx-x-x-x-----x "
"x-----x-----x "
"xx-----x-----x "
"x-----xxx-----x "
"x-----x--x-x-----x "
"x-----g--x--xx-x "
"x-----x-----x-----x "
"x--4-----xx--x "
"x-x-xx-----xx--x "
"x-----x-----x "
"x--x-----x-----x "
"x-x-x1-----x "
"xx--xx-x-2-----x-x "
"xxxxxxxxxxxxxxxxxxxxxx "
" "

```

### 5.23.5 stderr

part03test23.err

## 5.24 part03test24

### 5.24.1 Diff

part03test24.diff

### 5.24.2 Input File

part03test24.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxxx ",
"x--x-----x-----xx ",
"xx-----x-----x ",
"x-2xg-----x-----xx ",
"x-----x-x--1-----x ",
"x-----xx-----x ",
"x----x--x-x---x---x ",
"x-----x ",
"x--x-----x ",
"x-----x-----xx ",
"x--x-----x ",
"xxxxxxxxxxxxxxxxxxxxxx "
],
[
"c ",
"c ",
"180 ",
"c ",
"180 ",
"c "
]
)

```

### 5.24.3 Submission Output

part03test24.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxxxxxx "  
"x--x----x-----xx "  
"xx-----x----x "  
"x--xg-----x----xx "  
"x-----x-x-----x "  
"x-----xx----x "  
"x----x--x-x---x---x "  
"x-----x "  
"x--x-----x "  
"x-----x----xx "  
"x2-x1-----x "  
"xxxxxxxxxxxxxxxxxxxxxxxxxx "  
"
```

#### 5.24.4 Solution Output

part03test24.output

```
"Result "  
"xxxxxxxxxxxxxxxxxxxxxxxxxx "  
"x--x----x-----xx "  
"xx-----x----x "  
"x--xg-----x----xx "  
"x-----x-x-----x "  
"x-----xx----x "  
"x----x--x-x---x---x "  
"x-----x "  
"x--x-----x "  
"x-----x----xx "  
"x2-x1-----x "  
"xxxxxxxxxxxxxxxxxxxxxxxxxx "  
"
```

#### 5.24.5 stderr

part03test24.err

### 5.25 part03test25

#### 5.25.1 Diff

part03test25.diff

#### 5.25.2 Input File

part03test25.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxxxxxx",  
"x-----g---x",  
"xx-x--x--xx-x---x",  
"x--x-x-x-x-----x",  
"x--x-----x",  
"x-----x-----x",  
"x-----x-x",  
"xx-----2-----x",  
"x-x-----x",  
"x-----x--xx",  
]
```

```

"x-----xx-x-----x",
"x----xx--x---x--x--x",
"x---xx-x---x-----x",
"x-----1-----xx-x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"c",
"180",
"cc",
"180",
"180",
"180",
"180",
"180",
"180",
"180",
"cc",
"c",
"180",
"180",
"c",
"180"
]
)

```

### 5.25.3 Submission Output

part03test25.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----1x----x-x"
"x-----x-----x"
"x-----xxx-x"
"x-x-----x"
"x-xx-----x--x"
"x--x-----x-x"
"x-x-x-----x--x"
"x--x-----x"
"x--x-----xx-x"
"x--x-----x-x"
"x-x-----x----x"
"x-----x-x"
"x--x--x-----x"
"x-----x"
"x----x-----xx2x"
"xx-x-----x"
"xx-----x----x"
"x----x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
""

```

### 5.25.4 Solution Output

part03test25.output

```

"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x-----1x----x-x"
"x-----x-----x"
"x-----xxx-x"
"x-x-----x"

```

```

"x-xx-----x--x"
"x--x-----x-x"
"x-x-x-----x--x"
"x---x-----x"
"x--x-----xx-x"
"x---x-----x-x"
"x-x-----x----x"
"x-----x-x"
"x--x--x-----x"
"x-----x"
"x----x-----xx2x"
"xx-x-----x"
"xx-----x-----x"
"x----x-----x"
"xxxxxxxxxxxxxxxx"
" "

```

### 5.25.5 stderr

part03test25.err

## 5.26 part03test26

### 5.26.1 Diff

part03test26.diff

### 5.26.2 Input File

part03test26.g

```

(
[
"xxxxxxxxxxxx",
"x----x2---x",
"x-----x--x",
"x-34-x----x",
"xxx-x-----x",
"x--x-----x",
"x-----x",
"x-----xx",
"xx-----x",
"x-----x---x",
"x1--x-----x",
"x-----x-x",
"x---g-----x",
"x-----x",
"x---x-----x",
"x-----x--xx",
"xxxxxxxxxxxx"
],
[
"c"
]
)

```

### 5.26.3 Submission Output

part03test26.output

"Result"

```

"xxxxxxxxxxxxxxxxxxxxx"
"x-----x---x---x"
"x-----x---x"
"x-----1---x-3--x"
"x-x-g-x-----x4--x"
"x-----x-xx"
"xx-----x-----x"
"x-----x-x"
"x-----x"
"xx-----x-----2x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

## 5.26.4 Solution Output

part03test26.output

```

"Result"
"xxxxxxxxxxxxxxxxxxxxx"
"x-----x---x---x"
"x-----x---x"
"x-----1---x-3--x"
"x-x-g-x-----x4--x"
"x-----x-xx"
"xx-----x-----x"
"x-----x-x"
"x-----x"
"xx-----x-----2x"
"xxxxxxxxxxxxxxxxxxxxx"
"

```

## 5.26.5 stderr

part03test26.err

## 5.27 part03test27

### 5.27.1 Diff

part03test27.diff

### 5.27.2 Input File

part03test27.g

```

(
[
"xxxxxxxxxxxxxxxxxxxxx",
"x--x-----x--x",
"xx--xx-x-----x",
"x-----x-x--x--x",
"xxx-----xx-----x",
"xx-----g--xx---x-xx",
"x-----x-x-----1x",
"x--x-----x",
"xx-x-----2-----x",
"xxxxxxxxxxxxxxxxxxxxx"
],
[
"180",
"c"
]
)

```



```
]
)
```

### 5.27.3 Submission Output

part03test27.output

```
"Result "
"xxxxxxxxxxxx "
"x-----x---x "
"x-----x "
"xx-x-x---x "
"x-----x "
"x-----x "
"x--xx-----x "
"x--xx-----x "
"x--x-x---x "
"x-----1---x "
"x-----2---x "
"x----gx---x "
"x-x-----x "
"x-----x--x "
"x-x-----x "
"x-x-----x "
"xx-----xxx "
"x---x-----x "
"x-x-xx---xx "
"xxxxxxxxxxxx "
"
```

### 5.27.4 Solution Output

part03test27.output

```
"Result "
"xxxxxxxxxxxx "
"x-----x---x "
"x-----x "
"xx-x-x---x "
"x-----x "
"x-----x "
"x--xx-----x "
"x--xx-----x "
"x--x-x---x "
"x-----1---x "
"x-----2---x "
"x----gx---x "
"x-x-----x "
"x-----x--x "
"x-x-----x "
"x-x-----x "
"xx-----xxx "
"x---x-----x "
"x-x-xx---xx "
"xxxxxxxxxxxx "
"
```

### 5.27.5 stderr

part03test27.err

## 5.28 part03test28

### 5.28.1 Diff

part03test28.diff

### 5.28.2 Input File

part03test28.g

```
(  
[  
"xxxxxxxxxxxxxxxxxxxxxx",  
"x-----2---xxx--x",  
"x--xx-----x",  
"x-x-----x--x-x--x",  
"x--x-----gx-x---x",  
"x-----xxx-x",  
"x-----x-x-x-----x",  
"x-----x-----x",  
"x--x----1-----x",  
"x-----x---x--x",  
"xxxxxxxxxxxxxxxxxxxxxx",  
],  
[  
"c",  
"c",  
"c",  
"180",  
"c",  
"180",  
"c",  
"180",  
"180",  
"180",  
"180",  
"180",  
"cc",  
"180",  
"cc",  
"cc",  
"180",  
"180",  
"c"  
]  
)
```

### 5.28.3 Submission Output

part03test28.output

```
"Result "  
"xxxxxxxxxxxxxx"  
"x-----x"  
"x-----x--x"  
"x-x---x-x-x"  
"x-----x-x"  
"x-----x"  
"x--x-----x"  
"x---x-----x"  
"x-----x--x"  
"xx--x-g---x"
```

```
"x-----x2--x"
"x---x--x-xx"
"x----xx--xx"
"xx---x-x-xx"
"x-----x"
"x1-----x"
"xxxxxxxxxxxx"
"
```

#### 5.28.4 Solution Output

part03test28.output

```
"Result"
"xxxxxxxxxxxx"
"x-----x"
"x-----x--x"
"x-x---x-x-x"
"x-----x-x"
"x-----x"
"x--x-----x"
"x---x-----x"
"x-----x--x"
"xx--x-g---x"
"x-----x2--x"
"x---x--x-xx"
"x----xx--xx"
"xx---x-x-xx"
"x-----x"
"x1-----x"
"xxxxxxxxxxxx"
"
```

#### 5.28.5 stderr

part03test28.err

### 5.29 part03test29

#### 5.29.1 Diff

part03test29.diff

```
10,12c10,12
< "x3---x-x--x"
< "x2-----x"
< "x1----x---x"
---
> "x-----x-x--x"
> "x-----x"
> "x-----x---x"
15,17c15,17
< "x---x---x-x"
< "x-----x-x"
< "x-4-----x"
---
> "x3--x---x-x"
> "x2-----x-x"
> "x14-----x"
```

#### 5.29.2 Input File

```
(
[
"xxxxxxxxxxxxxxxxxxxx",
"x-----xx-----x",
"x-----x-----xxx-x",
"x---x--xx-1-----x",
"x-----x-----x",
"x4-----x-----x",
"x-----x----2-x--x",
"x-----x-----x",
"x-----x-----x",
"x----3----g-----x",
"xxxxxxxxxxxxxxxxxxxx",
],
[
"cc",
"cc",
"180",
"c",
"c",
"180",
"180",
"c",
"c",
"c",
"180",
"180",
"180"
]
)
```

### 5.29.3 Submission Output

```
"Result "
"xxxxxxxxxxxxx"
"x-----x"
"x-----x"
"x-----x"
"x-----x--x"
"x-----x"
"x---x---xxx"
"x-----x-xx"
"x3---x-x--x"
"x2-----x"
"x1----x---x"
"x-----x"
"x-----x-x"
"x---x---x-x"
"x-----x-x"
"x-4-----x"
"xxxxxxxxxxxxx"
"
```

### 5.29.4 Solution Output

```
"Result "
"xxxxxxxxxxxxx"
```

```

"x-----x"
"x-----x"
"x-----x"
"x-----x--x"
"x-----x"
"x---x---xxx"
"x-----x-xx"
"x----x-x--x"
"x-----x"
"x-----x---x"
"x-----x"
"x-----x-x"
"x3---x---x-x"
"x2-----x-x"
"x14-----x"
"xxxxxxxxxxxx"
" "

```

### 5.29.5 stderr

part03test29.err

## 5.30 part03test30

### 5.30.1 Diff

part03test30.diff

### 5.30.2 Input File

part03test30.g

```

(
[
"xxxxxxxxxxxx",
"xg--1-x--x",
"x-x-x--x-x",
"x-----x",
"x-----x-x",
"xx-----x",
"x---x----x",
"x-x-----xx",
"x-----x-x",
"x-----x",
"x-----x",
"x-x-----x",
"xx---xx--x",
"x-----x",
"x---xx2x-x",
"x----x-xxx",
"xxxxxxxxxxxx"
],
[
"c",
"cc",
"180",
"180",
"c",
"c",
"cc",

```

```
"c",
"180",
"c",
"c",
"cc",
"cc",
"180",
"cc",
"180",
"cc",
"cc"
]
)
```

### 5.30.3 Submission Output

part03test30.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x---x-----x---gx"
"x----x---x----x-x"
"x-----2-----x"
"x-x-----x---x-x"
"xxx-x-----x"
"x---x-----xx"
"xxx-----x---x-x-x"
"xx-----1x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.30.4 Solution Output

part03test30.output

```
"Result "
"xxxxxxxxxxxxxxxxxxxxx"
"x---x-----x---gx"
"x----x---x----x-x"
"x-----2-----x"
"x-x-----x---x-x"
"xxx-x-----x"
"x---x-----xx"
"xxx-----x---x-x-x"
"xx-----1x-----x"
"xxxxxxxxxxxxxxxxxxxxx"
"
```

### 5.30.5 stderr

part03test30.err

## 5.31 Source Code

csce322homework03part03.hs

```
1 import Prelude
2 import System.Environment ( getArgs )
3 import Data.List
4 import Data.Char
5 import Helpers
6
```

```

7  -- The main method that will be used for testing / command line access
8  main = do
9      args <- getArgs
10     filename <- readFile (head args)
11     (maze,moves) <- readGravityMazeFile filename
12     print "Result"
13     printMaze (manyPlayersManyRotations maze moves)
14
15  -- YOUR CODE SHOULD COME AFTER THIS POINT
16  manyPlayersManyRotations :: [[Char]] -> [[Char]] -> [[Char]]
17  manyPlayersManyRotations maze [] = maze
18  manyPlayersManyRotations maze (he:ta)
19  | inGoal == True = maze
20  | he == "c"      = manyPlayersManyRotations (makeMove c) ta
21  | he == "cc"     = manyPlayersManyRotations (makeMove cc) ta
22  | he == "180"    = manyPlayersManyRotations (makeMove oneEighty) ta
23  | otherwise      = error "bad move"
24  where
25      c          = clockwiseRotation (maze)
26      cc         = counterClockwiseRotation (maze)
27      oneEighty  = oneHundredEightyRotation (maze)
28      inGoal     = isGoal maze

```

# Chapter 6

## Helpers.hs

### 6.1 Source Code

Helpers.hs

```
1 module Helpers
2 ( readGravityMazeFile
3 , printMaze
4 , clockwiseRotation
5 , counterClockwiseRotation
6 , flatten
7 , getPlayersOrd
8 , isGoal
9 , makeMove
10 , moveAllPlayers
11 , movePlayer
12 , oneHundredEightyRotation
13 , recombine
14 , valueAtIndex
15 ) where
16
17 import Prelude
18 import Data.Char
19 import Data.List
20
21 readGravityMazeFile :: String -> IO ([[Char]], [[Char]])
22 readGravityMazeFile = readIO
23
24 printMaze :: [[Char]] -> IO ()
25 printMaze [] = do
26     print ""
27 printMaze (ro:ros) = do
28     print ro
29     printMaze ros
30
31 -- All added helper methods are below this point
32
33 clockwiseRotation :: [[Char]] -> [[Char]]
34 clockwiseRotation maze = (transpose . reverse) maze
35
36 counterClockwiseRotation :: [[Char]] -> [[Char]]
37 counterClockwiseRotation maze = (reverse . transpose) maze
38
39 -- take a 2d char list and flatten it to a 1d list
40 flatten :: [[Char]] -> [Char]
41 flatten maze = concat(maze)
```



```

42
43 -- returns a list of players in the maze, lowest player is first
44 -- Number of players in the game is 1 -4 inclusive
45 getPlayersOrd :: [Char] -> [Char] -> [Char]
46 getPlayersOrd arr [] = arr
47 getPlayersOrd arr (he:ta)
48 | he == '1' = getPlayersOrd ('1' : arr) ta
49 | he == '2' = getPlayersOrd ('2' : arr) ta
50 | he == '3' = getPlayersOrd ('3' : arr) ta
51 | he == '4' = getPlayersOrd ('4' : arr) ta
52 | otherwise = getPlayersOrd arr ta
53
54 -- checks if a 'g' value exists in the maze
55 isGoal :: [[Char]] -> Bool
56 isGoal maze
57 | elem 'g' fMaze = False
58 | otherwise      = True
59 where
60     fMaze = flatten maze
61
62
63 -- This method has a lot going on. What it does is :
64 -- takes a maze, then rotates it counterClockwiseRotation so cols are now rows
65 -- then flattens the maze (2d -> 1d), and moves every player in the flattened maze
66 -- then recombines (1d -> 2d) maze, which splits the 1d based on col value
67 -- then rotates the 2d maze back to original position
68 -- returns 2d maze
69 makeMove :: [[Char]] -> [[Char]]
70 makeMove maze = clockwiseRotation (recombine cols (moveAllPlayers playerOrd ccFlatten)
71 )
72 where
73     cc          = counterClockwiseRotation (maze)
74     ccFlatten   = flatten (cc)
75     cols        = length (head cc)
76     playerOrd   = getPlayersOrd [] ccFlatten
77
78 -- takes a flattened array
79 -- will use movePlayer, but will take a [char], return [char]
80 -- Takes an empty list and a flattned maze
81 -- retruns a list of all players on the board
82 moveAllPlayers :: [Char] -> [Char] -> [Char]
83 moveAllPlayers [] maze = maze
84 moveAllPlayers (he:ta) maze = moveAllPlayers ta (movePlayer he maze)
85
86 -- move player forward
87 -- returns a maze of the moved player
88 movePlayer :: Char -> [Char] -> [Char]
89 movePlayer _ [] = []
90 movePlayer player (he:ta)
91 | he == player && val == '-' = '-' : movePlayer player (player : tail ta)
92 | he == player && val == 'g' = '-' : he : movePlayer player (tail ta)
93 | otherwise                 = he : movePlayer player ta
94 where
95     val = valueAtIndex 1 (he:ta)
96
97 -- rotate a 2d array 180 degrees
98 oneHundredEightyRotation :: [[Char]] -> [[Char]]
99 oneHundredEightyRotation maze = clockwiseRotation(clockwiseRotation(maze))
100

```

```
101 --recombines (1d -> 2d) maze, splits the 1d based on int value
102 recombine :: Int -> [Char] -> [[Char]]
103 recombine _ [] = []
104 recombine cut maze
105   | cut > 0 = (take cut maze) : (recombine cut (drop cut maze))
106   | otherwise = []
107
108 -- retruns the value at a given index position
109 valueAtIndex :: Int -> [Char] -> Char
110 valueAtIndex index maze = (!! ) maze index
```