

PROBLEM F

FROM SCHAFFHAUSEN TO GENEVA BY BOAT

by Christian Kauth

Switzerland is specked by dozens of lakes: Lake Lemman, Lake Lucerne and Lake Constance, to name just a few of them. The point is that most of these lakes do not connect via rivers. The Swiss Federal Office of Transportation considers digging canals in order to span a navigable net that links the three most popular lakes of Switzerland. In this way it would be possible for boats from any of the three lakes to reach any of the other two lakes. As this project might turn out to be costly, the office asked PolyProg to help them evaluating the costs of their project.



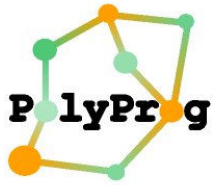
To this purpose, you are provided with a map of Switzerland, on which the three lakes are indicated by capital letters 'A', 'B' and 'C'. As digging canals over mountains requires the installation of sluices and aqueducts, the cost of digging these canals might highly depend on the topology and ranges from 1 to 9 per unit-channel.

INPUT

For each test case, the first line contains the dimensions of the map of Switzerland X and Y ($0 \leq X, Y \leq 100$). Follow X lines with Y non-spaced characters that describe the topology of Switzerland: 'A', 'B' and 'C' for the lakes and numbers from 1 to 9 for the cost of digging a canal through that square. The input terminates on a map with $X=0$ and $Y=0$, that must not be treated.

OUTPUT

For each test case, output the minimum budget the Swiss Federal Office of Transportation must foresee for this project.



SAMPLE INPUT

```
7 10
AAA1121638
AA84512553
A1188BB534
34496BB222
127656B599
9234432347
C123456789
7 10
AAA2163823
AA14912553
A91891153B
9411112221
9276512591
9234412341
C111111111
0 0
```

SAMPLE OUTPUT

```
14
20
```