Exercices blancs

Entrainez-vous !

Exercice 1 : Mastermind

Tout comme le jeu éponyme, le but est de retrouver une séquence de couleur, dans l'ordre. Pour chaque proposition de séquence faite, le nombre de couleurs bien placées et le nombre de couleurs mal placées est indiqué. En tenant compte de toutes les propositions et de leur résultat, il faut deviner la séquence inconnue.

//UNe couleur = 1 caractère

Chaque proposition comportera systématiquement le nombre de couleur attendue dans la réponse

Input : K lignes sous la forme

« AAAAAAAAAA N M » avec :

- AAAAAAAAAA : proposition (chaque caractère alphanumérique = 1 couleur)
- N : nombre de couleurs présentes et bien placées
- M : nombre de couleurs présentes et mal placées

Output : La séquence trouvée sous la forme « ABD2JADZ34J873JELS »

Exemple :

Si le fichier d'input contient :

Input :

ABB 1 0

CAB 2 0

CAC 1 1

Alors on en déduit que l'unique solution est CCB, en effet :

ABB	On déduit qu'il y a au maximum 1 B dans la solution, s'il y en a un.	Le 2ème B est bien placé, A et le 1er B ne sont pas dans la solution
CAB	On déduit que le A n'était pas bon en proposition 1, et qu'il n'y a donc pas de A dans la solution. On sait donc que C*B sont bien placés, or la ligne 1 nous indique qu'il n'y a pas de 2eme B ➔ La solution est donc CCB	Le C et le B sont bien placés, A ne fait pas partie de la solution
CAC	Cette ligne confirme notre supposition	Le 1er C est bien placé, le 2ème C est mal placé

Output :

CCB

Exercice 2 : Blackout

Instructions :

A massive game tournament took place in Rennes that has gathered a lot of local teams. The tournament proposes a lot of mini games and multiple teams compete in it. There is a lot of mini games, it can be a 1v1 clash or more (2v2, 6v6, 1v1v1, 2v2v2v2, ...). Each game scores different points when a team win the clash, some of them score 1 point when others score 2, 3, or more.

Teams was really enjoying the tournament and was able to the see their scores a the global rank in live.

Unfortunately, due to a power cut, all scores has been lost as it was stored in a distant numeric platform.

Luckily, a referee was responsible to write each earned point in the tournament in its personal board.

You was recruited to help them to recover the scores and the globak rank.

The referee gave you his list. Each line in his list describes a mini game final result and respects this format :

```
n <list>
```

Where:

- `n` is a positive number which represents the earned points of the mini game.
- `<list>` is a space separated name list of the person(s) who won the mini game (not the full team, only the person(s) of the team who took part in the mini game).

Important considerations: - A team can be made up of one or more person. - There is no duplicate in the person names meaning if there is a person named Mary, there is only one Mary in the tournament.

Sample :

Given this list :

```
3 Mary Bob
2 Bob
5 John Jack Patrick
1 Jess Piper
1 Joe Donald
4 Mark
1 Piper Mary
1 Donald Mark
```

The score board is :

```
7 points : Mary Bob Jess Piper
6 points : Joe Donald Mark
5 points : John Jack Patrick
```

Goal :

Given the referee.txt file as the referee personal board, write an algorithm to retrace the score board (or with any method you want).

Provide the answers : - How many points has the 1st team ? - Who is the 1st team made up of ? List and separate the names with a comma [,] and sort the names in the alpabetical order. - How many teams compete in the tournament ?

Write the answer with this format `ssg{answer1-answer2-answer3}`. Answer sample : `ssg{7-Bob,Jess,Mary,Piper-3}`

Exercice 3 : Easy Money

Instructions :

A company that manufactures scissors want to make their promotion on a rock paper scissors tournament with a huge cash prize.

Organizers decide to change the rules of a classic tournament and want to make every contestant plays against all contestants.

The person who will win the most matches will be declared victorious. In case of a tie, the person who has used scissors the most times wins.

The company wants to know how many matches will be played ?

Sample :

- For 1 contestants or less, there is no match.
- For 2 contestants, there is only 1 match, that's obvious.
- For 4 contestants, each player plays against each other player :

Given A, B, C, D our 4 players.

- A will play against B, C and D. => (A,B),(A,C),(A,D)
- B will play against A, C and D. => (A,B),(B,C),(B,D)
- C will play against A, B and D. => (A,C),(B,C),(C,D)
- D will play against A, B and C. => (A,D),(B,D),(C,D)

Remove duplicates from this list and we have : (A,B),(A,C),(A,D),(B,C),(B,D) and (C,D).

The answer for 4 contestants is 6 matches.

Goal :

Provide the answer for 23, 740, 2389 and 57982 contestants with this format `ssg{answer1-answer2-answer3-answer4}`.

Réponses aux 3 exercices :

Exercice 1 : Mastermind :

Output : CRYPTOGAMIQUES

Exercice 2 : Blackout :

Flag : ssg{51950-Jasmine,Loise,Pamela-692}

Generated 692 teams. Max: 51950 Team : ['Pamela', 'Loise', 'Jasmine']

Exercice 3 : Easy Money

Flag : ssg{253-273430-2852466-1680927171}

- 23 = 253
- 740 = 273430
- 2389 = 2852466
- 57982 = 1680927171