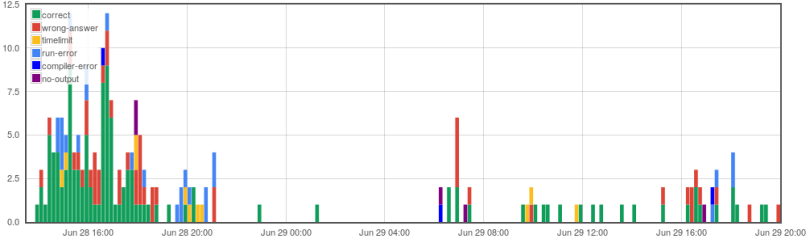


German Collegiate Programming Contest 2017 (Practice Session)

The GCPC 2017 Jury

01.07.2016

Statistics



A: Relatively Great - Sample Solution

Problem

Compute $E = mc^2$ for some m .

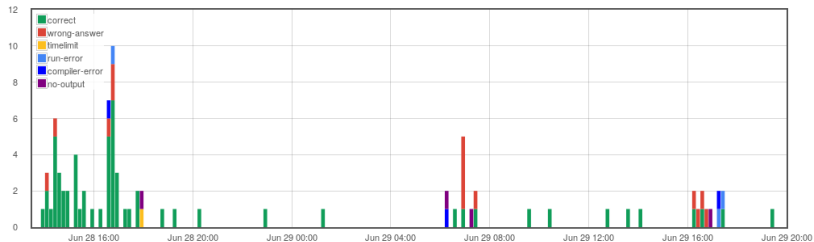
```
#include <stdio.h>
```

```
int main() {  
    long c = 299792458;  
    int m;  
    scanf("%i",&m);  
    long E = m*c*c;  
    printf("%ld\n",E);  
}
```

A: Relatively Great - Statistics

- ▶ Tried by 57 teams (44%), solved by 57 teams (44%)
- ▶ C++: Tried by 23 teams (18%), solved by 23 teams (18%), 37 submissions (62% correct)
- ▶ Java: Tried by 25 teams (19%), solved by 25 teams (19%), 34 submissions (74% correct)
- ▶ Python: Tried by 10 teams (8%), solved by 10 teams (8%), 15 submissions (67% correct)
- ▶ Fastest: 29 minutes, written by Hello KITty 🐱
- ▶ Best runtime: 1% of the given time, written by easy peasy lemon squeezy
- ▶ Shortest: 38 characters, written by 🌟🔥🌟 PanzerFAUst
🌟🔥🌟

A: Relatively Great - Statistics



B: Catch them all! - Sample Solution

Problem

You are given a list of Mainzelmoms with their respective ID, type, experience points, and monetary value. Produce a sorted list of Mainzelmoms in which every type occurs only once, and compute the sum of the experience points as well as the average of the monetary values of all Mainzelmoms.

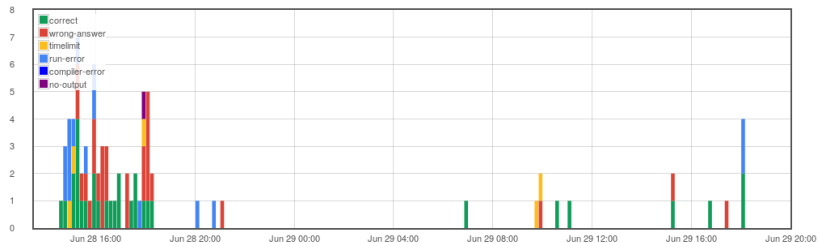
Solution

- ▶ Read in the list, save each type only once, sort the new list by the ID.
- ▶ Sum up the experience points of all the Mainzelmoms (the sum does not necessarily fit into an integer).
- ▶ Compute the average of the monetary values of all Mainzelmoms.

B: Catch them all! - Statistics

- ▶ Tried by 37 teams (29%), solved by 30 teams (23%)
- ▶ C++: Tried by 15 teams (12%), solved by 14 teams (11%), 23 submissions (61% correct)
- ▶ Java: Tried by 15 teams (12%), solved by 9 teams (7%), 43 submissions (21% correct)
- ▶ Python: Tried by 7 teams (5%), solved by 7 teams (5%), 12 submissions (58% correct)
- ▶ Fastest: 63 minutes, written by `java.lang.ProgrammerException`
- ▶ Best runtime: 1% of the given time, written by Romath
- ▶ Shortest: 281 characters, written by 🌟🔥🌟 PanzerFAUst
🌟🔥🌟

B: Catch them all! - Statistics



C: Advertising - Sample Solution

Problem

Find maximum value of participating likelihood for everyone.

C: Advertising - Sample Solution

- ▶ Participating Likelihood is the maximum over the incoming edges (where the start node is reachable by the source).
- ▶ First, find all reachable nodes (these will all have some likelihood > 0).
- ▶ Then, for each reachable node (except Gregor), choose the maximum incoming edge where the predecessor is reachable.
- ▶ Output the sum of all maxima.

C: Advertising - Statistics

- ▶ Tried by 31 teams (24%), solved by 26 teams (20%)
- ▶ C++: Tried by 12 teams (9%), solved by 12 teams (9%), 12 submissions (100% correct)
- ▶ Java: Tried by 13 teams (10%), solved by 10 teams (8%), 24 submissions (42% correct)
- ▶ Python: Tried by 7 teams (5%), solved by 4 teams (3%), 12 submissions (33% correct)
- ▶ Fastest: 79 minutes, written by <(Ov
- ▶ Best runtime: 6% of the given time, written by TheFruitDudes
- ▶ Shortest: 331 characters, written by 🌟🔥🌟 PanzerFAUst
🌟🔥🌟

C: Advertising - Statistics

