E - Fruit Lineup   Editorial (/contests/abc405/tasks/abc405_e/editorial)   🔴 / 🇬🇧

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 475 points

Problem Statement

You have A apples, B oranges, C bananas, and D grapes.

How many ways are there to arrange these $A + B + C + D$ fruits in a single row from left to right so that all of the following conditions hold? Find the count modulo 998244353.

- Every apple is placed to the left of every banana.
- Every apple is placed to the left of every grape.
- Every orange is placed to the left of every grape.

Here, the apples are indistinguishable; the same goes for the oranges, the bananas, and the grapes.

Constraints

- $1 \le A \le 10^6$
- $1 \le B \le 10^6$
- $1 \le C \le 10^6$
- $1 \le D \le 10^6$
- $A, B, C,$ and D are integers.

Input

The input is given from Standard Input in the following format:

$$A \quad B \quad C \quad D$$

Output

Output the number, modulo 998244353, of valid arrangements.

Sample Input 1 [Copy]

```
1 1 1 1
```

Sample Output 1 [Copy]

```
5
```

There are five valid arrangements:

- apple, orange, banana, grape
- apple, orange, grape, banana
- apple, banana, orange, grape
- orange, apple, banana, grape
- orange, apple, grape, banana

Sample Input 2 [Copy]

```
1 2 4 8
```

Sample Output 2 [Copy]

```
2211
```

Sample Input 3 [Copy]

```
834150 21994 467364 994225
```

Sample Output 3 Copy

947921688 Copy

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