

**Q1.** You are given a function  $f(x) = X^2$ . You are also given  $K$  lists. The  $i^{th}$  list consists of  $N_i$  elements.

You have to pick one element (**NOT NECESSARY THE LARGEST ELEMENT**) from each list so that the value from the equation below is maximized:

$$S = (f(X_1) + f(X_2) + f(X_3) + \dots + f(X_k))\%$$

$X_i$  denotes the element picked from the  $i^{th}$  list. Find the maximized value  $S_{max}$  obtained.

$\%$  denotes the modulo operator.

Note that you need to take exactly one element from each list, **NOT NECESSARILY THE LARGEST ELEMENT**. You add the squares of the chosen elements and perform the modulo operation. The maximum value that you can obtain, will be the answer to the problem.

### **Input Format**

The first line contains 2 space separated integers  $K$  and  $M$ .

The next  $K$  lines each contains an integer  $N_i$ , denoting the number of elements in the  $i^{th}$  list, followed by  $N_i$  space separated integers denoting the elements in the list.

### **Output Format**

Output a single integer denoting the value  $S_{max}$ .

### **Sample Input**

```
3 1000 // 3 is value of K(number of lists) and 1000 is value for M
2 5 4 // 2 is number of elements in the list and 5 4 are the Elements of first list
3 7 8 9 // 3 is number of elements in the list and 7 8 9 are the Elements of second list
5 5 7 8 9 10 // 5 is number of elements in the list and 5 7 8 9 10 are the Elements of third list
```

### **Sample Output**

206

### **Explanation**

Picking 5 from the 1<sup>st</sup> list, 9 from the 2<sup>nd</sup> list and 10 from the 3<sup>rd</sup> list gives the maximum S value equal to  $(5^2 + 9^2 + 10^2) \% 1000 = 206$ .