Chocolate Sweet

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Putata and Budada have a chocolate bar, which is divided into n rows and m columns, making a total of $n \cdot m$ small chocolate pieces. The deliciousness of the piece in the i-th row and j-th column is $a_{i,j}$. They decide to take turns eating the chocolate, with Putata going first. When eating, they can choose to eat the last few remaining rows or the last few remaining columns, but they cannot choose to eat nothing. Formally, if the remaining chocolate consists of pieces (i, j) satisfying $1 \le i \le a$ and $1 \le j \le b$, the player can choose $1 \le x \le a$ and eat all chocolate pieces (i, j) satisfying $a - x + 1 \le i \le a$ and $1 \le j \le b$, or choose $1 \le y \le b$ and eat all chocolate pieces (i, j) satisfying $1 \le i \le a$ and $b - y + 1 \le j \le b$.

Their teacher, Prof. Chen, always believes that humility is a virtue. Therefore, Prof. Chen has a tolerance level s. If, after Putata or Budada eats some chocolate, the total deliciousness of the remaining chocolate is less than or equal to s, the last person to eat will be criticized. Putata and Budada are very smart and will always choose the best way to avoid being criticized. According to the survey results, Prof. Chen's tolerance level has q possible values. For each $1 \le i \le q$, you need to determine who will be criticized if Prof. Chen's tolerance level is s_i.

Input

The input contains multiple test cases. The first line contains an integer T ($1 \le T \le 10^5$), denoting the number of test cases.

For each test case, the first line contains three positive integers n, m, q ($1 \le n \cdot m \le 2 \cdot 10^5, 1 \le q \le 2 \cdot 10^5$), denoting the size of the chocolate.

The i-th of the next n lines contains m integers, the j-th integer is $a_{i,j}$ ($1 \le a_{i,j} \le 10^9$), denoting the deliciousness of the piece of chocolate in the i-th row and j-th column.

The i-th of the next q lines contains an integer s_i ($0 \le s_i < \sum_{i=1}^{n} \sum_{j=1}^{m} a_{i,j}$), denoting a query.

It is guaranteed that the sum of $n \cdot m$ does not exceed $2 \cdot 10^5$, and the sum of q does not exceed $2 \cdot 10^5$.

Output

For each test case, output q lines, the i-th line contains a string "`Putata`" or "`Budada`", denoting the one being criticized.

Example

standard input	standard output
2 3 3 2 1 2 1 1 1 3 1 4 2 1 5 2 2 1 1000000000 1000000000 1000000000 1000000000 0	Putata Budada Putata