Statement

Sidhant has a girlfriend, he likes to impress her by taking her to world tour. He has N bank accounts in N countries that he would be visiting and each bank account would be containing $A_1,A_2,....A_N$ amount of money respectively. There could be only one issue ie issue of money, as he would be requiring a lot of money. He just want to make sure that if he is in i^{th} country then the money required by him is less than the value of $(A_{i-L})….+(A_{i-1})+(A_i)+(A_{i+1}) + …. (A_{i+R})$, where L and R are given. Help chef to solve his problem. As it is a world tour assume it to be a round tour in clockwise direction.

Query Type

1 B M: Query of type 1 with bank account index as B and amount of money deposited to bank account is M

2 B M L R: Query of type 2 with bank account index as B, amount of money to be checked as M, leftmost account from B to be considered as L and rightmost account from B to be considered as R.

Note: Money is only checked and not withdrawn from bank account

Input

The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.

The first line of each test case contains a integer N and Q denoting the number of bank account he would be visiting and the number of query respectively.

The second line contains N space-separated integers A1,A2,…,AN denoting the balance in each account.

Each of the following Q lines describes one query in the following format:

1 B M: for query of first type
2 B M L R: for query of second type

Output

For each query of type 2 print a single line either “YES” or “NO” without quotes whether chef would be having the required money at that time or not.

Constraints:

1<=T<=100
0<N,Q,B<=10^5
0<=M, Ai<=2*10^9
0<=L,R<N
L+R+1<=N
Ai cannot be a negative

Example

Input

1
5 5
1 2 3 4 5
1 2 5
1 1 10
2 2 20 1 1
2 5 20 1 1
2 3 31 2 2

Output

YES
YES
NO

Explanation

Account Balance : 1 2 3 4 5
After 1st query : 1 7 3 4 5 (Deposited money to first bank account)
After 2nd query : 11 7 3 4 5 (Deposited money to second bank account)
Third query : **11 7 3** 4 5 (sum of 11, 7, 3 is 21 which is greater than 20 therefore YES)
Fourth query : **11** 7 3 **4 5** (sum of 4, 5, 11 is 20 which is equal to 20 therefore YES)
Fifth query : **11 7 3 4 5** (sum of 11, 7, 3, 4, 5 is 30 which is less than 31, NO)