Leo Da Vinci at Trump's Casino

One day Leo da Vinci goes for gambling at Trump’s Casino. He goes to a special game which requires lot of memorization power. The game manager shows Leo N number of cards each of which has a number written on it. The numbers in the card are denoted as C = [c1,c2,c3,…cN]. The manager then packs the deck of cards and keeps it front of Leo. The manager then picks up any random number R. Now as per rules, Leo can take bulk of cards which are consequent to each other where the number of odd numbers in it is exactly equal to R. Now Leo has to choose a bulk with maximum number of cards X which has exactly R number of odd numbers in it. For example if C = {2, 3, 4, 11, 4, 12, 7}, R = 1 then Leo can choose bulk of cards as {4, 11, 4, 12} so length of the bulk of cards is X = 4. If C = {3, 4, 6, 1, 9, 8, 2, 10}, R = 2 then X=7 as the cards bulk is {4, 6, 1, 9, 8, 2, 10}.

Input Format
7 2 3 4 11 4 12 7 1

Constraints
NA

Output Format
4

Sample Input 0
7
2 3 4 11 4 12 7
1
Sample Output 0
4

Airtel comes to Bennett University

Airtel is a very generous and humble mobile network. One day it chooses Bennett University as a venue to make free outgoing service for its customers. The university has N number of airtel students each of them have different balances in their mobile B = [b1,b2…bN]. These balances can be positive as well as negative. Now Airtel can choose a subsequence of students S who are adjacent to each other in B where the balance of the first guy in S should be greater than or equal to balance of the last guy in S. Now Airtel is sitting there and wondering that what is the maximum number of accounts X it can make outgoing free if it choses S in the aforementioned way. For example, if B = {-5, -1, 7, 5, 1, -2} then S can be {-1, 7, 5, 1, -2} so X = 5. If B = {1, 5, 7} then X = 1.

Input Format
6 -5 -1 7 5 1 -2

Constraints
NA

Output Format
5

Sample Input 0
```
6
-5 -1 7 5 1 -2
```
Sample Output 0
```
5
```

Jason Bourne at Season12 Area with Level3 bag

Jason Bourne goes on a special PUBG mission with infinite gun capacity. Jason is given a level 3 bag with bullet capacity X. He jumps to the S12 arena and finds a secret room with N number of guns each with different number of bullets B = [b1,b2,b3,…,bN]. Only way he can loot the guns is he can choose any number of guns which are adjacent to each other. Since Jason wants to loot as many guns as possible and to fill the bag. He has to choose a series of guns whose sum of bullets is lesser or equal to the bag capacity X. The series should be as lengthy as possible as Jason can carry any number of guns. So, Jason was wondering what is the maximum possible number of guns Y he can choose? If B = {1, 2, 1, 0, 1, 1, 0}, and X = 4 then Y=5 as the gun series can be {1, 0, 1, 1, 0}

Input Format
7 1 2 1 0 1 1 0 4

Constraints
NA

Output Format
5

Sample Input 0
7
1 2 1 0 1 1 0
4
Sample Output 0
5

Zombies and Aliens on a friendly match

On a fine Sunday evening, Zombies and Aliens decide to have friendly fight game. There are N Zombies each with experience E=[e1,e2,e3….eN]. The rule of the game is such that the team in Zombies can be chosen only based on the adjacent Zombies from E. Also, the number of Zombies with experience more than a threshold X is more than the number of Zombies with experience less than X. As Zombies want to win the Aliens in the fight, they want to choose large number of Zombies in the team. So given the experiences E and threshold X, find the maximum length of the team L (with adjacent members) who has more number of Zombies with experience more than X. If E = {1, 2, 3, 4, 1} and X = 2 then L = 3 as the teams can be either [2, 3, 4] or [3, 4, 1] If E = {6, 5, 3, 4} and X=2 then L = 4

Input Format
5 1 2 3 4 1 2

Constraints
NA

Output Format
3

Sample Input 0
5
1 2 3 4 1
2
Sample Output 0
3

BJP and Congress fighting for 2096 Elections

In 2096, BJP and Congress are onto the PM election where each of these parties have M and N number of campaigners. Each of the campaigners in BJP have different ages B = [b1,b2,b3…bM] where in Congress the campaigner ages are C = [c1,c2,c3…cN]. Both BJP and Congress parties decide the number of active campaigners as X and Y correspondingly. Since BJP decides to do the campaign only with youngsters, it decides to choose the X number of active campaigners from B where all the active X candidates should be younger than all the Y active campaigners from C. Now BJP is wondering whether it is possible to make such selection with X and Y from B and C. If possible print “Yes” or “No”. Example: B = [1, 1, 1, 1, 1], C = [3, 1], X = 3, Y = 1 the possibility is “Yes” because we can choose [1 1 1] from B and [3] from C. B = [5, 4], C = [2, 3, 2, 2], X = 2, Y = 1, output is “No”

Input Format
5 1 1 1 1 1 2 3 1 3 1

Constraints
NA

Output Format
Yes

Sample Input 0
```
5
1 1 1 1 1
2
3 1
3 1
```
Sample Output 0
```
Yes
```

Arijit Singh gets favor from the God

One day, Arijit Singh sings a song God in the early morning. God became very happy hearing Arijit's soulful voice. So God comes to Arijit and says that he can change his current wealth from X rupees into Y rupees using two magical spells. If Arijit says "Laddu" the current wealth X will be multiplied by 2, or if he says "Jaddu" the wealth X will be subtracted by 1. God also advised Arijit not to waste the magical spell by saying them too many times. Now Arijit is wondering that what is the minimum number of times Z he can say either of those spells and convert the money from X to Y. Example if X = 4 and Y = 7 then Z = 2 as he can say Laddu then Jaddu to make 4 into 7 (i.e. 4*2-1 = 7) If X = 2 and Y = 5 then Z = 4 as first he does 2*2 = 4, then 4-1 = 3 then 3*2 = 6 then 6-1 = 5

Input Format
4 7

Constraints
NA

Output Format
2

Sample Input 0
4 7
Sample Output 0
2

Tiger Shroff meets a ghost while dancing

Tiger Shroff one day practises dance till the midnight 12 O'clock in his studio. The ghost which lives in the studio became awake when it heard loud dance music playing in the room. Ghost then decides to capture Tiger, so it locks the building. When Tiger is done with dance, ghost stops him and says that he has to solve a puzzle to get out. Ghost says that a number is a Bingo if it has only binary digits in it for example 101, 1101, 11 etc. Now Ghost gives a number X to Tiger and asks Tiger to find the smallest Bingo number Y which can be divisible by X. Now you gotta help Tiger to go home by finding Y. For example, if X=2 then Y = 10. If X = 17 then Y = 11101

Input Format
2

Constraints
NA

Output Format
10

Ravindra Jadeja tries to steal Rohit Sharma's suitcase

Ravindra Jadeja is a naughty CSE student in Bennett University. Jadeja one day he tried to peek into his roommate Rohit Sharma's suitcase. The suitcase has security system with 4-digit numbers. When Jadeja was trying to open the suitcase, Rohit catches him. Jadeja then smiles like an innocent boy. Now Rohit says that Jadeja will allow him to have a look inside the suitcase if he can do the unlocking in the following way. Rohit will reveal the actual pin Y (prime number) and set the lock with 4 digit prime number X. Now Jadeja has to change only one digit of X at a time. The number he sets from X should be a prime number. Then one digit of that prime number can be changed where the next number should also be a prime number. In this way Jadeja has to change X into Y by changing one digit at a time where each number on the series should be a prime number. Since Jadeja is a lazy boy he was wondering that what is the minimum number of times Z he can do the iteration to convert a prime number X to prime number Y.
If suppose X = 1033 and Y = 8179, then sequence is 1033, 1733, 3733, 3739, 3779, 8779, 8179. So the answer Z = 6. Similarly if X = 1373 and Y = 8017 then Z=7. If X=1033 and Y = 1033 then Z=0.

Input Format
1033 8179

Constraints
NA

Output Format
6

Sample Input 0
1033 8179
Sample Output 0
6

Kapil Sharma goes to Vikendi for a Ghost Mission

Kapil Sharma is a famous astrologer in the city of Vikendi. One day manager of famous apartment group called Kapil and told that their residents are threatened by ghosts in their homes. The manager wanted Kapil to visit the apartment to solve this issue. The apartment has N*N grid of single villas. Kapil found that some villas have negative energy in it. 1 represents that villa has negative energy and 0 represents that no negative energy is present in a villa. This binary grid is represented as G. Kapil finds that a villa at ijth position will have ghost if the villas from i to N (single row elements starting from ijith position) and i to N (single column elements starting from ijith position) have negativity in it. In this manner Kapil has to count the number of villas X which have negative villas in the right side of the row and downside of the column. For example, G = [[1, 1, 1], [1, 1, 0], [1, 0, 1]] X=2 as the homes are at positions (0, 0) and (2, 2) If G = [[0, 1, 1], [0, 1, 1], [0, 1, 1]] X = 6

Input Format
3 1 1 1 1 1 0 1 0 1

Constraints
NA

Output Format
2

Sample Input 0
```
3
1 1 1
1 1 0
1 0 1
```
Sample Output 0
```
2
```

Snack Exchange at Bennett Lecture Hall

In Bennett University lecture hall H, there are N*N seats. Each seat is occupied by different students. Each of these students are denoted using one of the four numbers 0,1,2 and 3. Number 1 is only one student who is a snacks supplier, Number 2 is only one student who wants the snacks from 1. Number 3 is given to multiple people who can just pass the snacks to anyone next to them who is also number 3. Number 0 is given to people who does not cooperate in the whole process and does not pass the snacks to anyone. Given a hall H with a single source student 1, single destination student 2, 3s and 0s at random locations, you have to count what is the minimum number of moves X needed to move from the 1 to 2. If H = [[0 , 3 , 2], [3 , 3 , 0], [1 , 3 , 0]]; X=4
If H = [[3 , 3 , 1 , 0], [3 , 0 , 3 , 3], [2 , 3 , 0 , 3], [0 , 3 , 3 , 3]];
Then X=4

Input Format
3 0 3 2 3 3 0 1 3 0

Constraints
NA

Output Format
4

Sample Input 0
```
3
0 3 2
3 3 0
1 3 0
```
Sample Output 0
```
4
```

Vastu Shastra plays basketball with WWE players' life

In WWE, there are N players standing on a sequence each with unique rating R = [r1,r2,r3…rN]. A Vastu Shastra expert finds that a winning team can be formed in the following way. The team has to be formed consisting only with adjacent neighbouring players. Also the sum of first and last player’s ranks in the team should be equal to the maximum rating in the team. Now given R, you need to count how many different such unique winning teams X can be formed. Examples: R = [3, 4, 1, 5, 2], then X = 2 as such teams can be [3, 4, 1, 5, 2] where 3+2 = max([3, 4, 1, 5, 2]) and [3, 4, 1] where 3+1 = max([3,4,1]) If R = [1, 3, 2] then X=1.

Input Format
5 3 4 1 5 2

Constraints
NA

Output Format
2

Sample Input 0
```
5
3 4 1 5 2
```
Sample Output 0
```
2
```

Bennett's Lecture Hall experiences a proposal

In Bennett University lecture hall H, there are N*N seats. Each seat is occupied by different students. In this lecture hall, one student wants to give his love letter to another student during the class. Each of these students are denoted using one of the four numbers 0,1,2 and 3. Number 1 is the one student who wants to send the letter, Number 2 is only one student who is expecting the letter from 1. Number 3 is given to multiple people who can just pass the letter to anyone next to them who is also number 3. Number 0 is given to people who does not cooperate in the whole process and does not pass the letter to anyone. Given a hall H with a single source student 1, single destination student 2, 3s and 0s at random locations, you have to figure out whether it is possible to reach the letter from 1 to 2. Print Yes if possible otherwise print No. If H = [[0 , 0 , 2], [3 , 0 , 0], [1 , 3 , 0]]; No If H = [[3 , 3 , 1 , 0], [3 , 0 , 3 , 3], [2 , 3 , 0 , 3], [0 , 3 , 3 , 3]]; Yes

Input Format
3 0 3 2 3 3 0 1 3 0

Constraints
NA

Output Format
Yes

Sample Input 0
```
3
0 3 2
3 3 0
1 3 0
```
Sample Output 0
```
Yes
```

Kevin Hart went to Alaska

Kevin Hart is a wanderer from US. He goes to Alaska one day and find that there are lot of houses. At each house, Kevin can stay, eat and sleep for any number of days. If Kevin wants to move from house at Xth position to X+1 position then he needs to pay P amount of gold to the Alaskan government. Or if he wants to move to the house at position 2*X from X then he needs to pay Q amount of gold to the government. Now given P and Q, what tis the minimum amount of gold X that Kevin has to pay to move from house at 0 to house at Nth position. Examples, if N = 1, P = 3, Q = 4 then X = 3. Output: 3. I.e to move from position 0 to 1st position with cost = 3. If N = 9, P = 5, Q = 1, then X=13. Position 0 to 1 with cost 5. Then 1st to 2nd with cost 1, 2nd to 4th with cost 1, 4th to 8th with cost 1, then 8th to 9th with cost 5. Hence 5+1+1+1+5 = 13.

Input Format
1 3 4

Constraints
NA

Output Format
3

Sample Input 0
```
1 3 4
```
Sample Output 0
```
3
```

DJ Khaled sells Chocolates to Trump

DJ Khaled is an owner of chocolate shop called “Another One” in Gujrat. He wanted N chocolate boxes each with different number of chocolates C = [c1,c2,c3,…cN]. Khaled wanted N copies (i.e equal to the size of the array) of those chocolates from the whole sale shop. Khaled keeps the chocolate boxes for sale S by keeping them concatenated using C. For example, if C = [1, 2, 3] then N=3 Copies, S becomes [1,2,3,1,2,3,1,2,3]. Now Donald Trump visits the shop and wants to buy lot of chocolates. But Khaled had the following rule for buying the cholates. If Donald buys some A number of chocolates from ith box, then he can buy only more than A from the (i+1)th box. Since Trump wants to buy cholates from large number of boxes then find what is the maximum number of boxes Y he can buy. Now trump can buy [1,2,3] from S hence Y becomes 3. Example, If C = {3, 1, 4}, N = 3 then Y = 3. As S become {3, 1, 4, 3, 1, 4, 3, 1, 4}, so {1,2,3} can be bought from S.

Input Format
3 1 2 3

Constraints
NA

Output Format
3

Sample Input 0
```
3
1 2 3
```
Sample Output 0
```
3
```

David Beckham and his lovely daughter

David Beckham is a nice dude and a father. One day, he comes home very late and asks his little daughter to tell him a bedtime story. Since his daughter waited for David a long time, she has decided not to tell any funny story to her dad. However, David is so persistent in listening to a story from his daughter. Now his daughter has decided to give David a challenge. If David solve the challenge, then she will tell the story otherwise not. The challenge is, David's daughter has N number of dolls in a sequence S = [s1,s2,s3….sN] (i.e. string of length N). Each doll si has either a number or letter written on it. Now David can change the sequence in any way through swapping, shuffling or even removal of dolls from the S and make a new sequence T which is a palindrome. Now David's daughter asks him to make a lengthy palindrome with dolls and tell him that what is the number of dolls X. If S = [abc] then X = 1 as the palindrome are either a OR b OR c If S = [aabbcc] then X = 6. As the palindromes can be abccba OR baccab OR cbaabc OR any other palindromic string of length 6. If S = [abbaccd] then X = 7. If S = [aba] then X = 3.

Input Format
abc

Constraints
NA

Output Format
1

VIRUS from University of Dabra

Veeru Sahastra Buddhi aka VIRUS is an angry old professor from university of Dabra. In his class there are N students where a student male student is represented as 0 and female as 1. One day he calls his students to stand on a line. Since students randomly stood on a line along with their friends, all male and female students mixed together in the line L = [l1,l2,l3….lN] where li represents 0 or 1 based on male or female. Now VIRUS is very angry that students ae mixed in the line L. He wanted all the female students together in the line. At a time, VIRUS can swap any two students from the L. So now what is the minimum number of swaps X required to group the female students together. If L = {1, 0, 1, 0, 1} then X = 1. Only 1 swap is required to group all females together by swapping index 1 with 4 will give us a new sequence {1, 1, 1, 0, 0} If L = {1, 0, 1, 0, 1, 1} then X=1.

Input Format
5 1 0 1 0 1

Constraints
NA

Output Format
1

Sample Input 0
```
5
1 0 1 0 1
```
Sample Output 0
```
1
```

Ocean God has some plans for the fishes

The Indian Ocean had N number of fishes each with a specific amount of gold with them G = [g1,g2,g3…gN]. Fishes usually spend these golds for buying cosmetics and snacks in the Ocean Mall. One day the Ocean God has drunk a bottle of juice and said “You know what…. Imma make them fishes very unique”. So, god decided to give any amount of gold to individual fishes in G so that no two fishes can have the same amount of gold. Now God is wondering what is the minimum amount of gold X that he/she has to spend to make the fishes unique in G. If G = [3, 2, 1, 2, 1, 7] then X = 6 as, the new Gold could be [3, 4, 1, 2, 5, 7]. If G = [1, 2, 2] then X = 1. I.e the G can be [1,2,3]

Input Format
6 3 2 1 2 1 7

Constraints
NA

Output Format
6

Sample Input 0
```
6
3 2 1 2 1 7
```
Sample Output 0
```
6
```

Ocean Robbery gang is on another mission

The great Ocean robber gang is planning on a new robber mission called “Ocean N” with N members in it. Members in the mission have ages A = [a1,a2,a3…aN]. Since the mission needed cooperation from members, they were already in the increasing order. Cooperation between any two neighbouring members is based on their absolute age difference. Due to some reason they have to relieve K number of members from the gang. But after the removal of the K members, the maximum age difference among the adjacent members in the A should become minimum. So they need to choose those K members in such a way that even the maximum age difference X among neighbours is minimum for the new gang with size N-K. If A = {3, 7, 8, 10, 14}, K = 2 then X = 2. After removing elements A[0] and A[4], the maximum difference between adjacent members is minimum. After removing 0th and 4th member, the remaining gang is [7, 8, 10] If A = [12, 16, 22, 31, 31, 38], K = 3 then X = 6. After removing indices 3,4 and 5 array becomes [12, 16, 22].

Input Format
5 3 7 8 10 14 2

Constraints
NA

Output Format
2

Sample Input 0
5
3 7 8 10 14
2
Sample Output 0
2

Adolf Hitler is a funny warden, not for hostel but for jail

Adolf Hitler is the warden of central jail in Delhi. Hitler is known for giving funny punishments to the prisoners. One day Hitler was hungry and wanted to eat biscuits of the prisoners. There are N prisoners each with specific number of biscuits B = [b1,b2,b3…bN]. He told the prisoners that there is lot of duplicates in the number of biscuits among them B. Hitler then showed them a bucket full of biscuits (maximum of N). Now each of the inmates can either take one biscuit from the bucket and add with them or give one biscuit to the bucket from them or do nothing. In this way all N prisoners have to decide what to do with the biscuits. But finally B should have maximum number of unique biscuit counts X. If the maximum unique biscuit counts are not achieved Hitler told them that he will take all of their biscuits, If achieved Hitler will give his bucket full of biscuits to the prisoners. Now given B, with option for each prisoner to either add or subtract or doing nothing with biscuits, what is the maximum possible unique biscuit counts X be made with B? If B = {1, 2, 4, 4} then X = 4 as B can be made into {1, 2, 4, 5} or {1, 2, 3, 4} If B ={3, 3, 3, 3}, X = 3 as B can be made into {3, 2, 3, 4} and there are 3 unique values.

Input Format
4 1 2 4 4

Constraints
NA

Output Format
4
Sample Input 0
```
4
1 2 4 4
```
Sample Output 0
```
4
```

Drake is a duck hunter from Pandora

Drake is a flying duck hunter in a mysterious farmland of Pandora planet. The farmland has X*Y grid of traps T. Once the traps are filled with ducks at random locations of the grid of traps, Drake can fly above the farm and shot a square sized capturing net. If a duck is sitting in the trap, then it is denoted as 1 otherwise 0. The speciality of the capturing net is, it can fall only to square sized traps of size 1*1, 2*2, 3*3 and so on. If drake decides to shoot a net on a specific location it will fall into a grid square (1*1, 2*2, 3*3 and so on) where all the traps should have the ducks in it. If any trap inside Drake's net is empty, then the net will break, and birds will fly. One day before going to work, drake is wondering how many different ways Z he can shoot during his work. Let's say T = [[0, 1, 1, 1],[1, 1, 1, 1],[0, 1, 1, 1]] then the number of different possible ways are Z=15. Because, there are 10 squares of size 1*1 and 4 squares of size 2*2 and 1 square of size 3*3 where all have ducks in it. So total ways of shooting is 10 + 4 + 1 = 15. If T= [[1, 0, 1],[1, 1, 0],[1, 1, 0]], then Z = 7

Input Format

3 4 0 1 1 1 1 1 1 1 0 1 1 1

Constraints

Max dimension of grid is 1000*1000

Output Format

15

Sample Input 0

```
3 4
0 1 1 1
1 1 1 1
0 1 1 1
```

Sample Output 0

```
15
```