Decision Making Practice Question

Example1

Write a C program to check whether an alphabet is vowel or consonant using if else. How to check vowels and consonants using if else in C programming. C Program to input a character from user and check whether it is vowel or consonant. Logic to check vowel or consonant in C programming.

Example

Input

Input character: a

Output

'a' is vowel

Example2

Write a C program to check whether a triangle is valid or not if angles are given using if else. How to check whether a triangle can be formed or not, if its angles are given using if else in C programming. Logic to check triangle validity if angles are given in C program.

Example

Input

Input first angle: 60
Input second angle: 30
Input third angle: 90

Output

The triangle is valid

Example3

Write a C program to input sides of a triangle and check whether a triangle is equilateral, scalene or isosceles triangle using if else. How to check whether a triangle is equilateral, scalene or isosceles triangle in C programming. Logic to classify triangles as equilateral, scalene or isosceles triangle if sides are given in C program.

Example

Input

Input first side: 30
Input second side: 30
Input third side: 30

Output

Triangle is equilateral triangle

Example4:

Write a C Program to input two angles from user and find third angle of the triangle. How to find all angles of a triangle if two angles are given by user using C programming. C program to calculate the third angle of a triangle if two angles are given.

ExampleInput

Enter first angle: 60
Enter second angle: 80

Output

Third angle = 40

Example5

Write a C program to find all roots of a quadratic equation using if else. How to find all roots of a quadratic equation using if else in C programming. Logic to find roots of quadratic equation in C programming.

Example

Input

Input a: 8

Input b: -4

Input c: -2

Output

Root1: 0.80

Root2: -0.30

Example6

Write a C program to input electricity unit charge and calculate the total electricity bill according to the given condition:

For first 50 units Rs. 0.50/unit

For next 100 units Rs. 0.75/unit

For next 100 units Rs. 1.20/unit

For unit above 250 Rs. 1.50/unit

An additional surcharge of 20% is added to the bill.

How to calculate electricity bill using if else in C programming. Program to find electricity bill using if else in C. Logic to find net electricity bill in C program.

Example7

Write a C program to input principle, time and rate (P, T, R) from user and find Simple Interest. How to calculate simple interest in C programming. Logic to find simple interest in C program.

Example

Input

Enter principle: 1200

Enter time: 2

Enter rate: 5.4

Output

Simple Interest = 129.600006

Simple Interest formula

$$SI = \frac{P \times T \times R}{100}$$

where

P is the principle amount

T is the time

R is the rate

Example 8

Write a C program to input principle (amount), time and rate (P, T, R) and find Compound Interest. How to calculate compound interest in C programming. Logic to calculate compound interest in C program.

Example

Input

Enter principle (amount): 1200

Enter time: 2
Enter rate: 5.4

Output

Compound Interest = 1333.099243

Compound Interest formula

Formula to calculate compound interest annually is given by.

$$CI = P\left(1 + \frac{R}{100}\right)^{T}$$

Where,
P is principle amount
R is the rate and
T is the time span

Example9:

Write a C program to input week number(1-7) and print day of week name using switch case. C program to find week day name using switch case. How to find day name of week using switch case in C programming.

Example

Input

Input week number(1-7): 2

Output

Tuesday

Example 10

Write a C program to input month number and print total number of days in month using switch...case. C program to find total number of days in a month using switch...case. Logic to print number of days in a month using switch...case in C programming.

Example

Input

Input month number: 3

Output

Total number of days = 31

Example11

An automobile company manufactures both a two wheeler (TW) and a four wheeler (FW). A company manager wants to make the production of both types of vehicle according to the given data below:

- 1st data, Total number of vehicle (two-wheeler + four-wheeler)=v
- 2nd data, Total number of wheels = W

The task is to find how many two-wheelers as well as four-wheelers need to manufacture as per the given data.

Example :

Input :

- 200 -> Value of V
- 540 -> Value of W

Output :

- TW =130 FW=70

Explanation:

130+70 = 200 vehicles

(70*4)+(130*2)= 540 wheels

Constraints :

- 2<=W
- W%2=0
- V<W

Print “INVALID INPUT” , if inputs did not meet the constraints.

The input format for testing

The candidate has to write the code to accept two positive numbers separated by a new line.

- First Input line – Accept value of V.
- Second Input line- Accept value for W.

Example12

There is a JAR full of candies for sale at a mall counter. JAR has the capacity N, that is JAR can contain maximum N candies when JAR is full. At any point of time. JAR can have M number of Candies where M<=N. Candies are served to the customers. JAR is never remain empty as when last k candies are left. JAR if refilled with new candies in such a way that JAR get full.

Write a code to implement above scenario. Display JAR at counter with available number of candies. Input should be the number of candies one customer can order at point of time. Update the JAR after each purchase and display JAR at Counter.

Output should give number of Candies sold and updated number of Candies in JAR.

If Input is more than candies in JAR, return: “INVALID INPUT”

Given,

N=10, where N is NUMBER OF CANDIES AVAILABLE

K =< 5, where k is number of minimum candies that must be inside JAR ever.

Example 1:(N = 10, k =< 5)

- **Input Value**
  - 3
- **Output Value**
  - NUMBER OF CANDIES SOLD : 3
  - NUMBER OF CANDIES AVAILABLE : 7

Example : (N=10, k<=5)

- **Input Value**
  - 0
- **Output Value**
  - INVALID INPUT
  - NUMBER OF CANDIES LEFT : 10

Example13

A washing machine works on the principle of Fuzzy System, the weight of clothes put inside it for washing is uncertain But based on weight measured by sensors, it decides time and water level which can be changed by menus given on the machine control area.

For low level water, the time estimate is 25 minutes, where approximately weight is between 2000 grams or any nonzero positive number below that.

For medium level water, the time estimate is 35 minutes, where approximately weight is between 2001 grams and 4000 grams.

For high level water, the time estimate is 45 minutes, where approximately weight is above 4000 grams.
Assume the capacity of machine is maximum 7000 grams
Where approximately weight is zero, time estimate is 0 minutes.
Write a function which takes a numeric weight in the range [0,7000] as input and produces estimated time as output is: "OVERLOADED", and for all other inputs, the output statement is
"INVALID INPUT".
Input should be in the form of integer value –
Output must have the following format –
Time Estimated: Minutes

Example:

- Input value

2000

- Output value

Time Estimated: 25 minutes

Example14

There are total n number of Monkeys sitting on the branches of a huge Tree. As travelers offer Bananas and Peanuts, the Monkeys jump down the Tree. If every Monkey can eat k Bananas and j Peanuts. If total m number of Bananas and p number of Peanuts are offered by travelers, calculate how many Monkeys remain on the Tree after some of them jumped down to eat.
At a time one Monkeys gets down and finishes eating and go to the other side of the road. The Monkey who climbed down does not climb up again after eating until the other Monkeys finish eating.
Monkey can either eat k Bananas or j Peanuts. If for last Monkey there are less than k Bananas left on the ground or less than j Peanuts left on the ground, only that Monkey can eat Bananas(<k) along with the Peanuts(<j).
Write code to take inputs as n, m, p, k, j and return the number of Monkeys left on the Tree.
Where, n= Total no of Monkeys
k= Number of eatable Bananas by Single Monkey (Monkey that jumped down last may get less than k Bananas)
j = Number of eatable Peanuts by single Monkey(Monkey that jumped down last may get less than j Peanuts)
m = Total number of Bananas
p = Total number of Peanuts
Remember that the Monkeys always eat Bananas and Peanuts, so there is no possibility of k and j having a value zero

Example :

Input Values
20
2
3
12
12

Output Values

Number of Monkeys left on the tree:10

Example15

Checking if a given year is leap year or not

Explanation:

To check whether a year is leap or not

Step 1:

- We first divide the year by 4.
- If it is not divisible by 4 then it is not a leap year.
- If it is divisible by 4 leaving remainder 0

Step 2:

- We divide the year by 100
- **If it is not divisible by 100 then it is a leap year.**
- If it is divisible by 100 leaving remainder 0

Step 3:

- We divide the year by 400
- If it is not divisible by 400 then it is a leap year.
- If it is divisible by 400 leaving remainder 0

Example16

Chef has to travel to another place. For this, he can avail any one of two cab services.

- The first cab service charges X*X* rupees.
- The second cab service charges Y*Y* rupees.

Chef wants to spend the **minimum** amount of money. Which cab service should Chef take?

Input Format

- The first line will contain T*T* - the number of test cases. Then the test cases follow.
- The first and only line of each test case contains two integers X*X* and Y*Y* - the prices of first and second cab services respectively.

Output Format

For each test case, output FIRST if the first cab service is cheaper, output SECOND if the second cab service is cheaper, output ANY if both cab services have the same price.

You may print each character of FIRST, SECOND and ANY in uppercase or lowercase (for example, any, aNy, Any will be considered identical).

Constraints

1<=T<=100

1<X<Y<=100

Sample 1:

Input	**Output:**
3	
30 65	First
42 42	Any
90 50	Second

Explanation:

Test case 11: The first cab service is cheaper than the second cab service.

Test case 22: Both the cab services have the same price.

Test case 33: The second cab service is cheaper than the first cab service.

Example 17.

Chef is watching TV. The current volume of the TV is X*X*. Pressing the volume up button of the TV remote increases the volume by 11 while pressing the volume down button decreases the volume by 11. Chef wants to change the volume from X*X* to Y*Y*. Find the minimum number of button presses required to do so.

Input Format

- The first line contains a single integer T*T* - the number of test cases. Then the test cases follow.

- The first and only line of each test case contains two integers X*X* and Y*Y* - the initial volume and final volume of the TV.
-

Output Format

For each test case, output the minimum number of times Chef has to press a button to change the volume from XX to YY.

Constraints

1<=T <=100

1<=X<=Y<=100

Sample1

Input	**Output**
2	
50 54	4
12 10	2

Explanation:

Test Case 1: Chef can press the volume up button 4 times to increase the volume from 50 to 54.

Test Case 2: Chef can press the volume down button 2 times to decrease the volume from 12 to 10.

Example: 18

Problem

Pooja would like to withdraw X $US from an ATM. The cash machine will only accept the transaction if X is a multiple of 5, and Pooja's account balance has enough cash to perform the withdrawal transaction (including bank charges). For each successful withdrawal the bank charges 0.50 $US.

Calculate Pooja's account balance after an attempted transaction.

Input

Positive integer 0 < X <= 2000 - the amount of cash which Pooja wishes to withdraw.

Nonnegative number 0<= Y <= 2000 with two digits of precision - Pooja's initial account balance.

Output

Output the account balance after the attempted transaction, given as a number with two digits of precision. If there is not enough money in the account to complete the transaction, output the current bank balance.

Example - Successful Transaction

Input:

30 120.00

Output:

89.50

Example - Incorrect Withdrawal Amount (not multiple of 5)

Input:

42 120.00

Output:

120.00

Example - Insufficient Funds

Input:

300 120.00

Output:

120.00

Example 19

Problem

Ezio can manipulate at most XX number of guards with the apple of Eden.
Given that there are YY number of guards, predict if he can safely manipulate all of them.

Input Format

First line will contain TT, number of test cases. Then the test cases follow.
Each test case contains of a single line of input, two integers XX and YY.
Output Format
For each test case, print text {YES} YES if it is possible for Ezio to manipulate all the guards. Otherwise, print text {NO} NO.

You may print each character of the string in uppercase or lowercase
(For example, the strings text {Yes} YeS, text {yEs} yEs, \text {yes}yes and \text {YES}YES will all be treated as identical).

Constraints
1<=T<=100
1<=X<=Y

Sample1

_____

Input	Output
3	
5 7	NO
6 6	YES
9 1	YES

Explanation:
Test Case 11: Ezio can manipulate at most 55 guards. Since there are 77 guards, he cannot manipulate all of them.

Test Case 22: Ezio can manipulate at most 66 guards. Since there are 66 guards, he can manipulate all of them.

Test Case 33: Ezio can manipulate at most 99 guards. Since there is only 11 guard, he can manipulate the guard.

Example 20

Problem

To access CRED programs, one needs to have a credit score of 750750 or more.
Given that the present credit score is X*X*, determine if one can access CRED programs or not.
If it is possible to access CRED programs, output \text{YES}YES, otherwise output \text{NO}NO.

Input Format

The first and only line of input contains a single integer X*X*, the credit score.

Output Format

Print text{YES}YES if it is possible to access CRED programs. Otherwise, print \text{NO}NO.
You may print each character of the string in uppercase or lowercase (for example, the
strings text{YeS}YeS, \texttt{yEs}yEs, \texttt{yes}yes and \texttt{YES}YES will all be treated as identical).

Constraints

0<=X<=1000

Subtasks

- **Subtask 1 (100 points):** Original constraints.

Sample1

Input	**Output**
823	YES

Explanation:

Since 823 > 750 , it is possible to access CRED programs.

Sample2

Input	**Output**
251	No

Explanation

Since 251 < 750 it is not possible to access CRED Programs

Example 21.

Problem

There is a group of N*N* friends who wish to enroll in a course together. The course has a maximum capacity of M*M* students that can register for it. If there are K*K* other students who have already enrolled in the course, determine if it will still be possible for all the N*N* friends to do so or not.

Input Format

- The first line contains a single integer T*T* - the number of test cases. Then the test cases follow.
- Each test case consists of a single line containing three integers N*N*, M*M* and K*K* - the size of the friend group, the capacity of the course and the number of students already registered for the course.
- **Output Format**
- For each test case, output Yes if it will be possible for all the N*N* friends to register for the course. Otherwise output No.
- You may print each character of Yes and No in uppercase or lowercase (for example, yes, yEs, YES will be considered identical).

Constraints

1<=N<=M <=100

0<=K<=M

Sample1

Input			Output
2	50	27	Yes
5	40	38	NO
100	100	0	Yes

Explanation:

Test Case 1: The 22 friends can enroll in the course as it has enough seats to accommodate them and the 27 other students at the same time.

Test Case 2: The course does not have enough seats to accommodate the 55 friends and the 3838 other students at the same time.

Example22.

A study has shown that playing a musical instrument helps in increasing one's IQ by 77 points. Chef knows he can't beat Einstein in physics, but he wants to try to beat him in an IQ competition.
You know that Einstein had an IQ of 170170, and Chef currently has an IQ of *XX*.
Determine if, after learning to play a musical instrument, Chef's IQ will become strictly greater than Einstein's.
Print "Yes" if it is possible for Chef to beat Einstein, else print "No" (without quotes).
You may print each character of the string in either uppercase or lowercase (for example, the strings yEs, yes, Yes, and YES will all be treated as identical).

Input Format

- The first and only line of input will contain a single integer *XX*, the current IQ of Chef.

Output Format

- For each testcase, output in a single line "Yes" or "No"
- You may print each character of the string in either uppercase or lowercase (for example, the strings yEs, yes, Yes, and YES will all be treated as identical).

Constraints
100<=X<=169

Sample1

Input	Output
165	Yes

Explanation
After learning a musical instrument, Chef's final IQ will be 165+7=172. Since 172 >= 170 Chef can beat Einstein.

Sample2

Input	**Output**
120	No

Explanation:
After learning a musical instrument, Chef's final IQ will be 120+7=127120+7=127. Since 127 127<170, Chef cannot beat Einstein.