Lab 2 Gps 9-16 Solutions

1. Vowels 15

Write a program to print if the given character string s is a vowel or not. Print **YES** if it is a vowel and **NO** otherwise.

Input Format

A character string s

Constraints

Length of s will be 1

Output Format

Print **YES** if s is a vowel and **NO** otherwise.

Sample Input 0

```
a
```

Sample Output 0

```
YES
```

Explanation 0

As "a" is a vowel

Solution

```
s=input()
if(s=='a' or s=='e' or s=='i' or s=='o' or s=='u'):
    print("YES")
else:
    print("NO")
```

2. Am I a Triangle?

Given three sides of a triangle a, b and c (where a, b and c are integers), check if it is a valid triangle inequality property which is that the sum of any two sides is greater than the third side. Print **VALID** for a valid triangle and **NOT VALID** otherwise.

Input Format

The first line contains the value of a
The second line contains the value of b
The third line contains the value of c

Constraints

$0 < a \leq 1000$
$0 < b \leq 1000$
$0 < c \leq 1000$

Output Format

Print **VALID** for a valid triangle and **NOT VALID** otherwise.

Sample Input 0

```
1
2
4
```

Sample Output 0

```
NOT VALID
```

Explanation 0

Here, $a = 1$, $b = 2$ and $c = 4$. As the value of $a + b = 1 + 2 = 3$ and as here, $c > a + b$. It violates the triangle inequality property, so we print **NOT VALID**

Solution

```
a = int(input())
b = int(input())
c = int(input())
if(a+b<c):
    print("NOT VALID")
elif(b+c<a):
    print("NOT VALID")
elif(a+c<b):
    print("NOT VALID")
else:
    print("VALID")
```

3. Math Game 2

Given three numbers: a, b, and c. If the sum of a, b, and c is between (not inclusive) product of a and b, and product b and c, then-
print **Yay!**
Otherwise, print **Nay!**

Input Format

The first line contains the value of a
The second line contains the value of b
The third line contains the value of c

Constraints

$0 < a \leq 1000$
$0 < b \leq 1000$

Output Format

Print **Yay!** or **Nay!** as per the values of a, b, and c

Sample Input 0

```
2
3
6
```

Sample Output 0

```
Yay!
```

Explanation 0

$a = 2, b = 3$ and $c = 6$
Sum is 2+3+6 = 11
$a * b$ is 6
$b * c$ is 18
as 11 is between 6 and 18, so we print **Yay!**

Solution

```python
a = int(input())
b = int(input())
c = int(input())
if(a*b < a+b+c < b*c):
    print("Yay!")
else:
    print("Nay!")
```

4. Please attend classes

Given, total number of working days, a and the number of days the student was absent, b. Calculate the percentage of student's attendance.

If the percentage is less than 60 (not inclusive), print **CANNOT GIVE EXAM**.

Otherwise, print **CAN GIVE EXAM**

Input Format

First line contains the value of a
Second line contains the value of b

Constraints

$0 < a < 1000$
$0 < b < 1000$

Output Format

Print **CANNOT GIVE EXAM** or **CAN GIVE EXAM** in accordance with the input

Sample Input 0

```
40
4
```

Sample Output 0

```
CAN GIVE EXAM
```

Explanation 0

Here, $a = 40$ and $b = 4$.
Now, the number of days the student was present is $40 - 4 = 36$.
And, the percentage of the student's attendance is $\frac{36}{40} * 100 = 90$
As, the percentage is greater than 60, the student can give exam.

Solution

```python
a = int(input())
b = int(input())
p = 100*(a-b)/a
if(p<60):
    print("CANNOT GIVE EXAM")
else:
    print("CAN GIVE EXAM")
```

5. Tell me Triangle

Given three sides of a triangle a, b and c (where a, b and c are integers). Print if the triangle is Equilateral, Isosceles or Scalene.

Input Format

The first line contains the value of a
The second line contains the value of b
The third line contains the value of c

Constraints

$0 < a \leq 1000$
$0 < b \leq 1000$
$0 < c \leq 1000$

Output Format

Print the type of triangle in accordance with sides a, b, and c

Sample Input 0

```
2
2
2
```

Sample Output 0

```
Equilateral
```

Explanation 0

Here, $a = 2$, $b = 2$ and $c = 2$. As all three sides are equal the triangle is an equilateral triangle

Solution

```python
a = int(input())
b = int(input())
c = int(input())
if(a==b):
    if(a==c):
        print("Equilateral")
    else:
        print("Isosceles")
elif(b==c):
    print("Isosceles")
elif(a==c):
    print("Isosceles")
else:
    print("Scalene")
```

6. Tell me Triangle

Two players Sheero and Cheeky are playing a game, where they each give a number say x and y respectively.
You are the refree and you need to tell who won among them using the following rules -

- Initially, scores of both Sheero and Cheeky are set to 1
- If $x>y$, increase the Sheero's score by 2
- If $y>x$, increase the Cheeky's score by 2
- If x is odd, double Sheero's score
- If y is odd, double Cheeky's score

Finally, print the name of the player (**Sheero** / **Cheeky**) whose final score is higher.

Note: $x \neq y$

Input Format

The first line contains the value of x
The second line contains the value of y

Constraints

$0 <= x <= 100$
$0 <= y <= 100$

Output Format

Print the name of the player who won. Print DRAW in case of a draw

Solution

```
x = int(input())
y = int(input())
score_sheero = 1
score_cheeky = 1
if(x > y):
    score_sheero =  score_sheero + 1
elif(y > x):
    score_cheeky =  score_cheeky + 1
if(x%2 != 0):
    score_sheero = score_sheero * 2
if(y%2 != 0):
    score_cheeky = score_cheeky * 2
if(score_sheero > score_cheeky):
    print("Sheero")
elif(score_cheeky > score_sheero):
    print("Cheeky")
else:
    print("DRAW")
```

7. My Calculator

In this problem you need to make a calculator which has the following operations -

- **1** for multiplication - When chosen this operation, the calculator inputs two integers a and b. Finally, print the result of their multiplication.
- **2** for addition - When chosen this operation, the calculator inputs two integers a and b. Finally, print the result of their addition.
- **3** for negation - When chosen this operation, the calculator inputs a single integer a. Finally, print the negation of a.
- **4** for power - When chosen this operation, the calculator inputs two integers a and b. Finally, print the result of a^b.
- **5** for a special operation - When chosen this operation, the calculator inputs two integers a and b. Then, the operation works as follows -
  - If a is divisible by 2, print the value of $(a-2)*b$
  - Otherwise, print the value of $max(a,b)$

Input Format

First line will take the operation number to perform
Following lines take input as per defined in the operations

Constraints

$0 < a < 1000$
$0 < b < 1000$

Output Format

Print in accordance with the operation number and the following input values

Sample Input 0

```
2
3
4
```

Sample Output 0

```
7
```

Explanation 0

The operation number here is 2 which is addition.
Addition requires two inputs a and b. Here, the value of $a = 3$ and $b = 4$.
The result of addition of a and b is $a + b = 3 + 4 = 7$.
So, we print 7

Solution

```
choice = int(input())
if(choice!=3):
    a = int(input())
    b = int(input())
    if(choice==1):
        print(a*b)
    elif(choice==2):
        print(a+b)
    elif(choice==4):
        print(a**b)
    elif(choice==5):
        if(a%2==0):
            print((a-2)*b)
        else:
            if(a>b):
                print(a)
            else:
                print(b)
else:
    a = int(input())
    print(-1*a)
```