

02- Operators in Python

Ex. No. : 2.1

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

Widgets and Gizmos

An online retailer sells two products: widgets and gizmos. Each widget weighs 75 grams. Each gizmo weighs 112 grams. Write a program that reads the number of widgets and the number of gizmos from the user. Then your program should compute and display the total weight of the parts.

Sample Input

10

20

Sample Output

The total weight of all these widgets and gizmos is 2990 grams.

For example:

Input	Result
10 20	The total weight of all these widgets and gizmos is 2990 grams.

```
a=int(input()) b=int(input())
```

```
print("The total weight of
```

```
all these widgets and
```

```
gizmos
```

Doll Sings

In London, every year during Dasara there will be a very grand doll show. People try to invent new dolls of different varieties. The best-sold doll's creator will be awarded with a cash prize. So people broke their heads to create dolls innovatively. Knowing this competition, Mr.Lokpaul tried to create a doll that sings only when an even number is pressed and the number should not be zero and greater than 100.

IF Lokpaul wins print true, otherwise false.

Sample Input

10

Sample Output

True

Explanation:

Since 10 is an even number and a number between 0 and 100, True is printed

```
a=int(input()) if(a>0 and a<100
```

```
and a%2==0):
```

```
    print("True")
```

```
else:
```

```
    print("False")
```

Birthday Party

Mr. X's birthday is in next month. This time he is planning to invite N of his friends. He wants to distribute some chocolates to all of his friends after the party. He went to a shop to buy a packet of chocolates. At the chocolate shop, 4 packets are there with different numbers of chocolates. He wants to buy such a packet which contains a number of chocolates, which can be distributed equally among all of his friends. Help Mr. X to buy such a packet.

Input Given:

N-No of friends

P1,P2,P3 AND P4-No of chocolates OUTPUT:

"True" if he can buy that packet and "False" if he can't buy that packet.

SAMPLE INPUT AND OUTPUT:

5
25
12
10
9

OUTPUT

True False True False

```
a=int(input())
```

```
b=int(input()) c=int(input())
```

Hamming Weight

Write a python program that takes a integer between 0 and 15 as input and displays the number of '1' s in its binary form.(Hint:use python bitwise operator.

Sample Input

3

Sample Output:

2

Explanation:

The binary representation of 3 is 011, hence there are 2 ones in it. so the output is 2.

```
a=int(input())
n=bin(a)
n=n.replace("0b","")
s=str(n) c=list(s)
d=0
for i in range(len(c)):
    if(int(c[i])==1):
        d+=1 print(d)
```

Compound Interest

Pretend that you have just opened a new savings account that earns 4 percent interest per year. The interest that you earn is paid at the end of the year, and is added to the balance of the savings account. Write a program that begins by reading the amount of money deposited into the account from the user. Then your program should compute and display the amount in the savings account after 1, 2, and 3 years. Display each amount so that it is rounded to 2 decimal places.

Sample Input:

10000

Sample Output:

Balance as of end of Year 1: \$10400.00.

Balance as of end of Year 2: \$10816.00.

Balance as of end of Year 3: \$11248.64

```
a=int(input()) b=(a*0.04)+a c=b+(b*0.04)
```

```
d=c+(c*0.04) print("Balance as of end of Year 1:
```

```
${:.2f}.".format(b)) print("Balance as of end of Year 2:
```

```
${:.2f}.".format(c)) print("Balance as of end of Year 3:
```

```
${:.2f}.".format(d))
```

Ex. No. :

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Name: Janarthanan B

	Input	Expected	Got
✓	10000	Balance as of end of Year 1: \$10400.00. Balance as of end of Year 2: \$10816.00. Balance as of end of Year 3: \$11248.64.	Balance as of end of Year 1: \$ Balance as of end of Year 2: \$ Balance as of end of Year 3: \$
✓	20000	Balance as of end of Year 1: \$20800.00. Balance as of end of Year 2: \$21632.00. Balance as of end of Year 3: \$22497.28.	Balance as of end of Year 1: \$ Balance as of end of Year 2: \$ Balance as of end of Year 3: \$

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

	Input	Expected	Got	
✓	19 45	True	True	✓
✓	18 40	False	False	✓
✓	18 42	True	True	✓
✓	16 45	False	False	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

C or D

Mr. Ram has been given a problem kindly help him to solve it. The input of the program is either 0 or 1. IF 0 is the input he should display "C" if 1 is the input it should display "D". There is a constraint that Mr. Ram should use either logical operators or arithmetic operators to solve the problem, not anything else.

Hint:

Use ASCII values of C and D.

Input Format:

An integer x, $0 \leq x \leq 1$.

Output Format: output a single character "C" or "D" depending on the value of x.

Input 1:

0

Output 1:

C

Input 2:

1

Output 1: D

```
a=int(input())
```

```
if(a==0):
```

```
    print("C") else:
```

```
    print("D")
```




Ex. No. :

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

	Input	Expected	Got
✓	100	The tax is 5.00 and the tip is 18.00, making the total 123.00	The tax
✓	250	The tax is 12.50 and the tip is 45.00, making the total 307.50	The tax

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 2.10

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

Return last digit of the given number

Write a program that returns the last digit of the given number. Last digit is being referred to the least significant digit i.e. the digit in the ones (units) place in the given number.

The last digit should be returned as a positive number. For example,

if the given number is 197, the last digit is 7

if the given number is -197, the last digit is 7

For example:

Input	Result
123	3

```
a=int(input())  
print(abs(a)%10)
```

	Input	Expected	Got	
✓	197	7	7	✓
✓	-197	7	7	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Tax and Tip

The program that you create for this exercise will begin by reading the cost of a meal ordered at a restaurant from the user. Then your program will compute the tax and tip for the meal. Use your local tax rate (5 percent) when computing the amount of tax owing. Compute the tip as 18 percent of the meal amount (without the tax). The output from your program should include the tax amount, the tip amount, and the grand total for the meal including both the tax and the tip. Format the output so that all of the values are displayed using two decimal places.

Sample Input

100

Sample Output

The tax is 5.00 and the tip is 18.00, making the total 123.00

```
a=int(input())  
print("The tax is {:.2f} and the tip is {:.2f}, making the total  
{:.2f}".format((a*0.05),(a*0.18),(a+((a*0.05)+(a*0.18)))))
```

Troy Battle

In the 1800s, the battle of Troy was led by Hercules. He was a superstitious person. He believed that his crew can win the battle only if the total count of the weapons in hand is in multiple of 3 and the soldiers are in an even number of count. Given the total number of weapons and the soldier's count, Find whether the battle can be won or not according to Hercules's belief. If the battle can be won print True otherwise print False.

Input format:

Line 1 has the total number of weapons Line

2 has the total number of Soldiers.

Output Format:

If the battle can be won print True otherwise print False.

Sample Input:

32

43

Sample Output:'

False

```
a=int(input())
```

```
b=int(input()) if(a%3==0
```

```
and b%2==0):
```

```
    print("True") else:
```

```
    print("False")
```

Ex. No. :

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

	Input	Expected	Got	
✓	0	C	C	✓
✓	1	D	D	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 2.6

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

Eligible to donate blood

A team from the Rotract club had planned to conduct a rally to create awareness among the Coimbatore people to donate blood. They conducted the rally successfully. Many of the Coimbatore people realized it and came forward to donate their blood to nearby blood banks. The eligibility criteria for donating blood are people should be above or equal to 18 and his/ her weight should be above 40. There was a huge crowd and staff in the blood bank found it difficult to manage the crowd. So they decided to keep a system and ask the people to enter their age and weight in the system. If a person is eligible he/she will be allowed inside.

Write a program and feed it to the system to find whether a person is eligible or not.

Input Format:

Input consists of two integers that correspond to the age and weight of a person respectively.

Output Format:

Display True(IF ELIGIBLE)

Display False (if not eligible)

Sample Input

19

45

Sample Output True

```
a=int(input())
```

```
b=int(input())
```

```
if(a>=18 and b>40):
```

```
    print("True") else:
```

```
print("False")
```


Ex. No. :

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

	Input	Expected	Got	
✓	3	2	2	✓
✓	5	2	2	✓
✓	15	4	4	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Ex. No. :

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

```
d=int(input())
e=int(input())
print(b%a==0,c%a==0,d%a==0,e%a==0)
```

	Input	Expected	Got	
✓	5 25 23 20 10	True False True True	True False True True	✓
✓	4 23 24 21 12	False True False True	False True False True	✓
✓	8 64 8 16 32	True True True True	True True True True	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Ex. No. :

Date: 19.03.2024

Register No.: 230701125

Name: Janarthanan B

	Input	Expected	Got	
✓	56	True	True	✓
✓	101	False	False	✓
✓	-1	False	False	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

is",((a*75)+(b*112)),"grams.

")

	Input	Expected	Got
✓	10 20	The total weight of all these widgets and gizmos is 2990 grams.	The to

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

03 - Selection Structures in Python

Ex. No. : 3.1

Date: 27.03.2024

Register No.: 230701125

Name: Janarthanan B

Admission Eligibility

Write a program to find the eligibility of admission for a professional course based on the following criteria:

Marks in Maths ≥ 65

Marks in Physics ≥ 55

Marks in Chemistry ≥ 50

Or

Total in all three subjects ≥ 180

Sample Test Cases

Test Case 1

Input

70

60

80

Output

The candidate is eligible

Test Case 2

Input

50

80

80

Output

The candidate is eligible

Test Case 3

Input

50

Write a program that reads a year from the user and displays a message indicating whether or not it is a leap year.

Sample Input 1

1900

Sample Output 1

1900 is not a leap year.

Sample Input 2

2000

Sample Output 2

2000 is a leap year.

```
year=int(input()) if(year%400==0):
```

```
    print(year,"is a leap year.") else:
```

```
    print(year,"is not a leap year.")
```

	Input	Expected	Got	
✓	1900	1900 is not a leap year.	1900 is not a leap year.	✓
✓	2000	2000 is a leap year.	2000 is a leap year.	✓
✓	2100	2100 is not a leap year.	2100 is not a leap year.	✓
✓	2400	2400 is a leap year.	2400 is a leap year.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

```

    print(m,"has 30 days in it.")
elif(m=="July"):

    print(m,"has 31 days in it.")
elif(m=="August"):

    print(m,"has 31 days in it.")
elif(m=="September"):

    print(m,"has 30 days in it.")
elif(m=="October"):

    print(m,"has 31 days in it.")
elif(m=="November"):

    print(m,"has 30 days in it.")
elif(m=="December"):

    print(m,"has 31 days in it.")

```

	Input	Expected	Got
✓	February	February has 28 or 29 days in it.	February has 28 or 29 days in it.
✓	March	March has 31 days in it.	March has 31 days in it.
✓	April	April has 30 days in it.	April has 30 days in it.
✓	May	May has 31 days in it.	May has 31 days in it.

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.


```
elif(a*a+c*c==b*b):
```

```
    print("yes") elif(c*c+b*b==a*a):
```

```
        print("yes")
```

```
else:
```

```
    print("no")
```

	Input	Expected	Got	
✓	3 5 4	yes	yes	✓
✓	5 8 2	no	no	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.