

Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 2_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Taylor is tasked with a mathematical challenge that requires finding the smallest positive number divisible by all integers from 1 to n.

Help Taylor to determine the smallest positive number that is divisible by all integers from 1 to n. Make sure to employ the break statement to ensure efficiency in the program.

Input Format

The input consists of a single integer, n.

Output Format

The output displays the smallest positive number that is divisible by all integers from 1 to n.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 10

Output: 2520

Answer

```
# You are using Python
def smallest_divisible(n):
    r=1
    for i in range(1,n+1):
        def g(a,b):
            while b:
                a,b=b,a%b
            return a
        r=r*i//g(r,i)
    return r
n=int(input())
print(smallest_divisible(n))
```

Status : Correct

Marks : 10/10

2. Problem Statement

Nisha is a mathematics enthusiast, eager to explore the realm of twin prime numbers. The objective is to develop a program that enables the discovery and presentation of twin prime pairs.

The program should take an integer 'n' as input and generate 'n' pairs of twin primes, displaying the pairs with a difference of 2 between them.

Input Format

The input consists of a single integer, n.

Output Format

The output displays the 'n' pairs of twin primes, the pairs with a difference of 2 between them.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 5

Output: 3 5

5 7

11 13

17 19

29 31

Answer

You are using Python

```
def primes(num):
```

```
    if num<=1:
```

```
        return False
```

```
    for i in range(2,int(num**0.5)+1):
```

```
        if num%i==0:
```

```
            return False
```

```
    return True
```

```
def twinprime(n):
```

```
    twin=[]
```

```
    num=2
```

```
    while len(twin)<n:
```

```
        if primes(num) and primes(num+2):
```

```
            twin.append((num,num+2))
```

```
            num+=1
```

```
    return twin
```

```
n=int(input())
```

```
result=twinprime(n)
```

```
for i in result:
```

```
    print(i[0],i[1])
```

Status : Correct

Marks : 10/10

3. Problem Statement

Gabriel is working on a wildlife research project where he needs to compute various metrics for different animals based on their characteristics. Each animal type requires a different calculation: a deer's distance traveled, a bear's weight based on footprint size, or a bird's altitude based on its flying pattern.

Conditions:

For Deer (Mode 'D' or 'd'): Distance = speed of sound * time taken, where the speed of sound in air is 343 meters per second. For Bear (Mode 'B' or 'b'): Weight = footprint size * average weight, where the average weight per square inch for a bear is 5.0 pounds. For Bird (Mode 'F' or 'f'): Altitude = flying pattern * distance covered (in meters).

Write a program to help Gabriel analyze the characteristics of animals based on the given inputs.

Input Format

The first line of input consists of a character, representing the type of animal 'D/d' for deer, 'B/b' for bear, and 'F/f' for bird.

If the choice is 'D' or 'd':

The second line of input consists of a floating-point value T, representing the time taken from the deer's location to the observer.

If the choice is 'B' or 'b':

The second line of input consists of a floating-point value S, representing the size of the bear's footprint in square inches.

If the choice is 'F' or 'f':

1. The second line of input consists of a floating-point value P, representing the bird's flying pattern.
2. The third line consists of a floating-point value D, representing the distance covered by the bird in meters.

Output Format

The output prints one of the following:

If the choice is 'D' or 'd':

The output prints "Distance: X m" where X is a floating point value rounded off to two decimal places, representing the calculated distance traveled by the sound wave in meters.

If the choice is 'B' or 'b':

The output prints "Weight: Y lb" where Y is a floating point value rounded off to two decimal places, representing the estimated weight of the bear in pounds.

If the choice is 'F' or 'f':

The output prints "Altitude: Z m" where Z is a floating point value rounded off to two decimal places, representing the calculated altitude of the bird's flight in meters.

If the given choice is invalid, print "Invalid".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: d
2.5

Output: Distance: 857.50 m

Answer

You are using Python

```
a=input()
```

```
if a=="d" or a=="D":
```

```
    T=float(input())
```

```
    dis=343*T
```

```
    dis=f"{dis:.2f}"
```

```
    print("Distance:",dis,"m")
```

```
elif a=="B" or a=="b":
```

```
    k=float(input())
```

```
    weight=k*5.0
```

```
weight=f"{weight:.2f}"
print("Weight:",weight,"lb")
elif a=="F" or a=="f":
    j=float(input())
    d=float(input())
    alt=j*d
    alt=f"{alt:.2f}"
    print("Altitude:",alt,"m")
else:
    print("Invalid")
```

Status : Correct

Marks : 10/10

4. Problem Statement

Rohith is a data analyst who needs to categorize countries based on their population growth rates. Each country is assigned a unique code. Rohith will receive a code and corresponding data based on the code. If the data falls within specific thresholds, he needs to classify the country's priority level.

Your task is to write a program that reads a country code and its associated data, and then determines if the priority is "High" or "Low."

Thresholds:France: Priority is "High" if the percentage < 50, else "Low".Japan: Priority is "High" if life expectancy > 80, else "Low".Brazil: Priority is "High" if the urban population > 80, else "Low".

Input Format

The first line of input consists of an integer, representing the country code (1 for France, 2 for Japan, 3 for Brazil).

If the country code is 1,

- The second line consists of a floating-point value N, representing the percentage of the English-speaking population.

If the country code is 2,

- The second line consists of a floating-point value A, representing the average

life expectancy in years.

If the country code is 3,

- The second line consists of a floating-point value P, representing the percentage of the urban population.

Output Format

The first line of output displays "Priority: High" or "Priority: Low" based on the input data.

If the country code is invalid, print "Invalid".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1

30.0

Output: Priority: High

Answer

You are using Python

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

```
if a==1:
```

```
    b=float(input())
```

```
    if b<50:
```

```
        print("Priority: High")
```

```
    else:
```

```
        print("Priority: Low")
```

```
elif a==2:
```

```
    b=float(input())
```

```
    if b>80:
```

```
        print("Priority: High")
```

```
    else:
```

```
        print("Priority: Low")
```

```
elif a==3:
```

```
    b=float(input())
```

```
    if b>80:
```

```
        print("Priority: High")
```

```
else:  
    print("Priority: Low")  
else:  
    print("Invalid")
```

Status : Correct

Marks : 10/10