# 07 - Functions

# Ex. No. : 7.1 Date:

# Register No.: Name:

# Abundant Number

# An abundant number is a number for which the sum of its proper divisors is greater than the number itself. Proper divisors of the number are those that are strictly lesser than the number.

# Input Format:

# Take input an integer from stdin

# Output Format:

# Return Yes if given number is Abundant. Otherwise, print No

# Example input:

# 12

# Output:

# Yes

# Explanation

# The proper divisors of 12 are: 1, 2, 3, 4, 6, whose sum is 1 + 2 + 3 + 4 + 6 = 16. Since sum of proper divisors is greater than the given number, 12 is an abundant number.

# Example input:

# 13

# Output:

# No

# Explanation

# The proper divisors of 13 is: 1, whose sum is 1. Since sum of proper divisors is not greater than the given number, 13 is not an abundant number.

# For example:

# Test Result

# print(abundant(12)) Yes

# print(abundant(13)) No

# PROGRAM:

# def abundant(number):

# divisor\_sum=sum([divisor for divisor in range(1,number)if number%divisor==0])

# if divisor\_sum>number:

# return "Yes"

# else:

# return "No"

# 

# Ex. No. : 7.2 Date:

# Register No.: Name:

A number is considered to be ugly if its only prime factors are 2, 3 or 5.

[1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, …] is the sequence of ugly numbers.

Task:

complete the function which takes a number n as input and checks if it's an ugly number.

return ugly if it is ugly, else return not ugly

Hint:

An ugly number U can be expressed as: U = 2^a \* 3^b \* 5^c, where a, b and c are nonnegative integers.

**For example:**

| **Test** | **Result** |
| --- | --- |
| print(checkUgly(6)) | ugly |
| print(checkUgly(21)) | not ugly |

# PROGRAM:

# def checkUgly(n):

# if n <= 0:

# return "not ugly"

# 

# # Continuously divide by 2, 3, and 5 until n becomes 1

# while n % 2 == 0:

# n /= 2

# while n % 3 == 0:

# n /= 3

# while n % 5 == 0:

# n /= 5

# 

# # If n becomes 1, it means all its prime factors are 2, 3, or 5

# if n == 1:

# return "ugly"

# else:

# return "not ugly"

# 

# Ex. No. : 7.3 Date:

# Register No.: Name:

# Check Product of Digits

# Write a code to check whether product of digits at even places is divisible by sum of digits at odd place of a positive integer.

# Input Format:

# Take an input integer from stdin.

# Output Format:

# Print TRUE or FALSE.

# Example Input:

# 1256

# Output:

# TRUE

# Example Input:

# 1595

# Output:

# FALSE

# For example:

| Test | Result |
| --- | --- |
| print(productDigits(1256)) | True |
| print(productDigits(1595)) | False |

# PROGRAM:

# def productDigits(number):

# number\_str=str(number)

# product\_even=1

# sum\_odd=0

# for i,digit\_char in enumerate(number\_str):

# digit=int(digit\_char)

# if (i+1)%2==0:

# product\_even\*=digit

# else:

# sum\_odd+=digit

# return product\_even%sum\_odd==0

# 

# Ex. No. : 7.4 Date:

# Register No.: Name:

# Christmas Discount

# An e-commerce company plans to give their customers a special discount for Christmas.

# They are planning to offer a flat discount. The discount value is calculated as the sum of all the prime digits in the total bill amount.

# Write an python code to find the discount value for the given total bill amount.

# Constraints

# 1 <= orderValue< 10e100000

Input

The input consists of an integer orderValue, representing the total bill amount.

Output

Print an integer representing the discount value for the given total bill amount.

Example Input

578

Output

12

**For example:**

| **Test** | **Result** |
| --- | --- |
| print(christmasDiscount(578)) | 12 |

# PROGRAM:

# def is\_prime\_digit(digit):

# return digit in[2,3,5,7]

# def christmasDiscount(n):

# discount=0

# prime\_digits=[2,3,5,7]

# for digit in str(n):

# digit=int(digit)

# if is\_prime\_digit(digit):

# discount+=digit

# return discount

# 

# Ex. No. : 7.5 Date:

# Register No.: Name:

Given a number with maximum of 100 digits as input, find the difference between the sum

of odd and even position digits.

Input Format:

Take a number in the form of String from stdin.

Output Format:

Print the difference between sum of even and odd digits

Example input:

1453

Output:

1

Explanation:

Here, sum of even digits is 4 + 3 = 7

sum of odd digits is 1 + 5 = 6.

Difference is 1.

Note that we are always taking absolute difference

# PROGRAM:

# def differenceSum(number\_str):

# number\_str=str(number\_str)

# odd\_sum = 0

# even\_sum = 0

# for index, char in enumerate(number\_str):

# digit = int(char)

# if (index + 1) % 2 == 0:

# even\_sum += digit

# else:

# odd\_sum += digit

# difference = abs(even\_sum - odd\_sum)

# return difference

# print(differenceSum(number\_str))

# 