1. Write a Python program to check if the given number is a Disarium Number?

# Python program to check if the given number is a Disarium Number

# A num is said to be the disarium number when the sum of its digit raised to the power of

# their respective positions becomes equal to the number itself

# declare variables

num = int(input("Enter a number"))

length = len(str(num))

Temp = num

sum = 0

rem = 0

# use while loop to calculate the sum of its digits with respective powers

while Temp > 0:

rem = Temp % 10

sum = sum + int(rem\*\*length)

Temp = Temp // 10

length = length - 1

# use if condition to compare the sum with the num and print

if sum == num:

print("the number ",num,"is a disarium number")

else:

print("the number ",num,"is not a disarium number")

1. Write a Python program to print all disarium numbers between 1 to 100?

# Python program to print all disarium numbers between 1 to 100

# A num is said to be the disarium number when the sum of its digit raised to the power of

# their respective positions becomes equal to the number itself

# declare a list variable

l1 = []

# declare a function to check if num is disarium

def disariumfun(num):

length = len(str(num))

Temp = num

sum = 0

rem = 0

# use while loop to calculate the sum of its digits with respective powers

while Temp > 0:

rem = Temp % 10

sum = sum + int(rem\*\*length)

Temp = Temp // 10

length = length - 1

if sum == num:

return num

# pass values from 1 to 100 to the above function

# store the disarium values in the list

for i in range(1,101):

if disariumfun(i) != None:

l1.append(i)

# print the list containing disarium values

print(l1)

1. Write a Python program to check if the given number is Happy Number?

# Python program to check if the given number is Happy Number

# A number is said to be happy if it yields 1 when replaced by the sum of squares of

# its digits repeatedly. if this process results in an endless cycle of numbers containing

# 4, then the number will be an unhappy number.

# examples of happy numbers are 7,28,100,320 etc

# Function isHappyNumber() would check if the number is happy no or not.

def isHappyNumber(num):

rem = sum = 0

# Calculates the sum of squares of digits

while num > 0:

rem = num % 10

sum = sum + (rem \* rem)

num = num // 10

return sum

num = int(input("Enter positive integer number"))

# pass it as parameter to function isHappyNumber & store the result in result variable

result = isHappyNumber(num)

# use while loop to until result value would be 1 or 4

while result != 1 and result != 4:

result = isHappyNumber(result)

# if the result is 1, then it's a happy number

if result == 1:

print(str(num) + " is a happy number")

# if the result is 4, then it's a unhappy number

elif result == 4:

print(str(num) + " is not a happy number")

1. Write a Python program to print all happy numbers between 1 and 100?

# Python program to print all happy numbers between 1 and 100

# A number is said to be happy if it yields 1 when replaced by the sum of squares of

# its digits repeatedly. if this process results in an endless cycle of numbers containing

# 4, then the number will be an unhappy number.

# examples of happy numbers are 7,28,100,320 etc

# declare a empty list variable

l1 = []

# Function isHappyNumber() would check if the number is happy no or not.

def isHappyNumber(num):

rem = sum = 0

# Calculates the sum of squares of digits

while num > 0:

rem = num % 10

sum = sum + (rem \* rem)

num = num // 10

if sum == 1 or sum == 4:

result = sum

return result

# use while loop until result value would be 1 or 4

while sum != 1 and sum != 4:

result = isHappyNumber(sum)

return result

# use for loop to find happy no from 1 to 100

for i in range(1, 101):

res = isHappyNumber(i)

if res == 1:

l1.append(i)

# print the list containing happy numbers from 1 to 100

print(l1)

1. Write a Python program to determine whether the given number is a Harshad Number?

# Python program to determine whether the given number is a Harshad Number

# if a number is divisible by the sum of its digits, then it would be called Harshad number

# Examples of Harshad numbers are 8,54,120,156

num = int(input("Enter a number to check for Harshad number"))

rem = sum = 0

n = num

# use while loop to calculate the sum

while(num>0):

rem = num % 10

sum = sum+rem

num = num//10

# check if the dividend is zero, if so, its a Harshad number

if(n%sum==0):

print(str(n),"is a Harshad number")

else:

print(str(n), "is not a Harshad number")

1. Write a Python program to print all pronic numbers between 1 and 100?

# Python program to print all pronic numbers between 1 and 100

# Pronic number is a product of two consecutive integers of the form n(n+1)

# Examples of Pronic numbers are 0,2,6,12,20,30,42,56

# function to check if a number is pronic number

def checkpronicnum(num):

ispronic = False

# use for loop

for i in range(1,num+1):

if(i\*(i+1)==num):

ispronic = True

break

return ispronic

# display numbers from 1 to 100 which are pronic numbers

for j in range(1,101):

if(checkpronicnum(j)):

print(j)