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

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

# count the number of digits in the number

n = num

count = 0

while n > 0:

count += 1

n //= 10

# calculate the sum of digits raised to their respective position

sum = 0

n = num

while n > 0:

digit = n % 10

sum += digit \*\* count

count -= 1

n //= 10

# check if the sum is equal to the number

if sum == num:

print(num, "is a Disarium number")

else:

print(num, "is not a Disarium number")

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

for i in range(1, 101):

num\_str = str(i)

disarium\_sum = sum(int(num\_str[j])\*\*(j+1) for j in range(len(num\_str)))

if disarium\_sum == i:

print(i)

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

def is\_happy\_number(num):

"""Check if a number is a happy number"""

seen\_numbers = set()

while num != 1:

num = sum(int(digit)\*\*2 for digit in str(num))

if num in seen\_numbers:

return False

seen\_numbers.add(num)

return True

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

def is\_happy\_number(num):

seen = set()

while num != 1 and num not in seen:

seen.add(num)

num = sum(int(digit) \*\* 2 for digit in str(num))

return num == 1

print("Happy numbers between 1 and 100:")

for num in range(1, 101):

if is\_happy\_number(num):

print(num)

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

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

temp = num

sum = 0

while temp > 0:

digit = temp % 10

sum += digit

temp //= 10

if num % sum == 0:

print(num, "is a Harshad Number")

else:

print(num, "is not a Harshad Number")

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

for n in range(1, 101):

for x in range(1, n):

if n == x \* (x+1):

print(n)

break