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

# Function to calculate the sum of digits raised to their respective positions

def sum\_of\_digits\_to\_power(num):

digit\_list = list(map(int, str(num)))

n = len(digit\_list)

return sum(digit\_list[i] \*\* (i + 1) for i in range(n))

# Function to check if a number is a Disarium number

def is\_disarium(num):

return num == sum\_of\_digits\_to\_power(num)

# Input a number

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

# Check if it's a Disarium number and print the result

if is\_disarium(num):

print(f"{num} is a Disarium number.")

else:

print(f"{num} is not a Disarium number.")

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

# Function to generate Disarium numbers between 1 and n

def disarium\_numbers\_in\_range(n):

disarium\_numbers = []

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

if is\_disarium(num):

disarium\_numbers.append(num)

return disarium\_numbers

# Find and print Disarium numbers between 1 and 100

result = disarium\_numbers\_in\_range(100)

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

print(result)

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

# Function to calculate the sum of squares of digits

def sum\_of\_squares\_of\_digits(num):

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

# Function to check if a number is a Happy number

def is\_happy(num):

seen = set()

while num != 1 and num not in seen:

seen.add(num)

num = sum\_of\_squares\_of\_digits(num)

return num == 1

# Input a number

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

# Check if it's a Happy number and print the result

if is\_happy(num):

print(f"{num} is a Happy number.")

else:

print(f"{num} is not a Happy number.")

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

# Function to generate Happy numbers between 1 and n

def happy\_numbers\_in\_range(n):

happy\_numbers = []

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

if is\_happy(num):

happy\_numbers.append(num)

return happy\_numbers

# Find and print Happy numbers between 1 and 100

result = happy\_numbers\_in\_range(100)

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

print(result)

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

# Function to calculate the sum of digits

def sum\_of\_digits(num):

return sum(int(digit) for digit in str(num))

# Function to check if a number is a Harshad number

def is\_harshad(num):

return num % sum\_of\_digits(num) == 0

# Input a number

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

# Check if it's a Harshad number and print the result

if is\_harshad(num):

print(f"{num} is a Harshad number.")

else:

print(f"{num} is not a Harshad number.")

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

# Function to generate Pronic numbers between 1 and n

def pronic\_numbers\_in\_range(n):

pronic\_numbers = []

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

if num \* (num + 1) <= n:

pronic\_numbers.append(num \* (num + 1))

return pronic\_numbers

# Find and print Pronic numbers between 1 and 100

result = pronic\_numbers\_in\_range(100)

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

print(result)