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

**Ans:- result = []**

**sum = 0**

**a = input("enter a number: ")**

**for i in a:**

**result.append(i)**

**for j in result:**

**n = result.index(j)**

**sum += int(j)\*\*(n+1)**

**print(sum)**

**if sum == int(a):**

**print(f"it's a disarium number because the sum is equal to: {sum}")**

**else:**

**print("It's not a disarium number")**

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

**Ans:- def is\_disarium(number):**

**# Convert the number to string to access individual digits**

**str\_num = str(number)**

**# Calculate the sum of each digit raised to the power of its respective position**

**digit\_sum = sum(int(digit) \*\* (index + 1) for index, digit in enumerate(str\_num))**

**# Check if the sum is equal to the original number**

**if digit\_sum == number:**

**return True**

**else:**

**return False**

**# Find and print the Disarium numbers between 1 and 100**

**for num in range(1, 101):**

**if is\_disarium(num):**

**print(num)**

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

**Ans:- def is\_happy\_number(number):**

**# Set to store previously seen numbers**

**seen\_numbers = set()**

**while number != 1:**

**# If the number has been seen before, it's not a happy number**

**if number in seen\_numbers:**

**return False**

**# Add the current number to the set of seen numbers**

**seen\_numbers.add(number)**

**# Square each digit and sum the squares**

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

**return True**

**# Test the function**

**print(is\_happy\_number(19)) # Output: True**

**print(is\_happy\_number(25)) # Output: False**

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

**Ans:- def is\_happy\_number(number):**

**seen\_numbers = set()**

**while number != 1:**

**if number in seen\_numbers:**

**return False**

**seen\_numbers.add(number)**

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

**return True**

**# 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?

**Ans:- sum = 0**

**divide = 0**

**a = input("enter a number: ")**

**for i in a:**

**sum += int(i)**

**if int(a) % sum == 0:**

**print("it's a harshad number")**

**else:**

**print("it's not a harshad number")**

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

**Ans:- def is\_pronic\_number(a):**

**for i in range(1, int(a)+1):**

**n = i\*(i+1)**

**if n == a:**

**print(f"it's a pronic number, I's value is: {i}, and the n's value is: {n}")**

**else:**

**continue**

**for num in range(1, 101):**

**if is\_pronic\_number(num):**

**print(num)**