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

Ans. def checkDisariumNumber():

    in\_num = input('Enter a Number: ')

    sum = 0

    for item in range(len(in\_num)):

        sum = sum + int(in\_num[item])\*\*(item+1)

    if sum == int(in\_num):

        print(f'{in\_num} is a Disarium Number')

    else:

        print(f'{in\_num} is a Not Disarium Number')

checkDisariumNumber()

checkDisariumNumber()

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

Ans. def printDisariumNumbers(start=0,end=100):

    output\_num = []

    for number in range(start,end+1):

        sum = 0

        for item in range(len(str(number))):

            sum = sum + int(str(number)[item])\*\*(item+1)

        if sum == number:

            output\_num.append(number)

    return output\_num

printDisariumNumbers(1,1000)

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

Ans. def checkHappyNumber():

    in\_num = input('Enter a Number: ')

    in\_num\_duplicate = in\_num

    trackNumber = set()

    while True:

        if in\_num != '1' and str(in\_num) not in trackNumber:

            trackNumber.add(in\_num)

            sum = 0

            for ele in range(len((in\_num))):

                sum = sum + int(in\_num[ele])\*\*2

            in\_num = str(sum)

        elif str(in\_num) in trackNumber:

            print(f'{in\_num\_duplicate} is not a Happy Number')

            break

        else:

            print(f'{in\_num\_duplicate} is a Happy Number')

            break

checkHappyNumber()

checkHappyNumber()

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

Ans. def checkHappyNumber(start=0,end=100):

    happyNumbersList = []

    for in\_num in range(start,end+1):

        in\_num = str(in\_num)

        inum\_holder = in\_num

        trackNumber = set()

        while True:

            if in\_num != '1' and str(in\_num) not in trackNumber:

                trackNumber.add(in\_num)

                sum = 0

                for ele in range(len((in\_num))):

                    sum = sum + int(in\_num[ele])\*\*2

                in\_num = str(sum)

            elif str(in\_num) in trackNumber:

                break

            else:

                happyNumbersList.append(int(inum\_holder))

                break

    print(f'The Happy Numbers between {start} and {end} are {happyNumbersList}')

checkHappyNumber(0,100)

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

Ans. def checkHarshadNumber():

    in\_num = input('Enter a Number: ')

    sum = 0

    for item in range(len(in\_num)):

        sum = sum + int(in\_num[item])

    if int(in\_num)%sum == 0:

        print(f'{in\_num} is a Harshad Number')

    else:

        print(f'{in\_num} is a Not Harshad Number')

checkHarshadNumber()

checkHarshadNumber()

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

Ans. def printPronicNumbers(start=0,end=100):

    outputList = []

    for ele in range(start,end+1):

        outputList.append((ele)\*(ele+1))

    print(outputList)

printPronicNumbers()