**BASIC PROGRAMMING ASSIGNMENT\_9-SUBMITTED BY SAMUEL DEVDAS**

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

Ans.#Checking if a number is a Disarium number

#'sum of the digits to the power of their respective position is equal to the number itself'

a=int(input('Enter any positive integer:'))

l=[i for i in str(a)] #Converting to string and separate digits to list elements

lst=[]

for i in l:

inte=int(i)

lst.append(inte)

print('The list of the separated digits is:',lst)

di=[]

for i in lst: #digits powered to their respective positions

exp=i\*\*(lst.index(i)+1)

di.append(exp)

print('digits powered to their respective positions:',di)

print('SUM of the digits powered to their respective positions:',sum(di))

if sum(di)==a:

print(a,'is a DISARIUM NUMBER')

else:

print(a,'is NOT A DISARIUM NUMBER')

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

Ans. lst=[i for i in range(1,100)]

for elem in lst:

if elem>9:

strlist=[i for i in str(elem)]

lst2=[]

for string in strlist:

lst2.append(int(string))

disar=[]

for digit in lst2: #digits powered to their respective positions

powered=digit\*\*(lst2.index(digit)+1)

disar.append(powered)

if sum(disar)==elem:

print(elem,'is a DISARIUM NUMBER')

else:

pass

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

Ans.allsums=[]

main\_input=int(input('Enter any positive integer:'))

loopinput=main\_input

while True:

lstring=([i for i in str(loopinput)])

#print('lstring:',lstring)

digitsquare=[]

for elem in lstring:

digitsquare.append(int(elem)\*\*2)

#print('digitsquare:',digitsquare)

allsums.append(sum(digitsquare))

#print('sum of digitsquare:',sum(digitsquare),)

#print('allsums',allsums,end='\n''\n')

if sum(digitsquare)==1:

print(main\_input,'is a HAPPY NUMBER')

break

elif main\_input in allsums or allsums.count(sum(digitsquare))>1:

print(main\_input,'is NOT A HAPPY NUMBER')

break

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

Ans. OneToHundred=[i for i in range(1,101)]

for num in OneToHundred:

main\_input=num

loopinput=main\_input

allsums=[]

while True:

lstring=([i for i in str(loopinput)])

#print('lstring:',lstring)

digitsquare=[]

for elem in lstring:

digitsquare.append(int(elem)\*\*2)

#print('digitsquare:',digitsquare)

allsums.append(sum(digitsquare))

#print('sum of digitsquare:',sum(digitsquare),)

#print('allsums',allsums,end='\n''\n')

if sum(digitsquare)==1:

print(main\_input,'is a HAPPY NUMBER')

break

elif main\_input in allsums or allsums.count(sum(digitsquare))>1:

#print(main\_input,'NOT HAPPY')

break

else:

loopinput=sum(digitsquare)

continue

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

Ans. #Checking if a number is a Harshad number

main\_input=int(input('Enter any positive integer:'))

strings=[i for i in str(main\_input)]

digits=[]

for num in strings:

digits.append(int(num))

print('The list of the separated digits is:',digits)

print('SUM of the digits:',sum(digits))

if main\_input%sum(digits)==0:

print(main\_input,'is a HARSHAD NUMBER')

else:

print(main\_input,'is NOT A HARSHAD NUMBER')

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

Ans. #print all pronic numbers between 1 and 100

pronic\_list=[]

for num in range(1,10):

pronic=num\*(num+1)

pronic\_list.append(pronic)

print('PRONIC NUMBERS between 1 and 100:',pronic\_list)