#### **Programming Assignment\_9**

1. Write a Python program to check if the given number is a Disarium Number?
2. Write a Python program to print all disarium numbers between 1 to 100?
3. Write a Python program to check if the given number is Happy Number?
4. Write a Python program to print all happy numbers between 1 and 100?
5. Write a Python program to determine whether the given number is a Harshad Number?
6. Write a Python program to print all pronic numbers between 1 and 100?

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

Solution :

**def digits(num):  
 l=0  
 while(num>0):  
 num = num//10  
 l=l+1  
 return l  
def Disarium(dig, num):  
 Sum=0  
 while(num>0):  
 r=num%10  
 Sum=Sum+(r\*\*dig)  
 dig=dig-1  
 num=num//10  
 return Sum  
if \_\_name\_\_ == "\_\_main\_\_":  
 n=int(input("Enter any number"))  
 dig=digits(n)  
 res = Disarium(dig, n)  
 if(res == n):  
 print("{} is Disarium".format(n))  
 else:  
 print("{} is Not Disarium".format(n))**

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

Solution:

**def Disarium(dig, num):  
 Sum=0  
 while(num>0):  
 r=num%10  
 Sum=Sum+(r\*\*dig)  
 dig=dig-1  
 num=num//10  
 return Sum  
if \_\_name\_\_ == "\_\_main\_\_":  
 for i in range(1, 100):  
 dig=digits(i)  
 res = Disarium(dig, i)  
 if(res == i):  
 print("{} is Disarium".format(i))  
 else:  
 print("{} is Not Disarium".format(i))**

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

Soultion :

**def Happy\_Number(n):  
 digit = sum = 0  
 while (n > 0):  
 digit = n % 10  
 sum = sum + (digit \* digit)  
 n = n // 10  
 return sum  
  
n = 17  
result = n  
  
while (result != 1 and result != 4):  
 result = Happy\_Number(result)  
  
if (result == 1):  
 print(n, " is a Happy Number!!!")  
else:  
 print(n, " is an Unhappy Number!!!")**

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

Solution :

**def Happy\_Number(n):  
 digit = sum = 0  
 while (n > 0):  
 digit = n % 10  
 sum = sum + (digit \* digit)  
 n = n // 10  
 return sum  
  
for i in range(1, 100):  
 result = i  
  
 while (result != 1 and result != 4):  
 result = Happy\_Number(result)  
  
 if (result == 1):  
 print(i, " is a Happy Number!!!")  
 else:  
 print(i, " is an Unhappy Number!!!")**

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

Solution:

**def harshad\_number(num):  
 nStr = str(num)  
 sum = 0  
 for i in nStr:  
 sum += int(i)  
  
 if num%sum == 0:  
 return True  
 else:  
 return False  
  
  
num = 15  
if harshad\_number(num):  
 print("{} is Harshad Number".format(num))  
else:  
 print("{} is not Harshad Number".format(num))**

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

**def harshad\_number(num):  
 nStr = str(num)  
 sum = 0  
 for i in nStr:  
 sum += int(i)  
  
 if num%sum == 0:  
 return True  
 else:  
 return False  
  
for num in range(1,100):  
 if harshad\_number(num):  
 print("{} is Harshad Number".format(num))  
 else:  
 print("{} is not Harshad Number".format(num))**