Programming Assignment_9

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

In [14]:
```python
1  # Ask user to enter the input
2  number = input("Enter the number:")
3  # find the length of the number.Then make a copy of the numberain integer fo
4  len_n = len(number)
5  number=int(number)
6  copy_n=number
7  #Make a result variable 0 and ineriator i set to the length of the entered n
8  result = 0
9  i = len_n
10 # Use while loop to traverse through the number by each digit
11 while(number!=0):
12     digit = number%10
13 #On each iteration, increment result by digit raised to the power of the ite
14     result=result+pow(digit,i)
15     number=int(number/10)
16 #Decrement iterator on every traversal
17     i = i - 1
18 #we can check the value of the iteriator every transversal
19 if(result==copy_n):
20     print("Disarium Number!")
21 else:
22     print("Not an Disarium Number!")
```

```
Enter the number:667
Not an Disarium Number!
```

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

```
In [30]:  1  #The count of total digits calculated by calculateLength()
          2  def calculateLength(number):
          3      length = 0;
          4      while(number != 0):
          5          length = length + 1;
          6          number = number//10;
          7      return length;
          8  #The sum of digits can be calculated by by sum Of Digits() powered with thei
          9  def sumOfDigits(num):
         10      rem = sum = 0;
         11      len = calculateLength(num);
         12      while(num > 0):
         13          rem = num%10;
         14          sum = sum + (rem**len);
         15          num = num//10;
         16          len = len - 1;
         17      return sum;
         18  result = 0;
         19  #results the disarium numbers between 1 to 100
         20  print("Disarium numbers between 1 to 100 are: ");
         21  for i in range(1, 101):
         22      result = sumOfDigits(i);
         23      if(result ==i):
         24          print(i)
```

```
Disarium numbers between 1 to 100 are:
1
2
3
4
5
6
7
8
9
89
```

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

```
In [8]:   1  #HappyNumber() will determine whether a number is happy or not
          2  def HappyNumber(num):
          3      rem = sum = 0;
          4
          5  #Calculates the sum of squares of digits
          6      while(num > 0):
          7          rem = num%10;
          8          sum = sum + (rem*rem);
          9          num = num//10;
         10      return sum;
         11  #Ask use to enter the number
         12  num = int(input("Enter the number"));
         13  result = num;
         14
         15  while(result != 1 and result != 4):
         16      result = HappyNumber(result);
         17
         18  #Happy number always ends with 1,so
         19  if(result == 1):
         20      print(str(num) + " is a happy number");
         21  #Unhappy number ends in a cycle of repeating numbers which contain 4
         22  elif(result == 4):
         23      print(str(num) + " is not a happy number");
```

```
Enter the number281281929
281281929 is not a happy number
```

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

```python
#A UDF will determinne the number will be happy number or not
def HappyNumber(num):
    rem = sum = 0;
#Calculating the sum of squares of digits
    while(num > 0):
        rem = num%10;
        sum = sum + (rem*rem);
        num = num//10;
    return sum;
#Displays all happy numbers between 1 and 100
print("List of happy numbers between 1 and 100: ");
for i in range(1, 101):
    result = i;
#Happy number always ends with 1 and
#unhappy number ends in a cycle of repeating numbers which contains 4
    while(result != 1 and result != 4):
        result = HappyNumber(result);
    if(result == 1):
        print(i),
        print("")
```

```
List of happy numbers between 1 and 100:
1

7

10

13

19

23

28

31

32

44

49

68

70

79

82

86

91
```

94

97

100

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

```
In [17]:   1  # set the number 99 =num
           2  num = 99;
           3  # pass rem=sum=0
           4  rem = sum = 0;
           5  #A copy of num can be made as a
           6  a = num;
           7
           8  #Now we can Calculates the total sum of digits by using while loop
           9  while(num > 0):
          10      rem = num%10;
          11      sum = sum + rem;
          12      num = num//10;
          13
          14  #Now we can check the number a  ican be divide by the total sum of digits an
          15  if(a%sum == 0):
          16      print(str(a) + " is a harshad number");
          17  else:
          18      print(str(a) + " is not a harshad number")
```

99 is not a harshad number

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

```python
1   #UDF -PronicNumber() will determine whether a given number is a pronic numbe
2   def PronicNumber(num):
3       flag = False;
4       for j in range(1, num+1):
5   #Evaluate pronic number by multiplying consecutive numbers   by using if sta
6           if((j*(j+1)) == num):
7               flag = True;
8               break;
9       return flag;
10  #Show the pronic numbers between 1 and 100  by using a for loop
11  print("pronic numbers between 1 and 100: ");
12  for i in range(1, 101):
13      if(PronicNumber(i)):
14          print(i),
15          print(" ")
```

```
Pronic numbers between 1 and 100:
2

6

12

20

30

42

56

72

90
```