Programming Assignment_9

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

In [1]:

```
def calculateLength(n):
    length = 0;
    while(n != 0):
        length = length + 1;
        n = n//10;
    return length;

num = 175;
rem = sum = 0;
len = calculateLength(num);

#Makes a copy of the original number num
n = num;

#Calculates the sum of digits powered with their respective position
while(num > 0):
    rem = num%10;
    sum = sum + int(rem**len);
    num = num//10;
    len = len - 1;

#Checks whether the sum is equal to the number itself
if(sum == n):
    print(str(n) + " is a disarium number");
else:
    print(str(n) + " is not a disarium number");
```

```
175 is a disarium number
```

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

In [2]:

```
def Length(n):
    length = 0;
    while(n != 0):                    # calculating the length of the number
        length = length + 1;
        n = n//10;
    return length;

#sumDigit()
def sumdigit(num):
    rem = sum = 0;
    len = Length(num);     # checking the number is disarium or not

    while(num > 0):
        rem = num;
        sum = sum + (rem**len);
        num = num//10;
        len = len - 1;
    return sum;

result = 0;


print("Disarium numbers between 1 and 100 are");
for i in range(1, 101):           # printing disarium numbers
    result = sumdigit(i);

    if(result == i):
        print(i),
```

```
Disarium numbers between 1 and 100 are
1
2
3
4
5
6
7
8
9
```

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

In [3]:

```
def isHappyNumber(num):
    rem = sum = 0;

    #Calculates the sum of squares of digits
    while(num > 0):
        rem = num%10;
        sum = sum + (rem*rem);
        num = num//10;
    return sum;

num = 82;
result = num;

while(result != 1 and result != 4):
    result = isHappyNumber(result);

#Happy number always ends with 1
if(result == 1):
    print(str(num) + " is a happy number");
#Unhappy number ends in a cycle of repeating numbers which contain 4
elif(result == 4):
    print(str(num) + " is not a happy number");
```

```
82 is a happy number
```

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

In [4]:

```
def check_happy_num(my_num):
   remaining = sum_val = 0
   while(my_num > 0):
      remaining = my_num%10
      sum_val = sum_val + (remaining*remaining)
      my_num = my_num//10
   return sum_val
print("The list of happy numbers between 1 and 100 are : ")
for i in range(1, 101):
   my_result = i
   while(my_result != 1 and my_result != 4):
      my_result = check_happy_num(my_result)
   if(my_result == 1):
      print(i)
```

```
The list of happy numbers between 1 and 100 are :
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 [7]:

```
num = 156;
rem = sum = 0;

#Make a copy of num and store it in variable n
n = num;

#Calculates sum of digits
while(num > 0):
    rem = num%10;
    sum = sum + rem;
    num = num//10;

#Checks whether the number is divisible by the sum of digits
if(n%sum == 0):
    print(str(n) + " is a harshad number");
else:
    print(str(n) + " is not a harshad number");
```

```
156 is a harshad number
```

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

In [8]:

```
def isPronicNumber(num):
    flag = False;

    for j in range(1, num+1):
        #Checks for pronic number by multiplying consecutive numbers
        if((j*(j+1)) == num):
            flag = True;
            break;
    return flag;

#Displays pronic numbers between 1 and 100
print("Pronic numbers between 1 and 100: ");
for i in range(1, 101):
    if(isPronicNumber(i)):
        print(i),
        print(" "),
```

```
Pronic numbers between 1 and 100:
2

6

12

20

30

42

56

72

90
```

In [ ]:

```

```