

# 1 Programming Assignment\_9

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

```
In [5]: 1 def is_disarium(num):
2         temp = 0
3         for i in range(len(str(num))):
4             temp += int(str(num)[i]) ** (i + 1)
5         return temp == num
6
7 num = 25
8 print("\nIs",num,"is Disarium number?",is_disarium(num))
9 num = 89
10 print("\nIs",num,"is Disarium number?",is_disarium(num))
11 num = 75
12 print("\nIs",num,"is Disarium number?",is_disarium(num))
13 num = 125
14 print("\nIs",num,"is Disarium number?",is_disarium(num))
15 num = 518
16 print("\nIs",num,"is Disarium number?",is_disarium(num))
17
```

Is 25 is Disarium number? False

Is 89 is Disarium number? True

Is 75 is Disarium number? False

Is 125 is Disarium number? False

Is 518 is Disarium number? True

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

```
In [6]: 1 def calculateLength(n):
2         length = 0;
3         while(n != 0):
4             length = length + 1;
5             n = n//10;
6         return length;
7
8 def sumOfDigits(num):
9     rem = sum = 0;
10    len = calculateLength(num);
11
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
19 result = 0;
20
21 print("Disarium numbers between 1 and 100 are");
22 for i in range(1, 101):
23     result = sumOfDigits(i);
24
25     if(result == i):
26         print(i)
```

Disarium numbers between 1 and 100 are

1  
2  
3  
4  
5  
6  
7  
8  
9  
89

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

```
In [7]: 1 def is_Happy_num(n):
2         past = set()
3         while n != 1:
4             n = sum(int(i)**2 for i in str(n))
5             if n in past:
6                 return False
7             past.add(n)
8         return True
9 print(is_Happy_num(7))
10 print(is_Happy_num(932))
11 print(is_Happy_num(6))
12
```

True  
True  
False

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

```
In [12]: 1 def isHappyNumber(num):
2         rem = sum = 0;
3
4         while(num > 0):
5             rem = num%10;
6             sum = sum + (rem*rem);
7             num = num//10;
8         return sum;
9
10 print("List of happy numbers between 1 and 100: ");
11 for i in range(1, 101):
12     result = i;
13     while(result != 1 and result != 4):
14         result = isHappyNumber(result);
15
16     if(result == 1):
17         print(i),
18         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

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

```
In [15]: 1 num = 54;
2 rem = sum = 0;
3
4 n = num;
5
6 while(num > 0):
7     rem = num%10;
8     sum = sum + rem;
9     num = num//10;
10
11 if(n%sum == 0):
12     print(str(n) + " is a harshad number");
13 else:
14     print(str(n) + " is not a harshad number");
```

54 is a harshad number

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

```
In [16]: 1 def isPronicNumber(num):
2     flag = False;
3
4     for j in range(1, num+1):
5         if((j*(j+1)) == num):
6             flag = True;
7             break;
8     return flag;
9
10 print("Pronic numbers between 1 and 100: ");
11 for i in range(1, 101):
12     if(isPronicNumber(i)):
13         print(i),
14         print(" "),
```

Pronic numbers between 1 and 100:

2

6

12

20

30

42

56

72

90