Programming_Assingment9

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

A number is said to be the Disarium number when the sum of its digit raised to the power of their respective positions becomes equal to the number itself.

In [1]:

```
def isDisarium(num):
    sum = 0
    while(num>0):
        dgcnt= len(str(num))
        digit = num%10
        sum= sum + digit**dgcnt
        dgcnt-=1
        num = num//10
    return sum

num = int(input("Enter the number :"))


sum = isDisarium(num)
if sum == num:
    print(num,"Number is Disarium")
else:
    print(num,"Number is not Disarium")
```

```
Enter the number :525
525 Number is not Disarium
```

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

In [2]:

```
def isDisarium(num):
    sum = 0
    while(num>0):
        dgcnt= len(str(num))
        digit = num%10
        sum= sum + digit**dgcnt
        dgcnt-=1
        num = num//10
    return sum

print("Disarium numbers in range 1 to 100")
```

```
disariumNum = []

for i in range(1,101):
   sum = 0
   sum = isDisarium(i)
   if sum == i:
      disariumNum.append(i)
print(disariumNum)
```

```
Disarium numbers in range 1 to 100
[1, 2, 3, 4, 5, 6, 7, 8, 9, 89]
```

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

A number is said to be happy if it yields 1 when replaced by the sum of squares of its digits repeatedly. If this process results in an endless cycle of numbers containing 4, then the number will be an unhappy number.

In [3]:

```
def isHappy(num):
   sum = 0
   while(num>0):
      digit = num%10
      sum= sum + digit**2
      num = num//10
   return sum

num = int(input("Enter the number :"))
result = num


while (result != 1 and result != 4):
   result = isHappy(result)

if result == 1:
   print(num,"Is a Happy Number")
else:
   print(num," Is a Unhappy Number")
```

```
Enter the number :50
50  Is a Unhappy Number
```

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

In [4]:

```
def isHappy(num):
```

```
    sum = 0
    while(num>0):
        digit = num%10
        sum= sum + digit**2
        num = num//10
    return sum

print("Happy numbers in range 1 to 100")
result=num=i=0
happyNum = []
for i in range(1,101):
    result = i
    while (result != 1 and result != 4):
        result = isHappy(result)
    if result == 1:
        happyNum.append(i)
print(happyNum)
```

```
Happy numbers in range 1 to 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?

If a number is divisible by the sum of its digits, then it will be known as a Harshad Number

In [5]:

```
def digitSum(num):
    sum = 0
    while(num>0):
        digit = num%10
        sum= sum + digit
        num = num//10
    return sum

num = int(input("Enter the number :"))
sum = digitSum(num)

if num % sum == 0:
    print(num,"Is a Harshad number")
else:
    print(num,"Is not a Harshad number")
```

```
Enter the number :54
54 Is a Harshad number
```

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

The pronic number is a product of two consecutive integers of the form: n(n+1).

In [6]:

```
def isPronicNum(num):
    isPronic = False
    for i in range(1,num+1):
        if i*(i+1) == num:
            isPronic = True
            break
    return isPronic

print("Pronic numbers in range 1 to 100")
pronicNum = []
for i in range(1,101):
    if isPronicNum(i):
        pronicNum.append(i)
print(pronicNum)
```

```
Pronic numbers in range 1 to 100
[2, 6, 12, 20, 30, 42, 56, 72, 90]
```