

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

```
In [1]: 1 import math
2 def disranium(x):
3     l=len(str(x))
4     sum=0
5     while(x):
6         r=x%10
7         sum=sum+(math.pow(r,l))
8         l=l-1
9         x=x//10
10    return sum
11 n=int(input('enter the number \n'))
12 if(n==disranium(n)):
13     print('number is disranium ' )
14 else:
15     print('number is not disranium')
16
17
18
```

```
enter the number
135
number is disranium
```

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

In [2]:

```
1 import math
2 def disranium(x):
3     l=len(str(x))
4     sum=0
5     while(x):
6         r=x%10
7         sum=sum+(math.pow(r,l))
8         l=l-1
9         x=x//10
10    return sum
11 for i in range(1,101):
12     if(disranium(i)==i):
13         print(i)
14
```

```
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 [36]: 1 import math
2 def happy(x):
3     s=set()
4     while(1):
5         x=sumsq(x)
6         if x==1:
7             return True
8         if x in s:
9             return False
10        s.add(x)
11 def sumsq(x):
12     sum=0
13     while(x):
14         r=x%10
15         sum=sum+(math.pow(r,2))
16         x=x//10
17     return sum
18 n=int(input('enter number please'))
19
20 print(f'the given number is happy number:{happy(n)}')
21
22
```

```
enter number please19
the given number is happy number:True
```

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

In [38]:

```
1 import math
2 def happy(x):
3     s=set()
4     while(1):
5         x=sumsq(x)
6         if x==1:
7             return True
8         if x in s:
9             break
10        s.add(x)
11 def sumsq(x):
12     sum=0
13     while(x):
14         r=x%10
15         sum=sum+(math.pow(r,2))
16         x=x//10
17     return sum
18 for i in range(1,101):
19     if(happy(i)):
20         print(i)
```

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 [42]:

```
1 def harshad(n):
2     sum=0
3     while(n):
4         sum=sum+(n%10)
5         n=n//10
6     return sum
7 x=int(input('enter number plzz '))
8 if ((x%harshad(x))==0):
9     print('the number is harshad number : ',x)
10 else:
11     print('number is not harshad number:',x)
12
```

enter number plzz 19

number is not harshad number: 19

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

In [48]:

```
1 import math
2 def pronic(n):
3     i=0
4     while(i<=int(math.sqrt(n))):
5         if(n==i*(i+1)):
6             return True
7         i=i+1
8
9 for i in range(0,101):
10     if(pronic(i)):
11         print(i)
12
```

0
2
6
12
20
30
42
56
72
90

In []:

1