```python
In [1]:  #assignment 1:python basics and IDL,simple python programs
         #write program  to calculate the Area of a triangle
         b=int(input("enter the base:"))
         h=int(input("enter the height:"))
         area=1/2*(b*h)
         print("area=",area)

         enter the base:5
         enter the height:6
         area= 15.0
```

```python
In [2]:  #python program to swap two  variables
         num1=input("enter first number:")
         num2=input("enter second number:")
         print("number before swapping")
         print("num1=",num1)
         print("num2=",num2)
         temp=num1
         num1=num2
         num2=temp
         print("nuber after swapping")
         print("num1=",num1)
         print("num2=",num2)

         enter first number:3
         enter second number:4
         number before swapping
         num1= 3
         num2= 4
         nuber after swapping
         num1= 4
         num2= 3
```

```python
In [3]:  #python program to Generate a random number
         import random
         print(random.randint(0,5))

         4
```

```python
In [7]:  #write a python program to check if a number is positive,negative or zero
         num=float(input("enter a number:"))
         if num>0:
             print("positive number")
         elif num==0:
             print("zero")
         else:
             print("negative number")

         enter a number:-1
         negative number
```

```python
In [4]:  #write a python program to check if a number odd or even
         n=int(input("enter number:"))

         for i in range(0,n):
             if n%2==0:


                 print("number is even")
             else:
                 print("number is odd")

         enter number:2
         number is even
         number is even
```

```python
In [13]:  #write a python program to check  number is prime
          n=int(input("enter number:"))
          num=n
          sum=0
          while n>0:
              d=n%10
              sum=sum+d*d*d
              n= int (n/10)
          if  num==sum:
              print(num,"number is prime")
          else:
              print(num,"number is not prime")

          enter number:153
          153 number is prime
```

```python
In [15]:  #write a python program to find the factorial of a number
          n=input("enter no:")
          n=int(n)
          f=1
          while n>0:
              f=f*n
              n=n-1
          print("factorial=",f)

          enter no:5
          factorial= 120
```

```python
In [1]:  #write a python program to check armstrong number
         n=int(input('enter a number:'))
         num=n
         sum=0
         while(n>0):
             rem=n%10
             sum=sum+rem*rem*rem
             n=int(n/10)
         if num==sum:
             print(num,"is armstrong")
         else:
             print(num,"is not armstrong")

         enter a number:153
         153 is armstrong
```