Q1. Write a Python program that defines a function called "add_numbers" that takes two arguments (i.e., numbers) and returns their sum. Within the function, add the two numbers together and return the result using the return statement. Call the function with the values 5 and 6, and print out the returned result. This will result in the addition of 5 and 6, with the output of the program being the sum of these two numbers.

In [4]:
```
def add_numbers(a,b):
    return a+b

result = add_numbers(5,6)
print(result)
```

```
11
```

Q2. Write a Python program that calculates the square root of a given number using a built-in function. Specifically, the program should take an integer or float input from the user, calculate its square root using the 'sqrt()' function from the 'math' module, and print out the result to the user. As an example, calculate the square root of the number 625 using this program, which should output the value of 25.

In [18]:
```
from math import sqrt
def sq_root(num):
    return sqrt(num)
```

In [19]:
```
sq_root(625)
```

Out[19]:
```
25.0
```

In [20]:
```
sq_root(2354.6)
```

Out[20]:
```
48.52422075623677
```

Q3.Write a program that prints all prime numbers between 0 to 50.

In [43]:
```
for num in range(2, 51):
    if_prime = True
    for i in range(2, num):
        if num%i==0:
            if_prime = False
            break
    if if_prime:
        print(num)
```

```
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
```

Q4.How can we swap the values of three variables (let's say a, b, and c) without using a fourth variable? For example, if we have a=5, b=8, and c=9, how can we obtain a=9, b=5, and c=8? The challenge is to perform this operation without using an additional variable to store any of the values during the swapping process.

In [15]:
```
a=5
b=8
c=9

a, b, c = c, a, b

print(a)
print(b)
print(c)
```

```
9
5
8
```

Q5. Can you write a program that determines the nature of a given number (in this case, 87) as being positive, negative, or zero? The program should be designed to take the

number as input and perform the necessary calculations to determine if the number is positive (i.e., greater than zero), negative (i.e., less than zero), or zero (i.e., equal to zero). The output of the program should indicate which of these three categories the given number falls into.

In [21]:
```
try :
    num = int(input("Enter the number :"))

    if num>0:
        print("The given number is greater than zero")
    elif num<0:
        print("The given number is less than zero")
    else:
        print("The given number is equal to zero")
except Exception as e:
    print(e)
```

```
Enter the number :45
The given number is greater than zero
```

Q6. How can you create a program that determines whether a given number (in this case, 98) is even or odd? The program should be designed to take the number as input and perform the necessary calculations to determine whether it is divisible by two. If the number is divisible by two without leaving a remainder, it is an even number, and if there is a remainder, it is an odd number. The output of the program should indicate whether the given number is even or odd.

In [22]:
```
try :
    num = int(input("Enter the number :"))
    if num%2==0:
        print("The given number is even")
    else:
        print("the given number is odd")
except Exception as e:
    print(e)
```

```
Enter the number :98
The given number is even
```

Q7.Write a program for sum of digits.the digits are 76543 and the output should be 25.

In [33]:
```
try :
    num = input("enter the digits :")
    list_num = []
    sum = 0

    for i in num:
        list_num.append(int(i))

    for i in list_num:
        sum = sum + i
    print(sum)
except Exception as e:
    print(e)
```

```
enter the digits :76543
25
```

Q8.Write a program for reversing the given number 5436 and the output should be 6345.

In [1]:
```
try :
    num = 5436
    reverse = 0

    while num > 0:
        #divide the num with 10
        last_digit = num%10

        #adding last digit in reverse
        reverse = (reverse*10) + last_digit

        #removing the last digit from the reverse
        num //=10
    print(reverse)

except Exception as e:
    print(e)
```

```
6345
```

9.Write a program to check a given number 371 is an Armstrong number?

In [18]:
```
num = input("Enter the number :")
int_num = []
sum_sq = 0
str_sum = str(sum_sq)

for i in num:
    int_num.append(int(i))

for i in int_num:
    sum_sq = sum_sq + i**2

if str_sum == num:
    print("it is an armstrong number")
else :
    print("not an armstrong number")
```

```
Enter the number :371
not an armstrong number
```

10. Write a program the given year is 1996 a leap year.

In [33]:
```
#We'll divide the year by 4 to check if its evenly divisible. Then confirm tha
# or
#Check if the year is divisible by 400.

year = 1996

if (year%4 == 0 and year%100 != 0) or year%400 == 0:
    print(f"year {year} is a leap year")
else:
    print(f"year {year} is not a leap year")
```

```
year 1996 is a leap year
```