In [2]:
```
#Exercise
#Bitwise operators
# x= 4 and y =3, perform &, |, ^, ~, <<, >>
x=4
y=3
print ("Bitwise and operation" , x & y )
print ("Bitwise or operation", x | y)
print ("Bitwise xor", x^y)
print ("Bitwise one compliment", ~x)
print ("bitwise Rightshift operation on X", x>>1)
print  ("bitwise leftshift operation on y", y<<1)
```

```
Bitwise and operation 0
Bitwise or operation 7
Bitwise xor 7
Bitwise one compliment -5
bitwise Rightshift operation on X 2
bitwise leftshift operation on y 6
```

In [4]:
```
for i in range(11):
 print(str(12),"*", str(i)," = ", 12*i)
```

```
12 * 0  =  0
12 * 1  =  12
12 * 2  =  24
12 * 3  =  36
12 * 4  =  48
12 * 5  =  60
12 * 6  =  72
12 * 7  =  84
12 * 8  =  96
12 * 9  =  108
12 * 10  =  120
```

In [5]:
```
#Question 3
#Write a program that takes marks of 5 subjects and display the grade, refer the sample program output Inline
sub1=int(input("Enter marks of the first subject: "))
sub2=int(input("Enter marks of the second subject: "))
sub3=int(input("Enter marks of the third subject: "))
sub4=int(input("Enter marks of the fourth subject: "))
sub5=int(input("Enter marks of the fifth subject: "))
avg=(sub1+sub2+sub3+sub4+sub4)/5
if(avg>=90):
    print("Grade: A")
```

```
elif(avg>=80 and avg<90):
    print("Grade: B")
elif(avg>=70 and avg<80):
    print("Grade: C")
elif(avg>=60 and avg<70):
    print("Grade: D")
else:
    print("Grade: F")
```

```
Enter marks of the first subject: 50
Enter marks of the second subject: 60
Enter marks of the third subject: 90
Enter marks of the fourth subject: 80
Enter marks of the fifth subject: 100
Grade: C
```

In [2]:

```
while(True):
    print("Select the operation ")
    print("1. Add")
    print("2. Subtract")
    print("3. Multiply")
    print("4. Quit")
    print("Enter your choice (1/2/3/4): ")
    choice = int(input())

    if(choice == 1):
        print("Enter number 1 ")
        num1= int(input())
        print("Enter number 2 ")
        num2= int(input())
        sum=num1+num2
        print("Addition of",num1," and ",num2," is ",sum)
    elif(choice ==2):
        print("Enter number 1 ")
        num1= int(input())
        print("Enter number 2 ")
        num2= int(input())
        sub=num1-num2
        print("Subtraction of",num1," and ",num2," is ",sub)
    elif(choice ==3):
        print("Enter number 1 ")
        num1= int(input())
        print("Enter number 2 ")
        num2= int(input())
        mul=num1*num2
```

```
        print("Multiplication of",num1," and ",num2," is ",mul)
    else:
        print("Thank you for using UniqFin Calculator")
        break
```

```
Select the operation
1. Add
2. Subtract
3. Multiply
4. Quit
Enter your choice (1/2/3/4):
4
Thank you for using UniqFin Calculator
```

In [3]:
```
ch = input("Enter a character: ")
if((ch>='a' and ch<= 'z') or (ch>='A' and ch<='Z')):
    print(ch, "is an Alphabet")
else:
    print(ch, "is not an Alphabet")
```

```
Enter a character: 11
11 is not an Alphabet
```

In [5]:
```
num = int(input("Enter any number: "))
flag = num%2
if flag == 0:
    print(num, "is an even number")
elif flag == 1:
    print(num, "is an odd number")
else:
    print("Error, Invalid input")
```

```
Enter any number: 16
16 is an even number
```

In [6]:
```
#Python program to swap elements
mylist=[1,2,3,4,5]
print("Before Swapping", mylist)
size= len(mylist)
temp=mylist[0] #First element is fetch or assigned to temp variable
mylist[0] = mylist[size-1] #Last element is assigned to 1st postion
mylist[size-1]= temp # temp or first element to last position
print("after swapping", mylist)
```

```
Before Swapping [1, 2, 3, 4, 5]
after swapping [5, 2, 3, 4, 1]
```

In [8]:
```
listOfNumbers = [1,2,3,4,5,6,7,8,9]
#Option 1
result=0
for num in listOfNumbers:
    result+=num
print(result)
#Option2
print(sum(listOfNumbers)) #built in function sum()
```

```
45
45
```

In [11]:
```
import sys
import timeit
mylist=[1,2,3,4,5,6,7,8,8,9,9,10]
mytuple = (1,2,3,4,5,6,7,8,8,9,9,10)
print("mylist :", mylist)
print("mytuple", mytuple)
print("size of mylist" , sys.getsizeof(mylist))
print("size of mytuple" , sys.getsizeof(mytuple))

listtime = timeit.timeit(stmt="[1,2,3,4,5,6,7,8,8,9,9,10]", number= 100000)
tupletime = timeit.timeit(stmt="(1,2,3,4,5,6,7,8,8,9,9,10)", number= 100000)
print("time taken to execulte mylist statement 100000 times", listtime)
print("time take to execute mytuple statement 100000 times" , tupletime)
```

```
mylist : [1, 2, 3, 4, 5, 6, 7, 8, 8, 9, 9, 10]
mytuple (1, 2, 3, 4, 5, 6, 7, 8, 8, 9, 9, 10)
size of mylist 152
size of mytuple 136
time taken to execulte mylist statement 100000 times 0.0048374999314546585
time take to execute mytuple statement 100000 times 0.0006523998454213142
```

In [22]:
```
dict1 = {'id': '59912', 'name': 'AAA', 'location': 'bengaluru'}
dict1["Salary"]=500000
print(dict1)
#Option 1
for key,values in dict1.items():
    print(key,values)
print("*****************************")
#Option 2
for key in dict1.keys():
    print(str(key) + " => "+str(dict1[key]))
print("*****************************")
print(list(enumerate(dict1.items())))
```

```
print("*****************************")
#Option 3
for i,(k,v) in enumerate(dict1.items()):
    print("Index: ",str(i)," Key: ",k," Value: ",v)
```

```
{'id': '59912', 'name': 'AAA', 'location': 'bengaluru', 'Salary': 500000}
id 59912
name AAA
location bengaluru
Salary 500000
*****************************
id => 59912
name => AAA
location => bengaluru
Salary => 500000
*****************************
[(0, ('id', '59912')), (1, ('name', 'AAA')), (2, ('location', 'bengaluru')), (3, ('Salary', 500000))]
*****************************
Index:  0  Key:  id  Value:  59912
Index:  1  Key:  name  Value:  AAA
Index:  2  Key:  location  Value:  bengaluru
Index:  3  Key:  Salary  Value:  500000
```

In [ ]: