- Suppose that a Firm pays its employee at the rate of $12 per hour. An employee has worked for 37 hours. How much should the firm pay the employee? (Do normal way directly takes the input)

In [10]:
```
hour=12
rate=37
total_pay=hour*rate
print("the total firm pay for the employee is:",total_pay)
```

```
the total firm pay for the employee is: 444
```

- How about prompting the user for the number of hours and using the input value to compute the total pay? (Above problem use eval concept and sep concept)

In [11]:
```
hours=eval(input("enter a number of hours:"))
dollar=eval(input("enter a rate of dollars:"))
total_pay=dollar*hours
print("the total firm pay for the employee is:",total_pay)
```

```
enter a number of hours:12
enter a rate of dollars:37
the total firm pay for the employee is: 444
```

- For a certain academic subject the students are evaluated based on five tests -
  - Quiz 1 (20 marks - 10% Weight),
  - Quiz 2 (20 marks - 10% Weight),
  - Class test (50 marks - 25% Weight),
  - Assignment (100 marks - 25% weight) and
  - Project (200 marks - 30% weight).

  Design a program that will prompt the user for marks for each of the tests and calculate the overall marks (out of 100).

In [39]:
```
quiz1=eval(input("enter marks for quiz1:"))
quiz2=eval(input("enter marks for quiz2:"))
quiz3=eval(input("enter marks for quiz3:"))
assignment=eval(input("enter marks for assignment:"))
project=eval(input("enter marks for project:"))
q1=(quiz1*10)/100
q2=(quiz2*10)/100
q3=(quiz3*25)/100
a1=(assignment*25)/100
p1=(project*30)/100
total_marks=q1+q2+q3+a1+p1
print("the oevrall marks obtained:",total_marks)
```

```
enter marks for quiz1:20
enter marks for quiz2:20
enter marks for quiz3:50
enter marks for assignment:100
enter marks for project:200
the oevrall marks obtained: 101.5
```

- f a five-digit number is input through the keyboard, write a program to calculate the sum of its digits.

In [12]:
```
sum=0
num=eval(input("enter a number:"))
while(num!=0):
    r=num%10
    sum=sum+r
    num=num//10
print(sum)
```

```
enter a number:86526
27
```

- if a five-digit number is input through the keyboard, write a program to print a new number by adding one to each of its digits. For example if the number that is input is 12371 then the output should be displayed as 23482.

In [3]:
```
n=eval(input("enter a five digit number:"))
a = n // 10000
n = n% 10000
b = n // 1000
n = n % 1000
c = n// 100
n = n % 100
d = n// 10
n = n % 10
e = n % 10
print(a+1,b+1,c+1,d+1,e+1)
```

```
enter a five digit number:54327
6 5 4 3 8
```

- **Recall the problem:** : 3 Design a program that will prompt the user for marks for each of the tests and calculate the overall marks (out of 100).Add an extension to the problem to display grades: Display the grades of students using the following table: Score Grade

= 60 First Class
= 40 Second Class

< 40 Fail

In [40]:
```
quiz1=eval(input("enter marks for quiz1:"))
quiz2=eval(input("enter marks for quiz2:"))
quiz3=eval(input("enter marks for quiz3:"))
assignment=eval(input("enter marks for assignment:"))
project=eval(input("enter marks for project:"))
q1=(quiz1*10)/100
q2=(quiz2*10)/100
q3=(quiz3*25)/100
a1=(assignment*25)/100
p1=(project*30)/100
total_marks=q1+q2+q3+a1+p1
print("the oevrall marks obtained:",total_marks)
if(total_marks>=60):
    print("first class")
elif(total_marks>=40):
    print("second class")
else:
    print("fail")
```

```
enter marks for quiz1:20
enter marks for quiz2:20
enter marks for quiz3:50
enter marks for assignment:100
enter marks for project:200
the oevrall marks obtained: 101.5
first class
```

- recall the problem How about prompting the user for the number of hours and using the input value to compute the total pay?

  bu using conditions

In [ ]:
```
```

- Rewrite the pay program(refer problem 2) using try and exception . the following shows the two exceutions of the program

In [9]:
```
try:
    hours=eval(input("enter a number of hours:"))
    dollar=eval(input("enter a rate of dollars:"))
    total_pay=dollar*hours
    print("the total firm pay for the employee is:",total_pay)
except Exception as e:
    print(e)
```

```
enter a number of hours:20
enter a rate of dollars:nine
name 'nine' is not defined
```

- Write a program that asks the user to enter a length in centimeters. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. There are 2.54 centimeters in an inch.

In [13]:
```
length=eval(input("enter a length in centimeters:"))
inches=length*2.54
if(length<0):
    print("entry is invalid")
else:
    print("length to inches:",inches)
```

```
enter a length in centimeters:5
length to inches: 12.7
```

- Ask the user for a temperature. Then ask them what units, Celsius or Fahrenheit, the temperature is in. Your program should convert the temperature to the other unit. The conversions are F = 9 5 C + 32 and C = 5 9 (F − 32).

In [67]:
```
temp=eval(input("enter a temperature:"))
unit=eval(input("what units in C=celsius or F=fahrenheit:"))
c = 5/9*(temp-32)
f = 9/5*(temp+32)
if(unit==c):
    print("temperature in celsius:",c,'C')
elif(unit==f):
    print("temperature in fahrenheits:",f,'F')
else:
    print("invalid unit")
```

```
enter a temperature:85
what units in C=celsius or F=fahrenheit:c
temperature in celsius: 29.444444444444446 C
```

- Ask the user to enter a temperature in Celsius. The program should print a message based on the temperature: • If the temperature is less than -273.15, print that the temperature is invalid because it is below absolute zero. • If it is exactly -273.15, print that the temperature is absolute 0. • If the temperature is between -273.15 and 0, print that the temperature is

In [40]:
```
temp=eval(input("enter a temperature in celsius:"))
if(temp<-273.15):
    print("the temperature is invalid because it is below absolute zero")
elif(temp==-273.15):
    print("the temperature is absolute 0")
elif(temp>-273.15 and temp<0):
    print("the temperature is below freezing")
elif(temp==0):
    print("the temperature is at the freezing point")
elif(temp>0 and temp<100):
    print("the temperature is in the normal range")
elif(temp==100):
    print("the temperature is at the boiling point")
elif(temp>100):
    print("the temperature is above the boiling point")
```

```
enter a temperature in celsius:56
the temperature is in the normal range
```

- Write a program that asks the user how many credits they have taken. If they have taken 23 or less, print that the student is a freshman. If they have taken between 24 and 53, print that they are a sophomore. The range for juniors is 54 to 83, and for seniors it is 84 and over.

In [37]:
```
credits=(eval(input("enter the credits:")))
if(credits<=23):
    print("student is a freshman")
elif(credits>=24 and credits<=53):
    print("they are a sophomore")
elif(credits>=54 and credits<=83):
    print("The range for juniors")
elif(credits>=84):
    print("the range for seniors")
else:
    print("over")
```

```
enter the credits:60
The range for juniors
```

- Generate a random number between 1 and 10. Ask the user to guess the number and print a message based on whether they get it right or not.

In [67]:
```
import random
num=eval(input("enter a number:"))
num1=random.randint(1,10)
print(num1)
if(num==num1):
    print("right")
else:
    print("wrong")
```

```
enter a number:5
5
right
```

- A store charges $12 per item if you buy less than 10 items. If you buy between 10 and 99 items, the cost is $10 per item. If you buy 100 or more items, the cost is $7 per item. Write a program that asks the user how many items they are buying and prints the total cost.

In [42]:
```
items=eval(input("enter items:"))
items1=items*12
items2=items*10
items3=items*7
if (items<10):
    print("total cost:",items1)
elif(items>=10 and items<=99):
    print("total cost:",items2)
else:
    print("total cost:",items3)
```

```
enter items:55
total cost: 550
```

- Write a program that asks the user for two numbers and prints Close if the numbers are within .001 of each other and Not close otherwise.

In [45]:
```
n1=eval(input("enter number1:"))
n2=eval(input("enter number2:"))
if -0.001<=(n1-n2)<=0.001:
    print("close")
else:
    print("not close")
```

```
enter number1:0.1
enter number2:0.1
close
```

- A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not.

In [8]:
```
year=eval(input("enter a year:"))
if(year%4==0):
    print("it is leap year")
elif(year%100==0 & year%400==0):
    print("not leap year")
else:
    print("not a leap year")
```

```
enter a year:2001
not a leap year
```

- Write a program that asks the user to enter a number and prints out all the divisors of that number. [Hint: the % operator is used to tell if a number is divisible by something.

In [50]:
```
num=eval(input("enter a number:"))
for i in range(1,num+1):
    if(num%i==0):
        print(i,end=" ")
```

```
enter a number:30
1 2 3 5 6 10 15 30
```

- Write a program that asks the user for an hour between 1 and 12, asks them to enter am or pm, and aks them how many hours into the future they want to go. Print out what the hour will be that many hours into the future, printing am or pm as appropriate. An example is shown below.

In [52]:
```
h=eval(input("enter an hour between 1 and 12:"))
am_pm=eval(input("enter am(1) or pm(2):"))
ahead=eval(input("how many hours into the future they want to go:"))
new_h=(h+ahead)%12
if(am_pm=='1'):
    new_am_pm='am' if(h+ahead)<12 else 'pm'
else:
    new_am_pm='pm' if(h+ahead)>=12 else 'am'
print("new hour:",new_h,new_am_pm)
```

```
enter an hour between 1 and 12:8
enter am(1) or pm(2):1
how many hours into the future they want to go:5
new hour: 1 pm
```

In [ ]:
```
```