Python Assignment4 Basics - General and On Conditional statements

Problem 1

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 [2]:
```
try:
    rateperhour=12
    empworkedhour=37
    firmpaytoemployee=rateperhour*empworkedhour
    print("The firm should be pay the employee is",firmpaytoemployee)
except Exception as e:
    print("Error:: ",e)
```

```
The firm should be pay the employee is 444
```

Problem 2

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 [3]:
```
try:
    rateperhour=12
    empworkedhour=eval(input("Enter the worked hour: "))
    firmpaytoemployee=rateperhour*empworkedhour
    print("The firm should be pay the employee is",firmpaytoemployee)
except Exception as e:
    print("Error:: ",e)
```

```
Enter the worked hour: 40
The firm should be pay the employee is 480
```

Problem-3

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 [2]:
```
try:
    quiz1=round((eval(input("Enter the Quiz 1 mark out of 20: "))*10)/100)
    quiz2=round((eval(input("Enter the Quiz 2 mark out of 20: "))*10)/100)
    classtest=round((eval(input("Enter the Class test mark out of 50: "))*25)/
    Assignment=round((eval(input("Enter the Assignment mark out of 100: "))*25
    project=round((eval(input("Enter the Project mark out of 200: "))*30)/100)
    overallmark=quiz1+quiz2+classtest+Assignment+project
    print("The overall marks:",overallmark)
except Exception as e:
    print("Error:: ",e)
```

```
Enter the Quiz 1 mark out of 20: 15
Enter the Quiz 2 mark out of 20: 20
Enter the Class test mark out of 50: 45
Enter the Assignment mark out of 100: 90
Enter the Project mark out of 200: 180
The overall marks: 91
```

Problem-4

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

In [7]:
```
try:
    fivedigitnumber=eval(input("Enter the five digit number: "))
    num1=fivedigitnumber%10
    num2=(fivedigitnumber//10)%10
    num3=(fivedigitnumber//100)%10
    num4=(fivedigitnumber//1000)%10
    num5=(fivedigitnumber//10000)%10
    total=num1+num2+num3+num4+num5
    print("The sum of {} digit is: {}".format(fivedigitnumber,total))
except Exception as e:
    print("Error:: ",e)
```

```
Enter the five digit number: 87654
The sum of 87654 digit is: 30
```

Problem-5

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 [9]:
```
try:
    fivedigitnumber=eval(input("Enter the five digit number: "))
    num1=(fivedigitnumber%10)+1
    num2=((fivedigitnumber//10)%10)+1
    num3=((fivedigitnumber//100)%10)+1
    num4=((fivedigitnumber//1000)%10)+1
    num5=((fivedigitnumber//10000)%10)+1
    print("The {} number is converted to {}{}{}{}{}".format(fivedigitnumber,nur
except Exception as e:
    print("Error:: ",e)
```

```
Enter the five digit number: 76434
The 76434 number is converted to 87545
```

Problem-6: (Use conditional statements) Recall the problem:

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). 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 [10]:
```
try:
    quiz1=round((eval(input("Enter the Quiz 1 mark out of 20: "))*10)/100)
    quiz2=round((eval(input("Enter the Quiz 2 mark out of 20: "))*10)/100)
    classtest=round((eval(input("Enter the Class test mark out of 50: "))*25)/1
    Assignment=round((eval(input("Enter the Assignment mark out of 100: "))*25)
    project=round((eval(input("Enter the Project mark out of 200: "))*30)/100)
    overallmark=quiz1+quiz2+classtest+Assignment+project
    print("The overall marks:",overallmark)
    if overallmark>=60:
        print("The student get the grade is : First Class")
    elif overallmark>=40:
        print("The student get the grade is : Second Class")
    elif overallmark<40:
        print("The student get the grade is : Fail")
except Exception as e:
    print("Error:: ",e)
```

```
Enter the Quiz 1 mark out of 20: 20
Enter the Quiz 2 mark out of 20: 18
Enter the Class test mark out of 50: 40
Enter the Assignment mark out of 100: 90
Enter the Project mark out of 200: 180
The overall marks: 90
The student get the grade is : First Class
```

Problem-7: (Use conditional statements) Recall the problem:

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

In [11]:
```
try:
    rateperhour=eval(input("Enter the Rate per hour: "))
    empworkedhour=eval(input("Enter the worked hour: "))
    firmpaytoemployee=rateperhour*empworkedhour
    print("The firm should be pay the employee is",firmpaytoemployee)
except Exception as e:
    print("Error:: ",e)
```

```
Enter the Rate per hour: 12
Enter the worked hour: 37
The firm should be pay the employee is 444
```

Problem-8 - try & except

Rewrite the pay program (refer problem 2) using try and expect so that the program handles non□numeric input gracefully by printing a message and exiting the program. The following shows two executions of the program:

- Enter hours: 20
- Enter rate: nine
- Error, please enter numeric input

In [12]:
```
try:
    empworkedhour=eval(input("Enter the worked hour: "))
    rateperhour=eval(input("Enter the Rate per hour: "))
    firmpaytoemployee=rateperhour*empworkedhour
    print("The firm should be pay the employee is",firmpaytoemployee)
except Exception as e:
    print("Error:: please enter numeric input.")
```

```
Enter the worked hour: 20
Enter the Rate per hour: nine
Error:: please enter numeric input.
```

Problem-9(Use conditional statements)

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]:
```
try:
    centimeter=eval(input("Enter the length in centimeters: "))
    if centimeter<=0:
        print("Please enter the valid centimeter")
    else:
        inch=centimeter*2.54
        print("The {} centimeter is converted in to inch is :{}".format(centime
except Exception as e:
    print("Error:: ",e)
```

```
Enter the length in centimeters: 45
The 45 centimeter is converted in to inch is :114.3
```

Problem-10(Use conditional statements)

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 [14]:
```
try:
    temperature=eval(input("Enter the temperature: "))
    print("Choose the below option for what unit entered")
    print("The enter unit is Celsius then enter option    :1")
    print("The enter unit is Fahrenheit then enter option :2")
    units=eval(input("Enter the unit option: "))
    if units==1:
        f=(temperature*9/5)+32
        print("The {} temperature is converted into fahrenheit is :{}".format(t
    elif units==2:
        c=(temperature-32)*5/9
        print("The {} temperature is converted into celsius is :{}".format(temp
except Exception as e:
    print("Error:: ",e)
```

```
Enter the temperature: 30
Choose the below option for what unit entered
The enter unit is Celsius then enter option    :1
The enter unit is Fahrenheit then enter option :2
Enter the unit option: 1
The 30 temperature is converted into fahrenheit is :86.0
```

Problem-11(Use conditional statements)

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 below freezing.
- If it is 0, print that the temperature is at the freezing point.
- If it is between 0 and 100, print that the temperature is in the normal range.
- If it is 100, print that the temperature is at the boiling point.
- If it is above 100, print that the temperature is above the boiling point.

In [15]:
```
try:
    celsius=eval(input("Enter a temperature in celsius:"))
    if celsius<-273.15:
        print("The temperature is invalid because it is below absolute zero")
    elif celsius==-273.15:
        print("The temperature is absolute 0.")
    elif celsius>-273.15 and celsius<0:
        print("The temperature is below freezing.")
    elif celsius==0:
        print("The temperature is at the freezing point.")
    elif celsius>0 and celsius<100:
        print("The temperature is in the normal range.")
    elif celsius==100:
        print("The temperature is at the boiling point. ")
    elif celsius>100:
        print("The temperature is above the boiling point.")
except Exception as e:
    print("Error:: ",e)
```

```
Enter a temperature in celsius:99
The temperature is in the normal range.
```

Problem-12(Use conditional statements)

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 [3]:
```
try:
    credits=eval(input("Enter your credits value: "))
    if credits<=23:
        print("Freshman")
    elif credits<=53:
        print("Sophomore")
    elif credits<=83:
        print("Juniors")
    else:
        print("Seniors")
except Exception as e:
    print("Error:: ",e)
```

```
Enter your credits value: 30
Sophomore
```

Problem-13(Use conditional statements)

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 [4]:
```
import random
try:
    randomnumber=random.randint(1,10)
    number=eval(input("Enter the number between 1 to 10: "))
    if number==randomnumber:
        print("Your are right")
    else:
        print("Your are not right")
except Exception as e:
    print("Error:: ",e)
```

```
Enter the number between 1 to 10:8
Your are not right
```

Problem-14(Use conditional statements)

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 dollar per item. If you buy 100 or more items, the cost is 7 dollar per item. Write a program that asks the user how many items they are buying and prints the total cost.

In [7]:
```
try:
    item=eval(input("Enter the number of item you buyed: "))
    cost=0
    if item<10:
        cost=item*12
    elif item<=99:
        cost=item*10
    else:
        cost=item*7
    print("The {} item cost is {}".format(item,cost))
except Exception as e:
    print("Error:: ",e)
```

```
Enter the number of item you buyed: 100
The 100 item cost is 700
```

Problem-15(Use conditional statements)

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 [8]:
```
try:
    num1=eval(input("Enter the first number: "))
    num2=eval(input("Enter the second number: "))
    difference=round(num2-num1,3)
    if difference==0.001:
        print("you entered number is close to 0.001 of each other")
    else:
        print("you entered number is not close to 0.001 of each other")
except Exception as e:
    print("Error:: ",e)
```

```
Enter the first number: 9.999
Enter the second number: 10
you entered number is close to 0.001 of each other
```

Problem-16(Use conditional statements)

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 [10]:
```
try:
    year=eval(input("Enter the year to find leap year or not: "))
    if year%4==0 and year%100!=0 or year%400==0:
        print("The {} is leap year".format(year))
    else:
        print("The {} is not leap year".format(year))
except Exception as e:
    print("Error:: ",e)
```

```
Enter the year to find leap year or not: 2023
The 2023 is not leap year
```

Problem-17(Use conditional statements)

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 [11]:
```
try:
    number=eval(input("Enter the number: "))
    for i in range(number):
        if (number%(i+1))==0:
            print("The number {} is divisor by {}".format(number,i+1))
except Exception as e:
    print("Error:: ",e)
```

```
Enter the number: 10
The number 10 is divisor by 1
The number 10 is divisor by 2
The number 10 is divisor by 5
The number 10 is divisor by 10
```

Problem-18(Use conditional statements)

Write a program that asks the user for an hour between 1 and 12, asks them to enter am or pm, and asks 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.

```
- Enter hour: 8
- am (1) or pm (2)? 1
- How many hours ahead? 5
- New hour: 1 pm
```

In [17]:
```
try:
    hour=eval(input("Enter the hours between 1 and 12 : "))
    mode=eval(input("choose 1 for AM 2 for PM         : "))
    togohour=eval(input("Enter the hours for future       : "))
    totalhour=hour+togohour
    newhour=totalhour%12
    if newhour==0:
        newhour=12
    if totalhour>=12 and mode==1:
        print("New hour is                       : {} PM".format(newhour))
    else:
        print("New hour is                       : {} AM".format(newhour))
except Exception as e:
    print("Error:: ",e)
```

```
Enter the hours between 1 and 12 : 8
choose 1 for AM 2 for PM         : 1
Enter the hours for future       : 4
New hour is                      : 12 PM
```

In [ ]:
```

```