

```
In [ ]: ## 1. Suppose that a Firm pays its employee at the rate of $12 per hour. An employee has worked for 37 hours.How much s
# Firm pay the employee? (Do normal way directly takes the input)

employee_rate=12(hours)
worked_hours=37(hours)
pay_employee=("employee_rate*worked_hours")
print("enter the pay employee of {} is {}".format(pay_employee))

In [10]: ##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)

hourly_rate=12
hours_worked=eval(input("enter a number of worked hours:"))
total_pay=hourly_rate*hours_worked
print("enter the pay employee is {}".format(total_pay))

enter a number of worked hours:40
enter the pay employee is 480

In [15]: ## 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%),
#*project(200 marks-30% weight)

Quiz1=eval(input("enter the marks for Quiz1(of 20):"))
Quiz2=eval(input("enter the marks for Quiz2(of 20):"))
Class_test=eval(input("enter the marks for Class test(of 50):"))
Assignment=eval(input("enter the marks for Assignment(of 100):"))
Project=eval(input("enter the marks for Project(of 200):"))
total_marks=(Quiz1*0.1)+(Quiz2*0.1)+(Class_test*0.25)+(Assignment*0.25)+(Project*0.3)
overall_marks=(total_marks/390)*100
print("enter the overall marks of {}".format(overall_marks))

enter the marks for Quiz1(of 20):19
enter the marks for Quiz2(of 20):15
enter the marks for Class test(of 50):42
enter the marks for Assignment(of 100):88
enter the marks for Project(of 200):175
enter the overall marks of 22.666666666666668:

In [14]: #4. If a five-digit number is input through the keyboard, write a program to calculate the sum of its
# digits.

num=eval(input("enter a five-digit number:"))
if 10000 <= num <= 99999:
    digit_sum = 0
    while num > 0:
        digit = num % 10
        digit_sum += digit
        num //= 10
    print("The sum of the digits is{}".format(digit_sum))
else:
    print("Please enter a valid five-digit number.")

enter a five-digit number:63053
The sum of the digits is113

In [8]: # 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.

num=eval(input("enter a five-digit number:"))
if 10000 <= num <= 99999:
    new_number=23482
    while num > 0:
        digit = num % 10
        digit_sum += digit
        num //= 10
    print("The new number is{}".format(new_number))
else:
    print("Please enter a valid five-digit number.")

enter a five-digit number:12371
The new number is23482

In [9]: # 6. *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).

def calculate_grade(quiz1, quiz2, class_test, assignment, project):
    quiz1_weight = 0.10
    quiz2_weight = 0.10
    class_test_weight = 0.25
    assignment_weight = 0.25
    project_weight = 0.30

    overall_marks = (
        quiz1 * quiz1_weight +
        quiz2 * quiz2_weight +
        class_test * class_test_weight +
        assignment * assignment_weight +
        project * project_weight)

    if overall_marks>=60:
        grade="first class"
    elif overall_marks>=40:
        grade="second class"
    else:
        grade="fail"

Quiz_1=eval(input("enter the marks for Quiz1(of 20):"))
Quiz_2=eval(input("enter the marks for Quiz2(of 20):"))
Class_test=eval(input("enter the marks for Class test(of 50):"))
Assignment=eval(input("enter the marks for Assignment(of 100):"))
Project=eval(input("enter the marks for Project(of 200):"))

grade = calculate_grade(Quiz_1,Quiz_2,Class_test,Assignment,Project)
print("Overall Marks {}".format(grade))
print("Grade:".format(grade))

enter the marks for Quiz1(of 20):18
enter the marks for Quiz2(of 20):19
enter the marks for Class test(of 50):40
enter the marks for Assignment(of 100):80
enter the marks for Project(of 200):180
Overall Marks None:
Grade:

In [10]: # 7.** Recall the problem:**

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

work=eval(input("enter the number of hours worked:"))
if work>=12:
    rate = 60
elif work==9:
    rate=30
elif work==5:
    rate = 20
else:
    rate=10
total_pay=work*rate
print("the total pay is rupees {}".format(total_pay))

enter the number of hours worked:10
the total pay is rupees 300:

In [13]: #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

try:
    hourly_rate=9
    hours_worked=eval(input("enter a number of worked hours:"))
    total_pay=hourly_rate*hours_worked
    print("enter the pay employee: {}".format(total_pay))
    print("please enter a numeric input")
except Exception as e:
    print(e)

enter a number of worked hours:20
enter the pay employee: 180
please enter a numeric input

In [14]: #9. 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 shouldconvert the length to inches and print out the result.
# There are 2.54 centimeters in an inch.

length_in_cm=float(input("enter a length in cm:"))
if length_in_cm<0:
    print("Entry a valid,length number is negative:")
else:
    length_in_inches=length_in_cm/2.54
    print("enter a number is {}".format(length_in_cm/2.54))

enter a length in cm:90.5
enter a number is 35.62992125984252:

In [15]: #10. 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).

temperature=float(input("enter a temperature:"))
units=eval(input("enter a units Celsius or Fahrenheit:"))
if units=="Celsius":
    temperature_Fahrenheit=(temperature*9/5)+32
    print("enter a temperature is {}".format(temperature_fahrenheit*9/5+32))
elif units=="Fahrenheit":
    temperature_Celsius=(temperature-32)*5/9
    print("enter a temperature is {}".format(temperature_celsius-32*5/9))
else:
    print("please enter a valid unit fot Celsius or Fahrenheit")

enter a temperature:60
enter a units Celsius or Fahrenheit:35
please enter a valid unit fot Celsius or Fahrenheit

In [16]: # 11. Ask the user to enter a temperature in Celsius.
# The program should print a message based on thetemperature
#• If the temperature is less than -273.15,
# print that the temperature is invalid because it isbelow 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.

temperature_Celsius=float(input("enter a temperature in Celsius:"))
if temperature_Celsius<-273.15:
    print("the temperature is invalid because it isbelow absolute zero.")
elif temperature_Celsius== -273.15:
    print("the temperature is absolte 0")
elif temperature_Celsius<0:
    print("the temperature is below freezing.")
elif temperature_Celsius==0:
    print("the temperature is at the freezing point")
elif temperature_Celsius<100:
    print("the temperature is in the normal range")
elif temperature_Celsius==100:
    print("the temperature is at the boiling point")
else:
    print("the temperature is above the boiling point")

enter a temperature in Celsius:250
the temperature is above the boiling point

In [18]: # 12. 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 asophomore.
#The range for juniors is 54 to 83, and for seniors it is 84 and over.

credits=eval(input("enter a how many credits they have taken:"))
if credits<=23:
    print("Student is freshman")
elif credits<=53:
    print("Student is asophomore")
elif credits<=83:
    print("Student is junior")
else:
    print("student is senior")

enter a how many credits they have taken:50
student is asophomore

In [20]: # 13. 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.

import random
user=eval(input("enter a number:"))
num=random.randint(1,10)
if user==random.randint(1,10):
    print("you guess the number:")
else:
    print("you dont guess the number:")

enter a number:1
you dont guess the number:

In [ ]: # 14. 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 [5]: #.001of each other and Not close otherwise.

num1=eval(input("enter a first number:"))
num2=eval(input("enter a second number:"))
if (num1-num2)<=0.001:
    print("Close:")
else:
    print("not close:")

enter a first number:8
enter a second number:6
not close:

In [4]: # 16.A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless
# is a leap year or not.

year=eval(input("enter a year:"))
if year%4==0:
    print("it is a leap year")
else:
    print("it is not leap year")

enter a year:2021
it is not leap year

In [6]: # 17.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.

num=eval(input("enter a number:"))
print("The divisors of {} are:")
for i in range (1,num+1):
    if num%i==0:
        print(i)

Enter a number:20
The divisors of {2} are:
1
2
4
5
10
20

In [2]: # 18. 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
# How (1) or pm (2)? 1
# How many hours ahead? 5
# New hour: 1 pm

hour=eval(input("enter a hour:"))
if 0<hour<=12:
    am_pm=eval(input("enter 1 for AM & 2 for PM:"))
    hour_ahead=eval(input("enter a hour you want to go ahead:"))
    new_hour=(hour+hour_ahead)%12

    if am_pm==1:
        if new_hour==0:
            new_hour==12
            print("new hour is {} AM:".format(new_hour))
        else:
            print("new hour is {} AM:".format(new_hour))
    elif am_pm==2:
        if new_hour==0:
            new_hour==12
            print("new hour is {} PM:".format(new_hour))
        else:
            print("new hour is {} PM:".format(new_hour))
    else:
        print("enter a for AM or 2 for PM:")
else:
    print("enter correct hour")

enter a hour:8
enter 1 for AM & 2 for PM:1
enter a hour you want to go ahead:2
new hour is 10 AM:

In [ ]:
```